

(Address given by the Reverend Theodore M. Hesburgh, C.S.C., President, University of Notre Dame, at the Fall Forum of the Chief Executives Forum, Phoenix, Arizona, November 11, 1968)

Several weeks ago at Notre Dame, an alumnus asked me: What will the world be like in the year 2000? What are the trends discernable today that show where we are heading -- the master themes -- the great directions in which we are pointing?

You will all agree that this is a sizeable question, and an important inquiry. After answering it without the benefit of prior reflection, I thought it worthwhile to attempt to reanswer it today, after some reflection.

Before looking ahead, it might be helpful to look back. I happened upon a book a few weeks ago by a Professor Louis Giddings of Brown University, which described prehistoric man's culture in America. Giddings had long explored Alaska, especially the territory in Northwest Alaska near the Bering Straits where prehistoric man once had a land bridge between Asia and North America.

One day he chanced upon a likely spot for digging, at the unlikely named place of Onion Portage on the Kobuk River. The deeper he dug, the more layers of human remains he uncovered, thirty by the time of his untimely death. The story was almost uniformly the same, although the tools and artifacts became much more primitive as he dug deeper to a human period of 8000 years ago. Always the human story was one of total human energy expended all year long in the effort to stay alive, to find enough caribou and salmon to eat, to find skins for clothes, fire for warmth, and shelter against the icy winds there above the Arctic Circle.

This was the totality of human endeavor during those dark millenia -- food, shelter, clothing, warmth -- and a bit of red powder at every level, some ancient vestige of primitive religious observance.

I begin with these observations because they indicate that we have already come a long way, which is a good point of departure for some thoughts on where we might be going from here in our rapidly accelerating march towards a more civilized world. The year 2000 is not as far off as it seems -- a mere 32 years ahead. One can play the role of prophet with some immunity because you and I will have perduced beyond the age of eighty if you are to prove me wrong. For your children, it is a different story. The students I live with at the University of Notre Dame will be in their early fifties when the year 2000 arrives. If we are educating them for life, certainly we must think about the world that will be theirs in the year 2000 and beyond.

I might make these predictions in more orderly fashion if I make them in reference to the great disciplines of the University. First, theology. The year 2000 should see the full fruits of the ecumenism that is aborning in our times. I expect there will then be a unified -- if diverse -- Christianity with the prejudices and antagonisms of the last 400 years between Protestants and Catholics left far behind, and perhaps more significantly also embracing the Orthodox who have been on a separate track these past 1000 years.

There will also be, I believe, a greater unity of mind and heart between Christianity and other great non-Christian religions: Judaism, Muslimism, Buddhism, Hinduism, Confucianism, and the others that comprise

more than half a world -- a world largely unknown and unappreciated heretofore by Christians -- despite the four great beliefs that somehow bind us all together:

1. Belief in a Supreme Being, even though He is invoked by diverse names;
2. Belief in an objective moral order of right and wrong, discernible to the human conscience, and binding at all times on all men everywhere;
3. Belief in spiritual values that have a greater bearing on human happiness than material values;
4. Belief that man is immortal, somehow destined for happiness beyond time.

This ecumenical movement is stronger today, and moving forward more rapidly than most of us perceive, especially among the young who are generally impatient with what has divided men, more ready to move onward toward those spiritual elements that bring men everywhere together in a great common endeavor that is at once human and divine.

Philosophically, I expect the year 2000 to see great progress in the realization of another movement that has ever more characterized our times since World War II: the movement towards equal opportunity for all men, born of a new sense of human dignity and the chance of human development that is the most precious part of man's earthly heritage. For thousands of years, man has been in small part free and in large part slave. Even in America, the most developed country on earth, we are still struggling with the sad vestiges of slavery and human underdevelopment. In the third world of Asia, Africa, and Latin America, the great majority of men still live

without dignity, without opportunity, without education, without proper food, or shelter, or medicine, or, more poignantly, without hope. Our annual increase of Gross National Product is greater than the total Gross National Product of most of these areas, and the gap between the haves and the have-nots is not narrowing, but widening each year, while our foreign assistance grows slimmer.

If we really believe in human dignity and equality of human opportunity -- and our young people do -- much will happen in this area in the years ahead. I trust that the year 2000 will see a better balanced world than exists today -- if not, I fear it will be torn apart long before the year 2000, and this is both a warning and a prophecy.

The year 2000, whatever happens in the field of birth control, will see a world of twice the population of the world today, over 6,000,000,000 people. More than half of this population will be young people, under the age of 21. The median age of Colombia's population today is 14, and by 1970 half of our population in the United States will be under 25. We have over 80 million people today in the United States under the age of 21. If you think that you are hearing too much from the youngsters today, you haven't heard anything yet! This makes me believe that there will be a lot of idealism, impatience, generosity, criticism, and activism in the world of 2000.

Where will we live in the year 2000? Megapolis is the name of the game, and it will be an improvement on the present situation when over 70% of our people live on less than 3% of our land mass.

Picture a megapolis stretching from Maine to Washington and beyond, from Seattle to San Diego, and a Midwest megapolis bounded by St. Paul, Omaha, Kansas City, and Pittsburgh. There will still be the great centers of cultural, commercial, and governmental life: New York, Chicago, San Francisco, Los Angeles, Washington, linked to the far-flung cluster cities by rapid mass transit on land and air -- none more than an hour or so away. Governmental structures will be unified by region and megapolis, with both centralization and decentralization of present governmental structures where each is best adapted for efficiency and, of course, taxation. A twenty or thirty hour work week -- for those without executive responsibility -- will bring out the best and the worst, greater personal growth for some who know how to use their new leisure, and enormous boredom for others whose only outlet is the tube -- the modern Nirvana.

What will be the political alignment of the world in the year 2000? I look to a United States of Europe -- not only a post-DeGaulle inner six including Great Britain, but the outer seven, too. May I go a step further and contemplate the inclusion of the present Iron Curtain countries and Russia -- assuming a common threat from China, that great awakening giant that will in the year 2000 have in its population one out of every four human beings. It is incredible to me that a nation of this magnitude and vitality will not be the basic force in all of the Far East and Southeast Asia -- for good or for evil. The United States of Europe will probably be united economically before it is joined in a political federation -- but once joined, it too, especially if threatened by China, will expand its united force to the Middle East and Africa.

If we stand still, this would leave us a third-rate power, politically, if not economically. I cannot believe that we will not react, and I look to a first union with Canada, followed by Mexico and the presently organized Central American Common Market. Again, economic union will precede political federation, and, if not by 2000, then soon enough afterwards, I would envision a United States of North and South America. Even today, this makes more sense than the present political arrangements, if one looks for efficient government rather than national pride for all the peoples involved. If it comes to pass, I would still hope that the cultural differences would remain, as this enriches the totality of humanity which was not meant to be homogenized.

How will we feed all of these six billion people? Strangely enough, nuclear power is the key, joined to an agricultural revolution already in progress.

One of the most exciting developments of recent years has been the international research centers organized by the Rockefeller and Ford Foundations -- for rice, the staple food of the Orient for thousands of years -- the International Rice Research Institute in Los Banos in the Philippines; CIMMYT (Centro Internacional de Mejoramiento de Maiz Y Trigo) in Chapingo, Mexico; and the new tropical agricultural research centers now being formed at Palmyra in the Cauca Valley of Colombia, and at Ibadan in Nigeria.

IRRI 8, the new rice seed produced at Los Banos, has doubled, tripled, and quadrupled rice production in the Orient, so greatly that it is called miracle rice, and already there is an even better seed, IR 5,

in production. The new wheat seed produced in Chapingo has turned West Pakistan in five years from a starvation situation to a country that will export wheat next year. The present problem is storage for all the food just produced this year. Mexico itself, thanks to these research efforts, has tripled its food production while doubling its population.

But there is an even more exciting prospect on the horizon, thanks to nuclear power. One third of the earth's surface is classified as arid land -- lost to agriculture. We now have on the drawing boards a fast breeding reactor (that produces, incidentally, more fuel than it uses) that will develop not only 400 megawatts of electricity daily, but likewise about 250 million gallons of water by desalinating heretofore unusable sea water.

This one installation will produce enough power to pump water to the moon so that it is easy to envision a water grid for arid areas to make them bloom with three or four crops of food annually. Think of what this means for places like Sinai and Sahara, for the great American desert, or Atacama in Northern Chile, or the Gobi in Asia. Crops need land and sunshine and water -- and arid lands have always had the first two in abundance without the third. Now they can have all three -- plus improved seeds, insecticides, and fertilizers. Moreover, in the past, power plants had to be placed near the sources of fossil fuels or water power -- now they can be put where most needed, and produce water as well. Moreover, electricity at one mill per kilowatt hour will make possible a total agro-industrial complex with many new commercial processes, including the production of fertilizers.

It does not take too much imagination to see what this will mean by the year 2000. If we are likewise fortunate in harnessing the thermonuclear reaction -- fusion of hydrogen -- we could produce enough power for New York City annually from a bucket of sea water. We are still some way off in this, but making progress, which could multiply our hopes of practically free electrical power by the year 2000. Moreover, nuclear plants do not pollute the environment as others do, a consideration that becomes increasingly important if the world is to avoid pollution of air and water in the days ahead.

There is still another enormous problem facing us, even if we solve the problem of food, and it is this: How do we educate a doubled population, with human knowledge itself doubling every 15 years, and, as of today, practically one-half of the world's population being functionally illiterate? Think what this means. All men are the heirs of all the accumulated knowledge of the human race during all these centuries, but if they cannot read or write, they are without hope, robbed of their greatest human patrimony. To such people, human development is a frustrated hope, an impossible dream -- for they cannot read a list of instructions or count their change in the market place. And, if there are neither classrooms or teachers for 50% of the children in Latin America today, for 70-80% of the children in most parts of sub-Sahara Africa or Asia, what possible hope can there be for the year 2000, with twice the population and most of it young?

Curiously enough, the answer comes through the space program. By the year 2000, men on the moon will be commonplace. We will have found



landing men on Venus and Mercury impossible for the surface temperature of Venus is 850° Fahrenheit and Mercury worse as it is closer to the sun. We will have landed men on Mars, but they will find it much like the barren and pitted moon, with little atmosphere to burn up bombarding foreign bodies, and subject to much radiation because it lacks our strong magnetic field which traps above the earth all but high energy particles.

We will probably be engaged in deep space probes to Saturn and Jupiter by the year 2000, but this will only demonstrate to us how unusually and providentially hospitable our planet is to human life in contrast to these other planets in our solar system, some of which, the outermost, probably have a thousand mile depth of ice on their surface. There will still be dreams of finding life somewhere in the galaxy, but this exploration will have to await further centuries and much greater speeds in inter-galactic travel - something beyond our reach today. Even when and if we approximate the speed of light, 186,000 miles per second, it would take some years to reach the nearest star, and tens of thousands of years to reach the extremity of our galaxy -- not to mention millions of years to travel to other galaxies of which there are billions.

However, our great hope for education lies nearer earth in our present capability of launching synchronous satellites. These are  $6\frac{1}{2}$  radii distant from earth, traveling at a speed less than escape velocity (about 25,000 m.p.h.) which keeps them at a fixed point in the sky above our great continents with a line of sight possibility of transmitting by television to one-third of the earth's surface. This transmitting

capability, joined to the present capability of computers for immediately retrieving knowledge, will make possible by the year 2000, a University of the World.

I speak of university here in the widest sense, from teaching literacy, to the ultimate in doctoral and post-doctoral education. One need only the capability of seeing and hearing to learn from the very best professors in the world who will be on instant call. At present, we would need earth receiving and transmitting stations to accomplish this, but by the year 2000, wherever there is a television set, there will be a classroom. All the great teachers, from teachers of reading, writing, and arithmetic, to teachers of atomic physics, will be available. One will need only to dial a telephone to the satellite with millions of channels available, which will retransmit to computers at world educational centers, which will seek out the desired lesson by the professor requested in the language indicated. The lesson will then be transmitted instantaneously to the student via satellite from a pre-recorded tape.

If this had happened earlier, we could have seen and heard Kepler on mathematics, Kapitsa on physics, Levoisier on chemistry, and Galileo on astronomy. Henceforth, no great professor will be lost to oncoming generations of students. Human genius exists where it is, and who knows what will develop in the future from this University of the World that will instruct an Indian on the Altiplano of Peru, a bright youngster in Congo, or another budding genius in Nepal. In the past, it was a quirk of fate that one of these potential geniuses got to Oxford or Harvard or Lamonisov University in Moscow. Now, all the

best professors of these places will be available to anyone within reach of a television set and a telephone to activate the computer. The total gain in human development will be incalculable. By the way, this will speed the development of a world language which is likely to be English for two-thirds of the world, Chinese for the other third. Other languages will, of course, remain, but the language of education will be the same.

To summarize, if there is any truth to my several prophecies, the world of 2000 will be a world ecumenically united as never before on the theological level; on the philosophical level, it will be committed as never before to the equality of human opportunity everywhere; politically and economically, it will still be competitive, but tripartite: The Western Hemisphere, Europe-Middle East-Africa, and China; better fed despite a doubled population; and, at long last, with a university open to all human kind. There will still be something constant despite the galloping change -- and this must somehow give a root and an anchor to those enveloped by change. Anyone will be ill-prepared for the world of 2000 if education today does not relate to this constant.

I would submit to you today that amid all of the challenging changes -- a far cry from those long centuries when man camped at Onion Portage on the Kobuk River in Northwest Alaska to trap salmon and caribou just to stay alive -- man will still be possessed by the same hopes of life, liberty, and the pursuit of happiness. He will still be haunted by the ultimate questions revolving around the meaning of his life, his personal destiny in time and eternity, good and evil, war and peace, the true and the beautiful -- the same questions that haunt us today. The

questions are the same, whether a few hundred or a few billion people ask them. Somehow then, we must address ourselves to these questions today, and they must be made a more integral part of the education of the young. These are the constants that alone will keep change from overwhelming or mechanizing mankind.

There is no one of us here today who does not, in his most lonely or most honest moment, ask what he or she, and his or her life is all about. We do and we should, for otherwise there is no real human progress, whatever the change in our living conditions. I can even go farther and predict that if we are not more deeply conscious of the spiritual and moral dimensions of human life and human destiny, we will be likely to use the frightening power available to us today to either destroy the earth totally or at least reduce a remnant humanity to the level of life along Kobuk River 8000 years ago.

I have been optimistic in my predictions, because I am a confirmed optimist. But not everyone is. Unless people like you and me see the opportunities for fruitful change, and work to make them come to pass, it is always possible that the dark possibilities will replace the bright ones, and the children of today will inherit a world that we have allowed to become a nightmare. Human understanding or aggressive suspicion; human opportunity or human frustration on the scale of billions of people; human education and development or human degradation; human life fulfilled or human life starved, mutilated, and possibly incinerated -- these are the options that face us, and the good outcome is anything but

automatic. It will depend, in the last analysis, on human involvement, human vision and human effort, and, I believe, on a lot of grace and help from God. If we do not respond, one can only say we are less than human today, and much less than humans divinely inspired. More strikingly than ever before in human history, this pre-2000 human generation bears within it the promise of global life or global death for humanity at large.

The year 2000 -- it should interest all of us, even though we may not live to see it -- for we are all part of a moving stream of mankind that began, God only knows how many centuries ago. We know that we are moving forward, despite continual descents into the abysses of war, degradation, violence, ignorance, fratricidal prejudice and hatred. We are moving forward towards human unity of a sort, and we are moving forward together. In the dark of night, or in the brilliance of dawn, we are still faced with the ultimate question of meaning in life, and this will continue to be the great human question for all of us, whatever is yet ahead. Whatever the past or future, we live in these days at hand. We find or fail to find ultimate meaning for ourselves and our lives, today and tomorrow. And of all great realities and great constants, faith and hope and love continue to be our best guides, in all the yet unforeseen tomorrows.

My last word to you today is then a word of faith, and hope, and love, love of God and love for each other, for only then can we greet each other with the ancient greeting of God's Word which signifies both our ultimate destiny and our most realistic present goal - Shalom - Peace.