

SPEECH SCRIPT

YERUSHA UNIVERSITY COMMEMORATION

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SCIENCE IN THE SERVICE OF MANKIND

You who are graduating here today are on the threshold of the most significant change in your lives, *perhaps in your entire lives* during a period in which the world itself is undergoing vast and violent changes in its political, economic and social structure. To some these changes are disturbing -- and uprooting -- and ~~may~~ *may* an aggravating and even frightening influence ~~on a hitherto settled existence.~~ To others, they are symbols of great promise and opportunity as we humans further extend our natural abilities to make a better way of life for ourselves and our fellow men.

A great American educator, Edwin A. Alderman, many years ago spoke of periods such as this in these words:

"Only the great spirits of the world have the strength to pass happily from one era to another. The strand of every new age is lined

with the wrecks of earnest, high-souled men who had not this strength."

This period of rapid and violent change ~~during which you are struggling~~
~~from within~~ will, indeed, test your strength, *But it can be* ~~to pass through it, and~~

~~make it~~ a rewarding era for mankind. It has been estimated that within the next generation 60 million jobs will change in character. Those who are now six years of age can expect to change vocations three times before they die. More than 50 per cent of the occupations in which this graduating class will be employed did not exist when you were born.

But is this rate of change something we need fear? Should we be discouraged because science and technology are thrusting into our hands priceless new knowledge and revolutionary innovations at a pace unprecedented in the history of the human race? Indeed we should not, unless we ignore their worth, fail to use our new opportunities wisely, or to use them at all, and thus meet the tragic fate ascribed by Dwight Morrow to "families and communities and races that merely live in houses that have been built for them."

I can speak to you today with confidence in the future because I believe that you ~~graduates~~ and others like you ~~throughout the country~~, will want to "build your own houses." You will want to go forth to help this great nation use ^{its} ~~the~~ powerful resources ~~it has~~ ^{to} fashion a stronger America and a world in which every human can live in comfort, ^{better} peace, and dignity.

And because I believe you want these things for yourselves and ~~the~~ others, I will talk to you today about the means through which we can, in our own enlightened self interest and with compassion for all mankind, keep America strong and build a newer and brighter world.

Our nation has, since its birth, drawn its strength from the fact that it has had the vision to recognize necessity and seize opportunity, the audacity to move ahead boldly, the courage to act without fear, the humanity to nurture deep concern for individual rights and needs, and the flexibility to adapt itself to the realities of the times.

Another great source of strength has been our brilliant social and economic progress. Our continuing challenge is to wipe the smudges from the showcase of democracy, and present a bright and shining reflection to the world. We must provide truly equal opportunity to all our citizens. We must banish the islands of poverty in our midst. We must insure that every aging citizen can enjoy his retirement years in dignified comfort. And we must provide all of our young people with the opportunity to learn and to work at productive, rewarding employment.

A third source of strength and requirement of continued leadership is that we retain the right to lead by holding fast to a national philosophy which recognizes individual freedom and opportunity as goals in themselves, and not merely as means to other ends. It is increasingly apparent that the critical question facing the emerging nations of the world is whether they can grow and prosper by strengthening democratic institutions and permitting people to make choices and

sacrifices of their own free will, or whether ^{they} ~~power-hungry leaders~~ will be encouraged to seek strength through totalitarian means.

We cannot today escape the fact that less than one-third of the 3 billion human beings who inhabit the earth are privileged to live in industrially developed societies. Some two billion people live in the emerging nations, the so-called underdeveloped countries, or under governments whose ideologies are in direct opposition to the economic and political institutions which form the source of strength for our nations and the Free World.

These peoples, who are just beginning the struggle toward the more effectively organized society and elevated standard of living toward which we have worked, as a nation, for more than 150 years, feel a desperate urgency to make a rapid advance. They are even now evaluating and testing the respective strength and merit and the two great competing ideologies to determine which will best serve their individual and national interests in the years ahead.

Exponents of competing ideologies are aware of this, and miss no opportunity to display their strength as evidence of ~~the superiority~~ of the Communist state. Their objectives are clear in statements such as this one, made by Valentin Zofin when he was chief delegate to the United Nations in 1961 when he boasted that the first space flight of Yuri Gagarin was proof that the Soviet system would defeat our free enterprise system.

Such boasts and appeals to the instinct and inspiration and hopes of the less fortunate nations of the world make it imperative that we demonstrate that individual freedom and collective national security and power are not incompatible, but are indivisible. The problems of the emerging and underdeveloped nations are their problems, but in a shrunked world we cannot escape them either. Today, what affects every other nation affects us as well, and knowing this, even if it were not dictated by simple humanity, our own welfare and security would require that we play a constructive role in behalf of all mankind.

As Phillips Talbot, Assistant Secretary of State for Near Eastern and South Asian Affairs, put it recently:

"It is a fact that our security and well being as a nation will be enhanced as the burden of ignorance, poverty, and disease is lifted from less developed areas of the world.

"This has something to do with the capabilities of a young society to withstand the expansionist pressures of communism. But if communism did not exist, would there be no reason for us Americans to be concerned about the underprivileged of the world?

"To those peoples in the huts and villages of half the globe struggling to break the bonds of mass misery, we pledge our best efforts to help them help themselves for whatever period is required -- not because the communists may be doing it, not because we seek their votes, but because it is right. If a free society cannot help the many who are poor, it cannot save the few who are rich."

Given that the United States could not escape its role as leader of

the Free World, even if it chose to do so, and given the necessity of attracting the uncommitted nations to the free, democratic way of life, how can this nation exercise its leadership? How can we, by helping them, help ourselves?

One of the more significant ways, I submit, is by the generous sharing of one of our other great resources -- our extensive capabilities in science and technology. The vast advance that is being made in the acquisition of scientific knowledge and the development of sophisticated new technology is perhaps the most powerful force at work in the world today.

Dr. Caryl T. Haskins, President of the Carnegie Institution, noted recently in a lecture at Princeton University that "With the second World War, and ever since, we have had an increasing concern for the power of science and technology in the national service."

In days gone by, Dr. Haskins said, "we hardly thought of science in its relation to foreign policy; today it is all too easy to think of

it only in that connection. And over the long future we may find that questions posed by the intricate relationship between matters of science and technology and our domestic public affairs and public policy may prove yet more urgent. Even today one can see the lengthening shadows of various problems that surely lie in wait for us if they are not already at our doorstep."

Speaking from the point of view of a leading businessman, Robert W. Sarnoff made a similar point last year at a corporate leadership dinner in Detroit:

d "Within the past quarter century alone," he said, "scientific research has more than doubled the inventory of human knowledge.

"The simple fact that we have shortened the distance between research and product development has itself altered and enriched American life immeasurably, and has created a potential for raising the living standards of people everywhere....

"Historically, man's adaptation to new circumstances has proceeded

by fits and starts, aided by a generous allotment of time in which to accomplish massive transformation. But now science and technology are pumping a new form of quick-change fuel into the lifestream of civilization, and the time has passed when we might count upon years of grace in which to alter concepts and methods to suit a differing environment."

The enormous explosion of fundamental knowledge in virtually every branch of science, and the sharply increased potential for the early application of this knowledge, are illustrated by the release of nuclear fission. This condition offers real promise that the emerging nations may at least partially shortcut the growing pains which our own nation experienced during our rise to our present level of accomplishment. As a consequence, while the rapid advances now being made in science present an enormous opportunity and a dramatic challenge to those whose good fortune it is to live in this century, they also impose upon us a heavy responsibility to discipline ourselves in fostering their

adaptation and use.

The wonders of science and engineering are apparent at every hand, in the cure of disease, in the production of food, in the improvement of transportation and communications, and in the countless products which ease the burdens of everyday life. But, paradoxically, the same forces also have produced mounting problems.

Thus, all of us delight in the knowledge that medical research has added substantially to the span of years which we may expect to live. We weep, however, over the plight of that steadily increasing body of elderly citizens whose meagre resources are inadequate for their lengthening span of retirement years. We gaze pridefully at the vast increases in the productivity of America's farms which science has made possible, but seem unable to master the dislocations which the mechanization of agriculture has produced. We enjoy the abundance of household luxuries which automated mass production creates, but remain perplexed over the fate of the workers whom the machines have replaced.

If we are to remain the showcase of democracy and of the free enterprise system, and attract other nations to the banner of freedom, we must employ the forces of science and technology to solve not only our own problems, but those of other nations as well.

We must have the vision, the determination, and the humility to so adapt our political and social institutions that science and technology will serve all humanity and not destroy it. We must have the wisdom and the will to so direct our scientific and technical efforts, and so reconstruct our social and political attitudes, that these powerful forces can be employed to bring a better life to mankind all around the globe.

In our scientific and technical efforts we are working at the frontiers of knowledge and development in almost every field. We are building a great capacity to conduct large scale organized effort in scientific research, technical development, and industrial production. We are learning to create an environment in which our ablest minds

in government, in industry, and in the universities can work productively together in a concerted attack on all the problems of mankind.

Certainly a nation which has learned to do these things -- a nation which has harnessed the atom and is prepared to explore the moon -- can turn these same skills and energies to the solution of all of the major problems of mankind.

Consider, for example, the impact around the world if American research produced an inexpensive method of de-salinizing water which would transform -- for the better -- the lives of millions in parched, ancient lands.

Consider the impact on mankind if the assistance in predicting the weather which our space program has already made available to other nations was extended to enable man to modify and control the winds and rain and open a new chapter in his dominion over the wild elements of nature.

Consider the impact if we were to utilize our advanced skill in

computer technology to aid the lands of Asia, Africa, and the Middle East in overcoming their desperate shortage of skilled and educated manpower. It is not too much to suppose that through "memory banks" provided by computers, we would give to the small numbers of trained people in those countries some access to the collective wisdom and the scientific genius of the human race. All these things are possible if we, ourselves, as individuals and as a nation, have the wisdom, the foresight and the will to make them happen.

Writing in Science magazine recently, Dr. Glenn T. Seaborg, the distinguished Chairman of the Atomic Energy Commission, noted that "the texture and content of modern culture are being shaped by and are responding in many diverse ways to, the influence of science and technology -- ways that must inevitably alter the relationships between science and the arts and humanities.

"By multiplying the choices available," Dr. Seaborg wrote, "and

by creating choices where none existed before, science has opened up new realms for the assumption of responsibility. The challenge of our

new capabilities, with science and the arts and humanities merging their powers, is such that few would be brave enough to predict the nature of the culture and economy that may emerge within the next generation or two."

What we do with our skill and knowledge in science and technology will be crucial in the ideological contest which is occurring in the world today. At the same time, however, if two great powers, the United States and the Soviet Union concentrate their energies on increasing the distance between man and the lesser forms of life, this in itself could serve to strengthen the natural ties which bind man together.

The efforts of man in only one area of scientific research and development -- the investigation of the planets and solar system -- has already demonstrated this potential. Eugene Rabinowitz, Editor of the Bulletin of Atomic Scientists, put it as well as anyone could when he wrote:

"In the last two years, cooperation in space has been the one field in which positive agreement has been achieved between the Soviet Union and the United States. In facing cosmic space, the quarrels and struggles between different factions of humanity appear petty and irrelevant; the dimensions and costs of exploring the solar system -- not to speak of venturing beyond it -- are so enormous, and so obviously call for common effort, that in the midst of the Cold War the need for cooperation impresses itself on nations and leaders, despite their bitter rivalry and conflict. Common effort could help to create bonds and foster the trust which comes from participating in a common enterprise."

Rabinowitz concluded: "If space exploration could help bring together the two alienated parts of humanity and reduce, even slightly, the danger of all-destroying nuclear war, that alone would make worthwhile investing in it many billions of dollars."

But, beyond the opportunity which this age gives us to encourage the expansion of freedom in the world, and beyond the hope that men's efforts

in science may encourage us to join in an attack on the secrets of nature rather than on each other, lies the most inspiring challenge of all.

That is the hope that, in our time, we may see fulfilled on earth the dream of Abraham Lincoln "that in time the weights would be lifted from the shoulders of all men, and that all should have an equal chance."

To what more noble purpose could you dedicate yourselves as you leave Yeshiva University to make your contribution to the future of mankind?



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