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Remarks of  
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The degrees you receive today attest that you are prepared  
to pursue your chosen field,

- o The biologists among you are prepared  
to contribute to that exciting field
- o The economists among you understand  
the world of producing, buying, selling
- o The teachers among you have learned  
your pedagogical skills
- o The artists and writers will hope to  
produce works which will entertain,  
inform, provoke.

All of you -- scientists, lawyers, know how to make a  
living.

But do you know how to live? Do you know what your  
responsibilities are

- not just to your employers
- not to your families

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-- not just to this university,  
which will occasionally ask  
you for money  
-- but to this planet  
-- to the billions of people who share  
it with you  
-- to the physical environment which is  
both precious and resilient.

One morning -- several years ago shuffling through my  
3rd Class Mail -- Stanford student newspaper:

"This new report proposes to remove from  
students the right to choose for  
themselves. This is not to deny that  
courses in Western University are  
valuable but to require students to  
take a course, carries a strong  
illiberal connotation."

It imposes a (uniform standard) on non uniform people.

Frankly: I was startled by that statement. It struck  
me as a staggering comment on our time that this student  
after 15 years of formal education, rejected the idea of  
relationships and failed to understand that a search for our

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common heritage is in no way to be confused with something he called "uniformity." This incident vividly revealed to me one of the tragedies of our time.

Somehow our notion of intellectual and cultural "connectedness" has snapped. We fail to understand our interdependence on each other.

And this inclination toward narrowness and self-indulgence has also left us frightfully ignorant about our planet Earth.

Today less than one percent of the college-age group are enrolled in any course which specifically features contemporary international affairs. College enrollments in foreign languages are off 40 percent in the past seven years. A recent national survey revealed that, even after President Carter gave his speech on energy, only half of the public surveyed -- 52 percent to be precise -- even knew that America had to import oil from abroad.

And 50 percent of all twelfth-graders studied in a recent survey could not choose correctly an Arab country out of four choices they were given. Forty percent of these twelfth-graders thought that Golda Meir rather than Anwar Sadat was president of Egypt.

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Last year during TV coverage of the Sadat-Begin discussions, which, incidentally, were interspersed with coverage of the Chicago Bears football game, three out of every four spectators interviewed at half time had never heard of Sadat or Begin, but were well aware of the prowess of their local hero, Walter Patton.

Recently while flying from New Orleans to Orlando, I read in the morning paper, the New Orleans Times-Picayune, that University of California scientists had now concluded that the earth's ozone band is being harmed by contaminants at twice the rate predicted earlier. I thought it symbolic of our time that this important story -- perhaps a life-or-death story -- was reported in a single paragraph buried deep in section II.

Environmentalists are fond of talking about the "vulnerability" of our "ecosystem", but I suspect that because of ignorance "our own" life system may be most fragile and most threatened.

Lewis Thomas, that marvelous science writer, in his remarkable book The Lives of a Cell, said, "It is illusion to think that there's anything fragile about the life of earth; surely this is the toughest membrane imaginable in the universe. We, the human species, are the delicate part, transient and vulnerable as cilia."

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And yet with all our vulnerability, we have assumed that in the name of something we call "progress," without understanding our connectedness to each other and to nature, we could move ahead. And we have assumed that we could do so without understanding there is a "negative" price to pay.

In the social world as in the physical world there is no free ride; for every action there is an equal and equivalent reaction which inevitably must be faced. There may be a "delayed" time bomb, but the equation somehow, sometime, will be balanced.

Painfully we are now reminded that our gas pumps are somehow connected to the Middle East; that American industry is almost wholly dependent on foreign sources for chromium, for cobalt, for bauxite, for magnesium, and for tin; that 40 to 95 percent of our precious metals are imported from Third World countries; that about one-third of the profits of American corporations come from exports or from foreign investments; that one out of every six factory workers in this country is making something for export; and that two million Americans are employed in foreign trade.

We are beginning to comprehend the fact that a child born today into a world of four billion people will, if he attains age 60, be sharing the earth with three times as many beings.

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Many of you will be teachers and for educators the point of all of this is crystal clear.

Students must begin to understand the unity of our world

- o not just in a physical sense
- o but in a social sense as well.

Students must be taught that all actions on this planet -- whether physical or social -- are inextricably interlocked.

In a monograph published by the World Affairs Council of Philadelphia, Robert Muller said, "A child born today . . . will be both an actor and a beneficiary or a victim in the total world fabric and he may rightly ask, 'Why was I not warned? Why was I not better educated? Why did my teachers not tell me about these problems and indicate my behavior as a member of an interdependent human race?'"

I believe classroom teachers do have an obligation to educate children about our interdependent world, so the surprises in later life may at least be modestly reduced.

To be still more specific our schools and colleges should give a new priority to science, emphasizing not just basic principles but emphasizing also the way science and technology now share our world.

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Joan Gontz Cooney, the woman who developed "Sesame Street," sent me some disturbing findings recently. In doing pre-production work for a new TV series on science, technology, and the environment, she tried to find out what understanding junior high school students have about their world. She found that some children when asked, "Where does electricity come from?" said "the switch." When asked, "Where does the water come from?" they said "the faucet." Where does the garbage go?" You guessed it . . . "down the chute."

A bit humorous, perhaps, but startling in that we have increasingly developed a culture in which we are limited in our sense of connectedness to that which we can see, and feel, and touch.

Again -- we must begin to learn more about the world, science and technology has created. But scientific knowledge is not enough.

We need to develop a broader perspective.

First, we must learn about the nature of the physical world, about

- o ecological balance
  - o millirems of radiation
  - o recombinant DNA
  - o markdowns.
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As a result of science, these things are, or may become, as much a part of our physical world as electricity, water, and, yes, garbage.

But what do we know about then?

Second, we must begin to appreciate the limits of science and the uncertain nature of technology

- o Three Mile Island was so frightening
- o not so much because of the of the real physical threat -- the danger of meltdown and catastrophic release of radiation
- o but because what happened there was supposed to be impossible.
- o A week before the TMI incident
- o George Will, the syndicated columnist, took aim of the movie, "China Syndrome". He said it was
  - o sensationalistic
  - o unrealistic
  - o that its only redeeming value was to make its stars rich.

- o And yet, the accident depicted in that film was far less severe than the real event of TMI.
- o A more modest columnist would have been inclined to eat crow. Not George Will. Instead, his very next column simply said that
  - o there's risk in everything -- and cited deaths from smoking and automobile accidents. He might as well have mentioned the number of people who suffer heart attacks while having sex. That would have been the ultimate act of trivialization.

But we cannot afford to trivialize the impact of new technologies.

The incident at Three Mile Island raises profound questions about the risks attending new technologies. Those are risks which -- however small -- we must confront squarely.

And they are risks we all share.

- o Shortly after TMI, a group of demonstrators paraded through the streets and Stockholm, Sweden.

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- o The signs they carried read:  
"We all live in Pennsylvania."
- o Those demonstrators understood what  
we must all come to understand
  - o As fellow travellers on spaceship  
Earth, we all share the benefits  
of science. So we must discover a  
way to share its risks.
- o How do we do it? Perhaps
  - o through some form of  
national insurance
  - o through international  
agreements to control  
environmental pollution.

Technology has carried us to a point where few individuals can, with private forms of insurance, bear all the cost of technological error. Nor, in some instances, can those costs simply be assigned to corporations.

- o What do we do about the residents of  
Love Canal, New York, who built their  
homes atop the wastes of a now abandoned  
chemical plant?
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- o What we do about the people of Utah,  
who have a higher risk of leukemia  
because they live downwind of a  
nuclear test site.

This, then is the third point: We must appreciate the social, political, and moral implication of new technologies.

- o Decisions about genetic engineering  
-- about creating new life forms --  
are too important to be left to  
scientists
- o Decisions about nuclear power are too far  
reaching for us to retreat to the sidelines.

We have an obligation -- to ourselves and to future generations -- to participate in those decisions.

This brings me back to my central message. I hope that during your collegiate years you have developed special skills -- to help you get a job. I also hope that during your collegiate years you have developed a greater respect for the planet Earth and a greater understanding of our dependence on each other.

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When our first astronauts came back from outer space  
with those marvelous photographs of the planet Earth.

Archibald MacLeish wrote in the New York Times--

to see the Earth as it truly is  
small and blue  
beautiful in that eternal silence  
where it floats  
is to see ourselves  
as riders on the earth together

Brothers--

who see now that they are  
truly brothers.

As members of the Class of 1979 I congratulate you and  
wish you well -- as you continue your journey -- as riders  
on the Earth together.

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