World Leadership And International Education

An Address by Hubert H. Humphrey,
Vice President of the United States

Institute of International Education
December 6, 1966
New York Hilton Hotel, New York, N.Y.

On the evening of Dec. 6, 1966 the Institute of International Education was privileged to present the Vice President of the United States, the Honorable Hubert Humphrey, as the main speaker at a dinner attended by 600 leaders of the academic, business and civic community. The Vice President was introduced by Lawrence A. Wien, an IIE trustee and dinner chairman. Welcoming remarks were made by Kenneth Holland, IIE president.

On behalf of an evening with Aristotle.

One of the things I've become accustomed to reading lately is that scholars and politicians should get together more—something on the order of Aristotle and young Alexander the Great meeting for tutorial.

I think it is a good idea for those of my political colleagues who feel they need the help. And it isn't even a bad idea for some of my former academic colleagues who might profit by knowing Alexander's problems. Being a Renaissance man myself—an ex-professor and a present politician—I tend to favor an evening with Aristotle.

The Institute of International Education is a place where intellect and power *have* been brought together—and long before Franklin Roosevelt's "brains trust" or the era of the Washington in-and-outer.

The Institute of International Education has been in existence now almost half a century. From its initiatives have flowed the Fulbright Act, the Smith-Mundt Act, the International Cultural Exchange Act, the International Education Act, and the range of highly important programs which form the base of our efforts in international education today. And these programs came none too soon. But without the work of the Institute of International Education, they might not have come at all.

In the past two decades, we have seen science and technology shrink our neighborhood so that today the moral unity and interdependence of man (which for centuries has been the basis of Western civilization)—has now become a physical fact of our lives. Isolationism has been replaced by a global consciousness. Yet we are today only at the primitive

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stages of the scientific and technological development which will shrink our human neighborhood still further.

The prospect of a supersonic transport plane—a few years ago a matter of "if"—is today only a matter of "who first?" I doubt that we have full grasp of what the SST will mean in terms of increased exchange of people and goods. And the communications satellites—Buck Rogers items through most of our lifetimes—will soon be bringing mass communication, in the real sense, to our planet. They bear with them, too, the implications of the creation of a one-world classroom.

The sky is no longer the limit!

In such an age, our position of world leadership demands that we go far beyond our present efforts in international education. The International Education Act will make a real difference in helping improve the faculties, facilities, and libraries of our colleges and universities. Its impact will be felt at both the undergraduate and graduate levels. The new Center for Educational Cooperation will serve as a government manpower resources headquarters in the entire field. These things give us a framework upon which we can build.

Next year, the President will convene a White House Conference on International Education. Its purpose will be to look beyond the programs now under way, or even contemplated—in fact, to take international education into Century 21. Planning meetings for the conference will begin in the next few weeks, under the chairmanship of Secretary Gardner and Dr. James Perkins of Cornell. But we all should remember that the determination of the government to do its part to strengthen international education in no way diminishes the need for continued leadership in this field by private institutions of all kinds—foundations, universities, colleges, churches, and others.

The role of the government in this field must always be to supplement, never to supplant, the efforts of private groups and individuals. The bold experiments, the expanded programs that should come from private institutions like the Institute of International Education, can be carried out only with the continued support of American private benefactors. So take the initiative. Do your job. Lead.

Indeed, one of the urgent tasks of our American democracy is to find new ways and means to mobilize and allocate both public and private resources to the priorities of our time without either destroying private initiative or unduly enhancing public power.

Tonight I would like to address myself to the next decade—to the world of the 1970's. I would like to take advantage of the presence of so many illustrious figures from the world of education and finance, foundations and business, the communications media and the arts—to raise certain questions which you and your children must answer. And it is appropriate that these questions be put to you.

An urgent task of American democracy is to find new ways to mobilize and allocate public and private resources to the priorities of our time.

Governments—and government officials—must deal with immediate problems. This often clouds their perception of the future. But you are less inhibited by these restraints and better situated to anticipate what is coming as well as to respond to what is here.

In speculating on the world of the 1970's (and what I suggest here tonight can only be considered as speculation by an

amateur), I would like to raise several questions about the consequences of what has been called "the second Industrial Revolution."

The first Industrial Revolution was characterized by the invention of powerful machines which multiply man's capacity for physical work. The second Industrial Revolution—which is coming upon us long before the problems of the first have been solved—is characterized by the invention of new electronic machines which are destined to multiply the capacity of the human mind.

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One important consequence of the second Industrial Revolution involves the technological gap which today separates the world's most developed country, the United States, from the other developed areas of the world—yes, even Europe. This unique gap exists in large part because the second Industrial Revolution has developed in the United States far more than in any other area. It results, in part, from the differing levels of technological progress and organizational efficiency, which are also affected by the factor of optimum size. These can lead to the creation of differences between two developed areas—developed in the sense of the first Industrial Revolution—just as there are differences which now exist between the so-called developed areas of the Northern Hemisphere and the developing or underdeveloped nations of the South.

Scientific and technical progress is continuing at an accelerated rate—with no prospect of reaching a saturation point. Discoveries are based on previous knowledge and, in turn, generate progress in other fields. Progress becomes self-propelling.

Only four areas of the world—the United States, Western Europe, Japan and the Soviet Union—have the educational and research resources and other elements of a technological base to deal with the current pace of scientific discoveries. But none of the four has the resources today to deal effectively with the entire spectrum of these discoveries, although the United States comes closest to it.

The extent to which this scientific and technological progress takes place depends greatly on the rate of investment in research and development. Recent Common Market estimates show the total of scientists and research workers in the United States to be four times greater than in all the countries of the EEC, and three-and-a-half times greater than in the Soviet Union. According to the same estimates, research expenditures in the United States are seven times greater than in the Common Market and three-and-a-half times those of the Soviet Union. And U.S. per capita investment is six times as much as in the Common Market and four times that of the Soviet Union.

Beyond the statistics, however, we are told by European entrepeneurs that this disparity in scientific research capacity is widened by the difference in organizational capacity between the United States and Europe. Aurelio Peccei of Olivetti, for one, believes that only the United States possesses the highly developed modern organization required to profit appreciably from the technological discoveries of today.

Organization is the decisive factor in exploiting the potential capacity of highly refined machines.

This is especially important in the new and complex field of electronic data processing, where organization is the decisive factor in exploiting the potential capacity of highly refined

machines. To translate the amazing potential of computers into concrete benefits for society requires an accumulation of skills which few nations have. It requires, as Mr. Peccei points out, "evolved user techniques, knowledge of machine languages, advanced methodology, rich program libraries, access to the cross-fertilizing experiences of a vast network of users, plus a competent array of mathematicians, analysts, and programmers."

What is relevant here is that the material advantages which exist in an advanced society such as the United States or Western Europe are multiplied by the organizational structure and capacity of the country or region.

Western European countries today have neither the size required for such efficient organization nor adequate basic infrastructure, such as fully sufficient communication linkage essential to transmission of electronic data. The end of the present fragmentation of Europe is considered a necessity.

But fortunately, on both sides of the Atlantic we are beginning to face up to this problem. We have already taken steps to remove barriers to the flow of scientific and technical information and instruments to and from our country.

If Europe were to pool her technology, I have no doubt that the technological gap would, in the next decade, begin to close.

As a United States Senator, I proposed that NATO, in meeting the new challenges facing the Alliance, should take concrete steps toward narrowing the technological gap. Proposals for such cooperative actions are now formally before the NATO ministers. The OECD ministers have recently authorized an analytical study of the gap.

One promising proposal has been Prime Minister Wilson's for a European Technological Community. If Europe—

Ambassador Eugenie Anderson, U.S. Representative on the UN Trusteeship Council; IIE President Kenneth Holland, and the Vice President.

Vice President and Mrs. Humphrey greet Rep. John Brademas of Indiana, Congressional sponsor of the International Education Act of 1966. He received IIE's distinguished service award.

Distinguished dais guests.

Adama Balima, IIE-sponsored New York University student from Upper Volta; Henry Hyatt (wearing glasses) of the UN Secretariat; Guillermo Betancour, IIE-sponsored Venezuelan NYU student; David L. Guyer, IIE Vice President for Development and Public Affairs and Vice President Humphrey.

Vice President Humphrey with Lawrence A. Wien, IIE Trustee and chairman of the dinner.

The Vice President and Miss Jane Marsh, IIE-sponsored soprano who won first prize in the 1966 Tchaikowsky International Music Competition in Moscow. She sang at the dinner.

Vice President Humphrey with Mrs. Maurice T. Moore, IIE Trustee.

H. E. Sr. Carlos Mackehenie, Ambassador Extraordinary and Plenipotentiary, Peruvian Mission to the United Nations, with Vice President and Mrs. Humphrey.

which has already seen the benefits of a European Economic Community, a Coal and Steel Community, and an Atomic Energy Community—were to pool her technology in a similar way, I have no doubt that the gap would, in the next decade, begin to close.

The fundamental question which I would like to leave with you is: What are the implications of this second Industrial Revolution for the international relations of the 1970's—especially the late 1970's?

I do not know the answer. But already, serious men are concerned that it could result, not in greater unity, not in the cementing of a long-cherished Atlantic partnership, but in estrangement between Europe and the United States.

Yes, it could release forces which would widen the gap between the United States and the Soviet Union and Eastern Europe at a time when the ideological and military competition between them might be diminishing.

If these are legitimate concerns, should not men of vision and foresight seek to plan for these eventualities, and by decisive action influence their development? We must guide the technological revolution so that it can enhance our unity rather than cause alienation and division. This means that some way must be found to insure a continuous exchange of technological and organizational experience between Europe and the United States—which will achieve an equilibrium that can be maintained and possibly, some day, be expanded to include Eastern Europe and the Soviet Union.

If this seems fanciful, I would repeat that I am discussing the next decade, which ends in 1980, not the present.

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Some way must be found to ensure a continuous exchange of technological and organizational experience between Europe and the United States.

Reflecting on the problems which this second Industrial Revolution will bring to our own country in the next decade, a young American pioneer in the second Industrial Revolution, Mr. John Diebold, has proposed the creation of "an institute for the continued assessment of the human consequences of technological change."

Perhaps what is needed in the international field is some equivalent forum which would bring together, under non-governmental auspices, men of wisdom and experience from the universities and foundations, science and industry, politics and the professions—who could systematically assess the implications of this second Industrial Revolution for the world of the 1970's. Their recommendations would invariably become an important guide to governmental decision-making.

Yes, we must have a global policy which fits the new realities of a new era. With such a policy, we shall be better prepared not only to deal with the relations between the technologically advanced areas of the world, the problems of survival and peace which affect all countries, but also with those areas where the first Industrial Revolution is still taking hold. I refer to the problems of hunger and overpopulation, education and social justice, and distribution of wealth. We shall be better prepared to strengthen and enlarge the area of prosperity in the world.

Without the vision of the poet and the philosopher, the humanist and the historian, the technological revolution in the next decade can bring the faceless man of an Orwellian world.

In the next decade—even more than the present—the relationship between foreign affairs and education will be important. The scholar and the businessman, the foundation and the university will play a significant role in accelerating the technological revolution and assisting mankind to deal with its

consequences. But the closeness of their relationship, in this decade or the next, in no way implies that the university and the scholar and the scientists should cease to pursue their own ends independently. Chief among these is the pursuit and dissemination of truth. Government at home or abroad should not deflect them from pursuing this end.

But in the next decade—as in this one—scientific and technological education will not be enough to sustain the spirit of civilization or the functioning of a democratic society. The vision of the poet and the philosopher, the humanist and the historian are needed to stimulate what Shakespeare called the "better angels of our nature." Without these to guide us, the technological revolution in the next decade can bring the faceless man of an Orwellian world, men whose sole distinction lies in their similarity to one another.

The growing interdependence of mankind caused by the technological revolution can lead to a world civilization in which both persons and nations find their individuality enhanced.

The vision we need as we face the 1970's is that of a great man who died in this city a decade ago—Pierre Teilhard de Chardin. For him, the marvels of modern science and technology provided man with a new opportunity to build a truly human world. Through his vision we can come to understand that the growing interdependence of mankind caused by the technological revolution can lead to a world civilization in which both persons and nations find their individuality enhanced, find their mutual dependence and mutual fate a condition to be welcomed, rather than a threat to be feared.

If the men of talent and vision seize the opportunity to plan now for the world of the 1970's, your children and mine at the turn of the next decade can look forward with hope and confidence to 1984.

DINNER COMMITTEE

Andrew W. Cordier
Andrew Heiskell
Kenneth Holland
Devereux C. Josephs
Mrs. Maurice T. Moore
Mrs. Ronald Tree
Juan T. Trippe
Lawrence A. Wien

O. Meredith Wilson

DAIS GUESTS

Hon. Eugenie Anderson
Mr. Robert S. Benjamin
Dr. Albert H. Bowker
Hon. John Brademas
Mr. Douglass Cater
Dr. Rufus E. Clement
Dr. Andrew W. Cordier
Hon. Douglas Dillon
Mr. Stephen P. Duggan, Jr.
Hon. William C. Foster
Dr. Samuel B. Gould
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Hon. Burudi Nabwera
Hon. Richard F. Pedersen
Mr. Alan Pifer
Dr. Jean Roche
Dr. Julius A. Stratton
Hon. Sigismund von Braun
Mr. Lawrence A. Wien
Dr. O. Meredith Wilson
Dr. Stephen J. Wright

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Dec. 6

FOR RELEASE: WEDNESDAY AM's
December 7, 1966

REMARKS OF VICE PRESIDENT HUBERT HUMPHREY
NEW YORK HILTON, NEW YORK CITY
INSTITUTE FOR INTERNATIONAL EDUCATION
DECEMBER 6, 1966

One of the things I've become accustomed to reading lately is that scholars and politicians should get together more -- something on the order of Aristotle and young Alexander the Great meeting for tutorial.

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From its initiatives have flowed the Fulbright Act, the Smith-Mundt Act, the International Education Act and the range of highly-important programs which form the base of our efforts in international education today.

I believe these programs came none too soon. Without the work of the Institute for International Education, they might not have come at all.

In the past two decades we have seen science and technology shrink our neighborhood so that today the moral unity and interdependence of man -- which for centuries has been the basis of Western civilization -- has now become a physical fact of our lives.

Isolationism has been replaced by a global consciousness.

Yet we are today only at the primitive stages of the scientific and technological development which will shrink our human neighborhood still further.

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Next year the President will convene a White House Conference on International Education. Its purpose will be to look beyond the programs presently underway, or even contemplated -- in fact, to take international education into century 21.

Planning meetings for the conference will begin in the next few weeks, under the chairmanship of Secretary Gardner and Dr. James Perkins of Cornell.

In what we do, in this conference and beyond, I believe we must develop a new balance between the efforts of our government and the private sectors of our society.

I believe we must work out a new partnership which will make the best use of the resources at hand -- whether they be in government, in the university or foundation, the private corporation or labor union -- while maintaining the integrity and independence of each institution.

Indeed, I believe one of the urgent tasks of our American democracy is to find new ways and means to allocate both public and private resources to the priorities of our time without either destroying private initiative or unduly enhancing public power. We need to find ways and means which will enable us to mount programs on a scale big enough to overcome our problems -- yet which will not upset the healthy balances worth preserving in our society.

And this is true not only on a national, but on a world scale.

The entire field of international education is one in which we must develop together such new approaches. For effective and growing programs of international education will be imperative if we are to harness man's energies to peaceful change and social progress, rather than to mindless conflict.

And, with that thought, I would like to move on to a related matter which increasingly concerns us all.

What I would like to do is indulge in some speculation concerning a problem that will loom larger in the decade of the 1970's and needs attention now.

Some eleven years ago my good friend Adlai Stevenson expressed a thought, in an article in Fortune magazine, that many of us carried in our minds at that time.

"Technology," he wrote, "while adding daily to our physical ease, throws daily another loop of fine wire around our souls."

In those days we often thought of technology in oversimplified terms of material goods versus spiritual values, or of speed and impersonality versus leisure and individuality.

Since that time, I for one, have found those fears to be largely groundless.

Now there are other questions -- many of them raised by what has come to be called "the second industrial revolution."

The first industrial revolution -- which has shaped our modern era up until now -- was characterized by the invention of powerful machines which multiply man's capacity for physical work.

The second industrial revolution -- which is coming upon us long before the problems of the first have been solved -- is characterized by the invention of new electronics machines which are destined to multiply the capacity of the human mind.

One important consequence of the second industrial revolution involves the technological gap which today separates the world's most - developed country - the United States - from the other developed areas of the world.

Of course there are some areas in which other nations have technological advantage, but in the main there <u>is</u> a gap.

This unique gap exists in large part because the second industrial revolution has developed in the United States far more than in any other area.

It results in part from the differing levels of technological progress and organizational efficiency, which are also affected by the factor of optimum size.

These can lead to the creation of a difference between two developed areas -- developed in the sense of the first industrial revolution -- as great as the well-known one which now exists between the so-called developed areas of the Northern hemisphere and the developing nations of the South.

Scientific and technical progress is continuing at an accelerated rate -- with no prospect of reaching a saturation point. Discoveries are based on previous knowledge and, in turn, generate progress in other fields. Progress becomes self-propelling.

Only four areas of the world - the United States, Western Europe, Japan and the Soviet Union - have the educational and research resources and other elements of a technological base to deal with the current pace of scientific discoveries. None of the four has the resources today to deal effectively with the entire spectrum of these discoveries -- although the United States comes closest to it.

The statistics in this area vary a great deal.

Recent Common Market estimates -- which place the gap in larger terms than some others I have seen -- show the total of scientists and research workers in the United States to be four times greater than in the countries of the EEC, and three and a half times greater than in the Soviet Union.

According to the same estimates, research expenditures in the United States are seven times greater than in the Common Market and three and a half times those of the Soviet Union. And U. S. per capita investment is six times as much as in the Common Market and four times that of the Soviet Union.

Other estimates place the various totals closer to each other.

Beyond the statistics, however, we are told by European entrepeneurs that this disparity in scientific research capacity is widened by the difference in <u>organizational</u> capacity between the United States and Europe.

Aurelio Peccei of Olivetti, for one, believes that only the United States possesses the highly developed modern organization required to profit appreciably from the technological discoveries of today.

This is especially important in the new and complex field of electronic data processing -- where organization is the decisive factor in exploiting the potential capacity of highly-refined machines.

To translate the amazing potential of computers into concrete benefits for society requires an accumulation of skills which few nations have. It requires, as Mr. Peccei points out, "evolved user techniques, knowledge of machine languages, advanced methodology, rich program libraries, access to the cross-fertilizing experiences of a vast network of users, plus a competent array of mathematicians, analysts and programmers."

Where a nation possesses both this pool of talent and the organizational capacity to use it, public and private needs can in the near future be met far more fully and rapidly than today.

What is relevant here is that the material advantages which exist in an advanced society such as the United States are multiplied by the organizational structure and capacity of the country.

Western European countries today have neither the continental size required for such efficient organization nor adequate basic infrastructure -- such as fully sufficient communication linkage essential to transmission of electronic data.

Fortunately, on both sides of the Atlantic we are beginning to face up to this problem.

Here an inter-departmental task force has been set to the work, under the chairmanship of Dr. Donald Hornig, the President's Special Assistant for Science and Technology.

Its assignment is to study all aspects of the question and to determine how the United States might help overcome the disparities that exist or may develop.

We haveaalready taken steps to remove barriers to the flow of scientific and technical information and instruments to and from our country.

As a United States Senator I proposed that NATO -- in meeting the new challenges facing the Alliance -- should properly take concrete steps toward narrowing the technological gap. Proposals for such cooperative actions are now formally before the NATO ministers. The OECD ministers have recently authorized an analytical study of the gap.

I am hopeful that both NATO and the OECD will build on discussion and analysis toward real action programs.

I have been most encouraged by awareness of the gap among European nations, as shown by the numerous recent proposals and discussions.

I think one promising proposal has been Prime Minister Wilson's for a European Technological Community.

If Europe -- which has already seen the benefits of a European Economic Community, a Coal and Steel Community, and an Atomic Energy Community -- were to pool her technology in a similar way, I have no doubt that the gap would in the next decade begin to close.

The very fact of entry into the European Communities by Britain and her EFTA partners -- and eventually perhaps by others -- would help create an even larger European market and larger industry able to finance and sustain advanced technology, along with the necessary research and development.

Will the progress of this second industrial revolution in the next decade proceed at such a pace in the United States that the present technological gap which separates Europe from the United States will result in a psychological gap leading to their estrangement?

Will the innovation which is perhaps the most striking result of the second industrial revolution -- the new relation between man and the machine due to automation -- further widen the differences between European society and American society?

I should think not. But I believe we should acknowledge the possibility of these things and act to see that they do not happen.

I believe we should be deeply concerned, too, with the possible effects of technological gaps between ourselves and Japan, ourselves and the Soviet Union and the Eastern European states.

Most of us saw a report last week that the Soviet Union had demanded that other Communist states pay for advanced Soviet technology. This has many implications. Time does not permit adequate discussion of them here. But the net result could be either new opportunities for Western-Eastern European cooperation or new obstacles to future East-West reconciliation, depending on the responses of both Western and Eastern European nations.

What, then, are the foreign policy implications posed for the "super developed" United States and the "developed" nations, East and West, by the present technological gap?

I am not sure.

But I do know that we must find a way to insure better exchange of technological and organizational experience, without jeopardizing national security, lest unhealthy tensions and relationships develop which would in themselves pose a threat to peace.

There are conditions which are conducive to trouble. There are also conditions which are conducive to peace.

We have seen how the United Nations has helped to widen the conditions of peace through concerted efforts in such areas as trade, travel, communications and science.

What is called for now is a similar concerted, international effort to insure that the conditions of technology do not become conditions of trouble but, rather, conditions of peace.

We must develop a policy which will meet the challenge of nations striving to enter the second industrial revolution.

We must develop a policy which will meet, too, the challenge of nations still striving to enter the first.

As the world's strongest and most-advanced nation, it is our responsibility, beyond all others, to take the lead in extending technology's benefits to other places and peoples.

There will inevitably be those who warn and caution and counsel danger lest we in the United States lose some competitive advantage -- commercially or otherwise -- viv-a-vis the rest of the world.

I believe we must have the courage to move ahead despite them.

I believe that our almost breathtaking scientific and technological revolutions have provided man with a new opportunity to build a truly human world.

I believe that the growing interdependence of mankind, caused by these revolutions, can lead to a world community in which both persons and nations find their individuality enhanced . . .and find their mutual dependence and mutual fate a condition to be welcomed rather than a threat to be feared.

Fifty years ago Carl Sandburg wrote these lines describing the limit of man's technological achievement up to that time:

"I am riding on a limited express, one of the crack trains of the nation. Hurling across the prairie into blue haze and dark air go fifteen all-steel coaches holding a thousand people . . .I ask a man in the smoker where he is going and he answers: "Omaha."

Carl Sandburg still writes his poetry, but the "smoker" is in outer space.

Who is to say what we can or cannot do in the 50 years ahead?

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REMARKS

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Isolationism has been replaced by a global consciousness.

Yet we are today only at the primitive stages of the scientific and technological development which will shrink our human neighborhood still further.

The prospect of a supersonic transport plane -- a few years ago a matter of "if" -- is today only a matter of "who first?"

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Canberra 7 Hours
London 2 Hours
New Delhi 5 Hours

And then, Communications satellites -- Buck Rogers items through most of our lifetimes -- will soon be bringing mass communication, in the real sense, to our planet.

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The new Center for Educational Cooperation, under direction of Paul Miller, ~~in the Department of Health, Education and Welfare~~, will serve as a Government manpower resources headquarters in the entire field.

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BUT WE ALL SHOULD REMENBER THAT THE DETERMINATION OF THE GOVERNMENT TO DO ITS PART TO STRENGTHEN INTERNATIONAL EDUCATION IN NO WAY DIMINISHES THE NEED FOR CONTINUED LEADERSHIP IN THIS FIELD BY PRIVATE INSTITUTIONS OF ALL KINDS--FOUNDATIONS, UNIVERSITIES, COLLEGES, CHURCHES AND OTHERS. THE ROLE OF THE GOVERNMENT IN THIS FIELD MUST ALWAYS BE TO SUPPLEMENT--NEVER TO SUPPLANT-- THE EFFORTS OF PRIVATE GROUPS AND INDIVIDUALS, THE BOLD EXPERIMENTS, THE EXPANDED PROGRAMS THAT SHOULD COME FROM PRIVATE INSTITUTIONS--LIKE THE INSTITUTE FOR INTERNATIONAL EDUCATION --CAN BE CARRIED OUT ONLY WITH THE CONTINUED SUPPORT OF AMERICAN PRIVATE BENEFACTORS. So talk to Institutions — Do your job - Lead —

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Indeed, one of the urgent tasks of our American democracy is to find new ways and means to allocate both public and private resources to the priorities of our time without either destroying private initiative or unduly enhancing public power. We need to find ways and means which will enable us to mount programs on a scale big enough to overcome our problems -- yet which will not upset the healthy balances worth preserving in our society.

And this is true not only on a national, but on a world scale.

The entire field of international education is one in which we must develop together such new approaches. For effective and growing programs of international education will be imperative if we are to harness man's energies to peaceful change and social progress, rather than to mindless conflict.

Role of the Prophet without credentials

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TONIGHT I WOULD LIKE TO ADDRESS MYSELF TO THE NEXT DECADE-- TO THE WORLD OF THE 1970'S. I WOULD LIKE TO TAKE ADVANTAGE OF THE PRESENCE OF SO MANY ILLUSTRIOUS FIGURES FROM THE WORLD OF EDUCATION AND FINANCE, FOUNDATIONS AND BUSINESS, THE COMMUNICATIONS MEDIA AND THE ARTS-- TO RAISE CERTAIN QUESTIONS WHICH YOU AND YOUR CHILDREN MUST ANSWER. and, IT IS APPROPRIATE THAT THESE QUESTIONS BE PUT TO YOU. GOVERNMENTS-- AND GOVERNMENT OFFICIALS -- MUST DEAL WITH IMMEDIATE PROBLEMS. THIS OFTEN CLOUDS THEIR PERCEPTION OF THE FUTURE ~~AND STRENGTHENS THEIR NATURAL INCLINATION TO AVOID THINKING ABOUT IT~~ OR ~~PLANNING FOR IT~~.

BUT YOU ARE LESS INHIBITED BY THESE RESTRAINTS AND BETTER SITUATED TO ANTICIPATE WHAT IS COMING AS WELL AS TO RESPOND TO WHAT IS here.

IN SPECULATING ON THE WORLD OF THE 1970'S-- (and WHAT I SUGGEST HERE TONIGHT CAN ONLY BE CONSIDERED AS SPECULATION begin

I WOULD LIKE TO RAISE SEVERAL QUESTIONS ABOUT THE CONSEQUENCES OF WHAT HAS BEEN CALLED " THE SECOND INDUSTRIAL REVOLUTION".

cumulus -

Now there are other questions -- many of them raised by what has come to be called "the second industrial revolution."

The first industrial revolution -- ~~which has shaped our modern era up until now~~ -- was characterized by the invention of powerful machines which multiply man's capacity for physical work.

The second industrial revolution -- which is coming upon us long before the problems of the first have been solved -- is characterized by the invention of new electronics machines which are destined to multiply the capacity of the human mind.

One important consequence of the second industrial revolution involves the technological gap which today separates the world's most-developed country -- the United States -- from the other developed areas of the world.

Of course there are some areas in which other nations have technological advantage, but in the main there is a gap -- and a bigone.

This unique gap exists in large part because the second industrial revolution has developed in the United States far more than in any other area.

It results, in part, from the differing levels of technological progress and organizational efficiency, which are also affected by the factor of optimum size.

These can lead to the creation of a differences, between two developed areas -- developed in the sense of the first industrial revolution -- as great as the well-known differences which now exist between the so-called developed areas of the Northern hemisphere and the developing nations of the South.

tensions

Just as there are

underdeveloped

Scientific and technical progress is continuing at an accelerated rate -- with no prospect of reaching a saturation point. Discoveries are based on previous knowledge and, in turn, generate progress in other fields. Progress becomes self-propelling.

Only four areas of the world - the United States, Western Europe, Japan and the Soviet Union - have the educational and research resources and other elements of a technological base to deal with the current pace of scientific discoveries. But none of the four has the resources today to deal effectively with the entire spectrum of these discoveries -- although the United States comes closest to it.

The statistics in this area vary a great deal.

Recent Common Market estimates -- ~~which~~ place the gap in larger terms than some others I have ~~seen~~ -- show the total of scientists and research workers in the United States to be four times greater than in all the countries of the EEC, and three and a half times greater than in the Soviet Union.

According to the same estimates, research expenditures in the United States are seven times greater than in the Common Market and three and a half times those of the Soviet Union. And U.S. per capita investment is six times as much as in the Common Market and four times that of the Soviet Union.

THE EXTENT TO WHICH THIS SCIENTIFIC AND TECHNOLOGICAL PROGRESS TAKES PLACE, DEPENDS GREATLY ON RESEARCH AND DEVELOPMENT. ACCORDING TO RELIABLE ESTIMATES, THE UNITED STATES IN 1965 DEVOTED APPROXIMATELY 25 BILLION DOLLARS TO RESEARCH AND DEVELOPMENT, ROUGHLY 20 PER CENT OF THIS REPRESENTS EXPENDITURES BY THE FEDERAL GOVERNMENT. BY 1970 IT IS ANTICIPATED THAT THIS FIGURE WILL RISE TO OVER 30 BILLION DOLLARS PER YEAR.

Other estimates place the various totals closer to each other.

Beyond the statistics, however, we are told by European entrepeneurs that this disparity in scientific research capacity is widened by the difference in organizational capacity between the United States and Europe.

Aurelio Peccei of Olivetti, for one, believes that only the United States possesses the highly developed modern organization required to profit appreciably from the technological discoveries tof today.

This is especially important in the new and complex field of electronic data processing -- where organization is the decisive factor in exploiting the potential capacity of highly-refined machines.

To translate the amazing potential of computers into concrete benefits for society requires an accumulation of skills which few nations have. It requires, as Mr. Peccei

points out, "evolved user techniques, knowledge of machine languages, advanced methodology, rich program libraries, access to the cross-fertilizing experiences of a vast network of users, plus a competent array of mathematicians, analysts and programmers."

Where a nation possesses both this pool of talent and the organizational capacity to use it, public and private needs can in the near future be met far more fully and rapidly than today.

What is relevant here is that the material advantages which exist in an advanced society such as the United States, are multiplied by the organizational structure and capacity of the country.

Western European countries today have neither the continental size required for such efficient organization nor adequate basic infrastructure -- such as fully sufficient communication linkage essential to transmission of electronic data.

But Fortunately, on both sides of the Atlantic we are beginning to face up to this problem.

Here an inter-departmental task force has been set to the work, under the chairmanship of Dr. Donald Hornig, the President's Special Assistant for Science and Technology.

Its assignment is to study all aspects of the question and to determine how the United States might help overcome the disparities that exist or may develop.

We have already taken steps to remove barriers to the flow of scientific and technical information and instruments to and from our country.

As a United States Senator I proposed that NATO -- in meeting the new challenges facing the Alliance --- should ~~properly~~ take concrete steps toward narrowing the technological gap. Proposals for such cooperative actions are now formally before the NATO ministers. The OECD ministers have recently authorized an analytical

Science Attaches

study of the gap.

I am hopeful that both NATO and the OECD will build on discussion and analysis toward real action programs.

But, I have been most encouraged by awareness of the gap among European nations, as shown by the numerous recent proposals and discussions.

I think one promising proposal has been Prime Minister Wilson's for a European Technological Community.

If Europe -- which has already seen the benefits of a European Economic Community, a Coal and Steel Community, and an Atomic Energy Community -- were to pool her technology in a similar way, I have no doubt that the gap would in the next decade begin to close.

THE FUNDAMENTAL QUESTION WHICH I WOULD LIKE TO LEAVE WITH YOU IS WHAT ARE THE IMPLICATIONS OF THIS SECOND INDUSTRIAL REVOLUTION FOR THE INTERNATIONAL RELATIONS OF THE 1970'S -- ESPECIALLY THE LATE 1970'S? I DO NOT KNOW THE ANSWER, BUT ALREADY ~~SERIOUS~~ Serious MEN ARE CONCERNED THAT IT COULD RESULT -- NOT IN GREATER UNITY -- NOT IN THE CEMENTING OF A LONG-CHERISHED ATLANTIC PARTNERSHIP-- BUT IN ~~STRANGEMENT~~ estrangement BETWEEN EUROPE AND THE UNITED STATES. ~~FURTHER~~ Yes, IT COULD RELEASE FORCES WHICH WOULD WIDEN THE GAP BETWEEN THE UNITED STATES AND THE SOVIET UNION AND EASTERN EUROPE AT A TIME WHEN THE IDEOLOGICAL AND MILITARY COMPETITION BETWEEN THEM MIGHT BE DIMINISHING.

IF THESE ARE LEGITIMATE CONCERNS, SHOULD NOT MEN OF VISION AND FORESIGHT SEEK TO ~~PLAN~~ plan FOR THESE EVENTUALITIES-- AND BY DECISIVE ACTION -- INFLUENCE THEIR DEVELOPMENT. WE MUST GUIDE THE TECHNOLOGICAL REVOLUTION SO THAT IT CAN ENHANCE OUR UNITY RATHER THAN CAUSE ALIENATION AND DIVISION.

THIS MEANS THAT SOME WAY MUST BE FOUND TO INSURE A CONTINUOUS EXCHANGE OF TECHNOLOGICAL AND ORGANIZATIONAL EXPERIENCE BETWEEN EUROPE

AND THE UNITED STATES -- WHICH WILL ACHIEVE AN EQUILIBRIUM THAT CAN BE MANTAINED -- ~~THAT~~ and POSSIBLY SOMEDAY to be EXPANDED TO INCLUDE EASTERN EUROPE AND THE SOVIET UNION. IF THIS SEEMS ~~F~~FANCIFUL --I WOULD REPEAT THAT I AM DISCUSSING THE NEXT DECADE -- WHICH ENDS IN 1980 -- NOT THE PRESENT.

Reflecting on the problems which this second industrial revolution will bring to our own country in the next decades, a young American pioneer in the "second industrial revolution" -- Mr. John Diebold -- has proposed the creation of "an institute for the continued assessment of the human consequences of technological change".

Perhaps what is needed in the international field -- is some equivalent ~~institute~~ forum which would bring together, under non-governmental auspices, men of wisdom and experience from the universities and foundations, science and industry, politics and the professions -- who could systematically assess the implications of this second industrial revolution for the world of the 1970's. Their recommendations would invariably become an important guide to governmental decision-making. ~~If such an undertaking were considered worthwhile -- its final objections would more likely be realized if it~~

Yes, we must have a GLOBAL PLICY WHICH FITS THE NEW REALITIES OF A NEW ERA. WITH SUCH A PLICY, WE SHALL BE BETTER PREPARED-- NOT ONLY TO DEAL WITH THE RELATIONS BETWEEN THE TECHNOLOGICALLY ADVANCED AREAS OF THE WORLD, ~~NOT ONLY TO DEAL WITH~~ THE PROBLEMS OF SURVIVAL AND PEACE WHICH AFFECT ALL COUNTRIES--BUT, ALSO WITH THOSE areas WHERE THE FIRST INDUSTRIAL REVOLUTION IS STILL TAKING HOLD. I REFER TO THE PROBLEMS OF HUNGER AND OVER POPULATION, EDUCATION AND SOCIAL JUSTICE, AND DISTRIBUTION OF WEALTH. We SHALL BE BETTER PREPARED TO STRENGTHEN AND ENLARGE THE AREA OF PROSPERITY IN THE WORLD.

IN THE NEXT DECADE--EVEN MORE THAN THE PRESENT-- THE RELATIONSHIP BETWEEN FOREIGN AFFAIRS AND EDUCATION WILL BE IMPORTANT. THE SCHOLAR AND THE Businessman, THE FOUNDATION AND THE UNIVERSITY WILL PLAY A SIGNIFICANT ROLE IN ACCELERATING THE TECHNOLOGICAL REVOLUTION AND ASSISTING MANKIND TO DEAL WITH ITS CONSEQUENCES. BUT THE CLOSENESS OF THEIR RELATIONSHIP --IN THIS DECADE OR THE NEXT-- IN NO WAY IMPLIES THAT THE UNIVERSITY AND THE SCHOLAR AND THE

SCIENTIST SHOULD CEASE TO INDEPENDENTLY PURSUE THEIR OWN ENDS.

CHIEF AMONG THESE IS THE PURSUIT AND DISSEMINATION OF TRUTH.

GOVERNMENT AT HOME OR ~~XXXXXX~~ ABROAD -- SHOULD NOT DEFLECT

THEM FROM PURSUING THIS END.

But IN ~~THE NEXT DECADE~~ years ahead AS IN THIS ONE, SCIENTIFIC AND

TECHNOLOGICAL ~~EDUCATION~~ progress WILL NOT BE ENOUGH TO SUSTAIN THE

SPIRIT OF CIVIIZATION OR THE FUNCTIONING OF A DEMOCRATIC

SOCIETY. THE VISION OF THE POET AND THE PHILOSOPHER, THE HUMANIST

AND THE HISTORIAN ARE NEEDED TO STIMULATE WHAT SHAKESPEARE

CALLED THE "BETTER ANGELS OF OUR NATURE". WITHOUT THESE TO

GUIDE US, ~~THE TECHNOLOGICAL REVOLUTION IN THE NEXT DECADE~~ we can create in our society CAN

~~BRING~~ men THE FACELESS ~~MAN~~ OF AN ORWELLIAN WORLD, MEN WHOSE SOLE ~~BEST~~

DISTINCTION LIES IN THEIR SIMILARITY TO ONE ANOTHER.

THE VISION WE NEED AS WE FACE THE 1970'S IS THAT OF A

French Philosopher

GREAT MAN WHO DIED IN THIS CITY A DECADE AGO-- PIERRE TAYHARD

DE CHARDEN. FOR HIM THE MARVELS OF MODERN SCIENCE AND TECHNOLOGY

PROVIDED MAN WITH A NEW OPPORTUNITY TO BUILD A TRULY HUMAN

WORLD. Through THROUGH HIS VISION WE CAN COME TO UNDERSTAND THAT THE

GROWING INTERDEPENDENCE OF MANKIND CAUSED BY THE TECHNOLOGICAL REVOLUTION CAN LEAD TO A WORLD CIVILIZATION IN WHICH BOTH PERSONS AND NATIONS FIND THEIR INDIVIDUALITY ENHANCED, FIND THEIR MUTUAL DEPENDENCE AND MUTUAL FATE A CONDITION TO BE WELCOMED, RATHER THAN A THREAT TO BE FEARED.

IF THE MEN OF TALENT AND VISION SEIZE THE OPPORTUNITY TO PLAN NOW FOR THE WORLD OF THE 1970'S, YOUR CHILDREN AND MINE AT THE TURN OF THE NEXT DECADE CAN LOOK FORWARD WITH HOPE AND CONFIDENCE TO 1984.

Transcript

Address by Vice President Hubert H. Humphrey
at the Institute of International Education dinner
New York Hilton Hotel
Wednesday, December 7, 1966

Thank you very much, Larry Wien, my good friend Kenneth Holland, and the president of my university, Dr. O. Meredith Wilson, the distinguished guests of the dais, and all the very distinguished guests of this illustrious audience.

I am somewhat terrified tonight by the appearance of these many microphones, and this very fine and distinguished and highly-educated sophisticated audience, because Mrs. Humphrey and I have been away on a long overdue and much needed and greatly appreciated vacation with Andy Heiskell and a few others; we are refugees of the Virgin Islands and I didn't know that all of this apparatus was still around. I hadn't seen any of it for a long time. I thought people were living pleasantly, happily, without all these electronic devices. All you needed to fear were the barracuda, the sharks and the sunburn. Now I find that you have to fear civilization, and it's disturbing to me. But it's nice to get back, even though I was on the payroll while I was away. And I'm not at all sure but maybe I do better when I'm away than when I'm back. You'll find that out a little bit later.

But I accepted this invitation this evening for several reasons, most of which I won't tell you. One good reason is that the distinguished president of the Institute of International Education, Kenneth Holland, invited me once before; and I figured there was one of two things -- either he had forgotten or he appreciated it. And if he had forgotten, I thought "Well, why not try it again"? And if he appreciated my previous appearance, I said

"that is a man of quality, character and good judgment." In a modest way, of course. Then, in the light of all the things I have been reading of late, I thought it might be well if I'd renew my credentials in the academic community. I don't know what impression this is going to make on the University of Minnesota. I said this about a year ago, and about two months later Dr. Wilson announced that he was leaving the University of Minnesota. But now that the elections have taken place out there, he should have no fear. I'll most likely not return.

This is an evening that will be memorable to me. The office that I occupy is a unique one in American life. There are other ways of describing it . . . but, whenever I get the feeling that I really would like to give out with something you might all want to hear, or that I believe least like to hear and say, I find that the Master of Ceremonies either has a representative of the White House at the head table or one secreted off somewhere at the back of the room. But there's a more subtle way than that, because I've overcome that. I find that on occasions like this the Master of Ceremonies will get up and say, "I'd like to present President Kirk, President Wilson, President Gould, President Bowker" -- and any other presidents that he can find -- and then, at the proper moment, announce that there happens to be a Vice President .... And then, just to make sure that I'm impressed, they always have a Congressman present, too. This is what they call the array of massive power against total weakness. And, Congressman Brademus, I want to salute you tonight along with many others.

Well, I have a lot of other things that I didn't intend to say that I most likely will. But I thought that since you had all had your dessert and coffee, you were reasonably well awake, and I had possibly been able to bring you out of what you might have thought might be a bit of slumber for the evening, that I'd

just take you into some of my thoughts this evening and share them with you.

I want to say, first of all, what a rare privilege it is to share this evening with you. Our great country and our government, in particular, needs now - more than ever - the advice and the counsel and cooperation of those who are deeply concerned about the world in which we live. I'm concerned about this world, as you are. You know that I have two responsibilities that have been delegated to me by the Congress, but neither one of them has much to do with this world. I don't know why, but I'm Chairman of the Space Council and I'm Chairman of the Council on Oceanography. Anything that Congress gives to the Vice President is either out of this world or at the bottom of the sea - but I'll have you know both of them are expensive. There are even some who feel that I should pioneer ... I have no intention of doing so. But one of the things that I've become accustomed to of late is reading that scholars and politicians should get together more often - something on the order of Aristotle and young Alexander the Great meeting for a tutorial. I think that's a pretty good idea to placate some of my colleagues who feel they need the help. And it isn't even a bad idea for some of my former academic colleagues who might profit from knowing something about Alexander's problems. You can even translate that into the contemporary. But being a Renaissance man myself, and an ex-professor that's kept up-to-date, and a present politician, I tend to favor a meeting with Aristotle and with you. Since Aristotle isn't around, I'm going to spend this evening with you, so make yourself comfortable.

Now the Institute for International Education is a very unusual organization. It's a place where intellect and power have been brought together; where Alexander the Great and Aristotle meet. And long before Franklin Roosevelt's "brain trust" or the era of the Washington inner-outer, the Institute for International Education brought intellect and power together. We owe a great debt of gratitude to this organization.

It has been in existence for almost half a century and it has had many accomplishments. One of them is that Kenneth Holland was one of its beneficiaries early. He was an IIE scholar or student or on one of your fellowships. My able assistant, John ~~Riley~~ Kielly, and his lovely wife, Elizabeth, were also IIE students studying in London. And I understand that the gentleman who greeted us at the door this evening--Mrs. Humphrey and myself--as we came to this fine meeting, Bob Simon and his lively wife, of French extraction, were also IIE students. So you see, it has many accomplishments to its record, matrimonial and scholarly. But from its initiatives flowed the great Fulbright Act--its twentieth anniversary this year; the Smith-Mundt Act; the International Education Act, Congressman Brademus; and, indeed, even the International Cultural Exchange Act -- I remember when I sponsored that legislation in the Congress -- and a range of highly important programs which today form the very base of our efforts of international education insofar as government is concerned.

Now these programs came none too soon; in fact, they were rather late. But without the work of the Institute, I think they may not have come at all. And the conditions that would have prevailed in this world today without the work of this Institute would be hard to describe and to predict.

Now in the past two decades we have seen science and technology shrink our neighborhoods so that today the moral unity and interdependence of man, which for centuries was the philosophical basis for Western civilization, has now become a physical fact of our lives. Wendell Willkie, in 1940, talked to this America of ours about one world. Never was there a man more right. He was right even if he wasn't president. He told us a great truth. Isolationism, since that time, has been replaced by a global consciousness; yet we are today, as I see it, only at the primitive stages of the scientific and technological development which will shrink our human neighborhoods still further.

Yes, I am Chairman of the Space Council; and when I think of what I learn in that seminar of these great government agencies working with the universities and private industry about what's going to happen in this world of ours in the next thirty years, it's both frightening and exciting. For example, the prospect of the supersonic transport plane--I read all kinds of articles about it; whether we can afford it or not. And really, this is all ridiculous. It isn't a matter of whether you can afford it -- because it's going to be built. It's only a matter of who will be first. I doubt that we have the full grasp of what the FST will mean in terms of international education, international relations, in terms of increased exchange of people and goods -- and that's what we mean when we talk about international understanding: Tokyo, 4 hours--oh yes, even less; Canberra, Australia, 7 hours; next door neighbors--London, 2 hours; Rome, 2 hours and 10 minutes; New Delhi, 5 hours. What a little world. And then my work brings me into contact with what we call "communications satellites"--Buck Rogers items through most of our lifetimes. Well, they will soon be bringing us mass

communication in a real sense--to all of our planet. We are only now at the smoke signal stage of the communications satellite. They bring with them, too, tremendous implications in the creation of the one-world classroom. The sky is no longer the limit; it's just the beginning. In such an age, our position of world leadership demands, literally demands, us to go far beyond our present efforts in international education. That's why men like the Congressmen here tonight, our great President, President Johnson, and others take on action in the field of international education.

The International Education Act will make a real difference in helping improve the faculties--and I put emphasis first on faculties, not facilities; that's second;--faculties, facilities and libraries of our colleges and universities. Its impact will be felt at home and abroad in undergraduate and graduate levels. The new center for educational cooperation, which will be under the general guidance of our distinguished guest this evening, Dr. Miller, will serve as a government manpower resources headquarters in this entire field of international education. These things give us a framework on which to build. And that's what they are; they are a framework. Next year the President will convene a White House conference on international education. Its purpose will be to look beyond the programs presently under way or even contemplated; in fact, to take international education into century 21 -- because if you are not there in your thinking now, you have already lost a century. I know that, if any of you have suggestions or proposals you'd like to offer, that my distinguished colleague and friend here on the dais, Douglass Cater, would be more than happy to hear from you. This conference will begin in the next few weeks under the chairmanship of Secretary Gardner and Dr. James Perkins of Cornell. So you see, we have much that we need to do together. We

should all remember that the determination of the government (and I've been talking primarily of government because I am a government man) - the determination of the government to do its part to strengthen international education is evident. But it in no way diminishes the need for continued leadership in this field by private institutions of every kind, -- foundations, universities, colleges, churches and others. The role of the government in this field, as in others in America, must be to supplement, not to supplant, the efforts of private groups and individuals. You are needed, your money is needed, your help is needed, your ideas are needed, your work is needed. Don't depend on government. Depend on government as a partner, hopefully a constructive partner; do not depend upon it as the total force. The bold experiments, the expanded programs that should come from private institutions - like the Institute of International Education, can be carried out only with the continued support of American private benefactors. So I tell you to get busy, take on the load, the burden, don't sit around here and say that the government ought to do more; get busy and do it yourself. This is your country. And most people who ask the government to do more don't mean it anyhow. They are already complaining on the other days that the government does too much. So if you want to get the job done, and you really want to do it without having somebody check on you every ten minutes, you do it.

You see, I've been in government long enough to know its limitations. And also I've been in long enough to know some of the fears and tribulations. I think one of the most urgent tasks of the American people, of our democracy, is to find new ways and means to mobilize and then to allocate both public and private resources to the priorities of our time, without destroying either private initiative or unduly enhancing public power. So often I hear people talk about foreign aid; when they talk

about it they talk of what the federal government is doing. This is wrong. They should be thinking of what America is doing. The government is like the exposed part of the iceberg. Two thirds of the strength of this country, in fact much more of it, is in the private sector. The government has a role to play, and in my mind a limited role, but a vital one; but a real partnership is needed here if we're going to do the job that we need to do, and to do it in the imaginative and effective way that you want it done.

Now tonight I'd like to concentrate for a few moments on not what we have done -- you already know that and, if you don't, it's too late to tell you about it -- but I'd like to talk about the next decade. I'm going to put myself in the role of a prophet - without any credentials. Only a man in public life would dare do that, particularly in the presence of such distinguished educators. I want to talk to you about the world of the 1970's. I'd like to go a little further, but you might not believe anything if I go much further than that. I'd like to take advantage of the presence of the many illustrious figures from the world of education and finance -- our universities, foundations, business, communications. I want to talk to you about certain questions which you and your children must answer. And I think it's appropriate that these questions be put to you, because governments and government officials -- I don't care where they are -- they're all alike, to some degree -- must deal with the immediate problem. Oh yes, I know you think we ought to have great vision. Have you ever been in government? You're lucky if you can keep up to yesterday. And because we have the tremendous responsibility of the immediate, this often clouds our perception of the future. And I know you criticize us for that, but I want to criticize you. Why don't you think about the future?

We'll try to do the best we can with the present, and then we'll fuse the two -- and we'll have the best of two worlds, or the mistakes of both. Now you're less inhibited by these restraints and you're better situated to anticipate what is coming, as well as to respond freely to what is here.

Now in speculating about this world of the 1970's -- and what I suggest here tonight can only be considered as speculation, not as government policy (I thought I ought to get that caveat in early), - I'd like to raise several questions about the consequences of what has been called "the Second Industrial Revolution." And I even do this to show you how brash, bold and foolish a man can be in the presence of one like Dr. Stratton, who knows a great deal about industry and technology. The First Industrial Revolution was characterized by the invention of powerful machines which multiplied man's capacity for physical work. The Second Industrial Revolution - the one we're in right now - came upon us long before the problems of the first had even been solved. It is characterized by the invention of new devices, new electronic machines which are destined to multiply the capacity of the human mind, even the mind for judgment as well as perception. Now one of the important consequences of the Second Industrial Revolution involves the technological gap which today separates the world's most developed country, the United States, from other developed areas of the world -- yes, even Europe. I have already made a speech down in Washington about the developed areas and their relationship to the developing, so I won't burden you with that tonight. But you can get a copy of it, if you're interested. It's free.

I recognize there are some areas in which other nations are more advanced than the United States. But there is a big gap, and it has even been noted in recent days in our press and journals of public opinion. This unique gap exists in large part because this Second Industrial Revolution has developed in the United States far more than in any other area. And there are certain reasons. It results, in part, from the differing levels of technological progress and organizational efficiency which are also affected by the factor of optimum size. We're a big country -- no barriers, no tariffs, common currency. Now these can lead to the creation, however...these differences can lead to the creation of differences and tensions between two developed areas--developed in the sense of the First Industrial Revolution, just as there are differences which now exist between the so-called developed areas of the Northern Hemisphere and the developing nations of the South.

Scientific and technical progress is continuing at an unprecedented, accelerated rate with no prospect of reaching a saturation point. Discoveries are based on previous knowledge and, in turn, generate progess in other fields on their own momentum. Progress becomes self-propelling. Now there are only, really, four areas of the world, according to those who are knowledgeable in this subject matter--United States, Western Europe, Japan and the Soviet Union--that have the educational research resources and other elements of the technological base to deal with the current pace of scientific discoveries. But none of the four has the resources today to deal effectively with the entire spectrum of these discoveries, although the United States comes closest to it and, therefore, explains the gap. Scientific and technological progress depends greatly, as in most other things, on the rate of investment--the application, but in this instance the rate of investment--in research and

development. Recent Common Market estimates show the total of scientists and research workers in the United States to be four times greater than all the countries in the Common Market, and three and one-half times greater than the Soviet Union. I saw an estimate only the other day where our private and public economy is putting $27 billion this year into research and development. This is more than all the rest of the world put together. Now, according to the same estimates, research expenditures in the United States are seven times greater than in the Common Market and three and one-half times those of the Soviet Union! Per capita investment in research--which means technology and scientific advance--in this country is six times as much as the Common Market and four times the Soviet Union. But beyond all these statistics--and we'll forget them, as you should, because they're available in 10¢ pamphlets and government documents--we are told by European entrepreneurs that this disparity in scientific research is widened by the difference in organizational capacity between the United States and Europe. Aurelio Peccei of Olivetti, a great Italian, believes that only the United States possesses the highly developed modern organization required to profit appreciably from the technological discoveries of today. This is especially important in the new and complex field of electronic data processing, where organization is a decisive factor in exploiting the potential of the computer. And to show you what the computer means, it's in the museum already--the Smithsonian--and it's seventeen years old! That's the rate of change in the world; the first computer was seventeen years ago. The first space capsule of the United States, John Glenn's, was five years ago. They are museum pieces. We're really moving these days.

This amazing thing called the computer; to translate its work into concrete benefits for society requires an accumulation of skills that very few nations have. It requires, as Mr. Peccei has said--and I use his own words--evolved user techniques, knowledge of machine languages, advanced methodology, rich program libraries, access to the experience of the vast network of users, plus a competent array of methematicians, analysts and programmers. Now if you've got all that, you've really got something! But he's right.

What is relevant--and that's why I've talked to you about this, and it's rather deadening but it's terribly important--is that the material advantages that exist in an advanced society of which you are a citizen, such as the United States or Western Europe, are multiplied by the organizational structure and capacity of the country or region. Fortunately, on both sides of the Atlantic we're beginning to face up to this problem. This is what we mean by international education and understanding. There's no isolation of these thoughts. You have already taken steps to remove barriers to the flow of scientific and technical information to and from our country, and already there is a great cry going up among some people that this will mean that we have more competition.

There are still some people who believe in protective tariffs. There are still some people who believe they ought to stop the flow of technological information as if you could hold back the tides of the ocean. I don't happen to agree with this. As a United States Senator, I proposed, for example, that in NATO, in meeting the challenges facing the alliance, that it should take concrete steps towards narrowing the technological gap. I am proud to say that I was the author of the amendment that compelled a reluctant government to send scientific attaches to foreign capitals. I thought it might be well if we knew what they were doing and then could find out a little of what we were doing--without having to steal it.

Now proposals for such co-operative acts are formally before the NATO ministers. The OECD ministers have recently authorized an analytical study of the gap that I speak of. One of the most promising proposals has been Prime Minister Wilson's for a European Technological Community. If Europe, which has already seen the benefits of the European Economic Community, the Coal and Steel Community, the Atomic Energy Community, were to pool their technology in a similar way I have no doubt that the gap during the next decade would begin to close and humanity would be better off. General prosperity would permeate at least these vast sections of the earth and thereby provide an opportunity for more to be done elsewhere.

Now the fundamental question that I leave with you, then, is this: What are the implications of this Second Industrial Revolution for the international relations of the 1970's, especially the late 1970's when space and automation really get into movement and motion. I do not know the answer. I come to ask you. But already serious men are concerned that it could result, not in greater unity, which ambassadors here work to achieve in the United Nations, not in cementing the long-cherished Atlantic partnership which many have given a lifetime of effort to, but in the estrangement between Europe and the United States far deeper than any political estrangement that we know even at this hour. An estrangement that is involved in economics, science and technology. Yes, it could even release forces which would widen the gap between the United States and the Soviet Union, and Eastern Europe, at a time when the idealogical and military competition between us might hopefully be diminishing. You cannot ignore the impact of science and technology upon politics at home or abroad.

Now if these are legitimate concerns, and I think they are, should not men of vision and foresight seek to plan for these eventualities? And by decisive

action influence their development? I think that we must guide this technological revolution so that it can enhance our unity rather than cause alienation and division. Science and technology are not meant to make men slaves but rather to serve us, if we but take charge. Now this means that some way area must be found to insure a continuous exchange of technological and organizational experience between Europe and the United States and between other advanced nations. An exchange which will achieve or help at least achieve an equalibrum that can be maintained. Possibly some day it could expand to include Eastern Europe and the Soviet Union. Now if this seems fanciful and if you think I'm getting too daring now for a Vice-President, I would repeat that I am discussing the next decade which ends in 1980 and many people don't think I'll have much to say about that....rather than talking to you about the present. But I think we need to look that far ahead and reflecting on the problems that this Second Industrial Revolution will bring to our own country, a young American pioneer in the Second Industrial Revolution, Mr. John Bibault well known in this community, has proposed for our own country the creation of an institute for the continued assessment of the human consequences of the technological change. Many people are worried what it's going to do to human personality. Will we really be able to maintain an individual identity in this impact of science and technology?

I might add that perhaps what is needed in the international field is some equivalent form that would bring together under non-governmental auspices, and I repeat, under non-governmental auspices, men of wisdom and experience from the universities and the foundations, from science and industry, politics and the professions, who could systematically assess the implications of this

Second Industrial Revolution for the world of the 1970's. There isn't any doubt in my mind that their recommendations would invariably become important guides to governmental decision-making. We know that this has some effect... we've watched the United Nations in the Geophysical Year, we watched the United Nations in many works that it does, and it has had a constructive effect. You see, I believe that we must have at least a part in designing a global policy which fits the new realities of a new era and the new era is here. The question is: are the new policies here?

Now with such a policy, we can be better prepared not only to deal with the relations between the technologically advanced areas of the world - the problems of survival and peace that effect all countries, and it will be those advanced countries which will be the greatest threat to the peace - but also with those areas where the First Industrial Revolution is still taking hold - most of the world. I refer to the problems of hunger and over-population, education and social justice, and the distribution of wealth. I think we shall be better prepared if we think now of how to strengthen and enlarge the area of prosperity in the world, because this gap - the technological gap - is one gap, but the gap between the rich and the poor is the greatest threat to world peace that we have, and one, may I say, to which very few people seem to be giving enough attention.

In the next decade, even more than in the present, the relationship between foreign affairs and education will be imperative, not only important. The Scholar and the scientist, the foundation and the university, will play a significant role in accelerating of the technological revolution and assisting mankind to deal with its consequences. But the closeness of their relationship in this decade or the next in no way implies that the university or the scholar or the scientist should cease to independently pursue their own ends. You can still be loyal

to a government, and a government policy, and be loyal to your ideals and your convictions. And chief among these great requirements of a scholar and a scientist is the pursuit and the dissemination of truth. Government at home and abroad should never be permitted to deflect them from pursuing this end. But in this next decade as in this one, scientific and technological education will not be enough to sustain the spirit of civilization or the function of a democratic society. I don't care how ever many machines we build or how amazing these devices and inventions may be, as the great churchman, St.Augustine once said, the greatest wonder of them all is Man himself. The vision of the poet and of the philosopher, the humanist and the historian, are needed to stimulate what Shakespeare called the better angels of our nature. Without these to guide us, the technological revolution in the next decade can bring the faceless man of the Orwellian world, men whose sole distinction lies in their similarity to one another.

So the vision that we need in the 1970's, as I see it, is that of a great man who died in this city a decade ago, known by some, unknown by many. A French philosopher, Pierre Teillard de Chardin. For him, the marvels of modern science and technology provided man with a new opportunity for building a truly human world, a world of beauty, a world of justice. And through his vision, as he portrayed it so distinctly and so beautifully, I think we can come to understand that the growing independence of mankind - caused by this scientific and technological revolution - can lead to a world civilization in which both persons and nations find at long last their individuality enhanced, find their mutual dependence and their mutual fate, a condition to be welcomed rather than a threat to be feared. If the men of talent and of vision who are in this room seize the opportunity to plan now for the world of the 1970's,

I believe that your children and mine at the turn of the next decade can look forward with hope and confidence to a 1984 of freedom rather than to tyranny. I salute this organization for its work in behalf of international understanding, of a better world, and of the peace that means something more than a status quo, a peace of progress and of ever-expanding justice, a peace in which Man is the prize, and Man and his relationship to his God is the spirit that motivates us.

Thank you.

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