

EXPANDING HORIZONS ON A DIMINISHING PLANET

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I am honored and pleased to be given the opportunity to participate with you today in your celebration of an extraordinary 50 years of achievement¹ - a history which, even when viewed through a critical retrospective lens, can bear with distinction the appellations of prescient, bold, imaginative and progressive. I doubt there is today any other professional medical organization which can display with pride such a record without developing a revisionist history adapted to the flow of subsequent events. It is obvious that the Academy has led, not followed; that it has deliberately and aggressively pursued concepts in prevention which were often more visionary than those advocated by leaders in my own field; and that this year, it has boldly extended its purview to embrace an even broader range of objectives in stating its "National Child Health Goals."²

Rightly, the Academy has recognized that solutions today must transcend the conventional boundaries of curative medicine. In enunciating your goals, you have implicitly recognized this—in identifying objectives which will require an active partnership with educators and environmentalists, behavioral scientists and politicians alike in the interests of healthier children.

The past 50 years have witnessed unprecedented changes in medicine, in science in its totality - indeed, in our entire social structure and values. We can be confident that the next 50 years will bring even more revolutionary changes but can we anticipate them any better than we anticipated the computer, organ transplantation or ^{nuclear power} ~~the atom bomb~~? At a far more mundane level could the surgeon-general in the midst of a 1930 Washington heat wave have anticipated that the now ubiquitous

(air-conditioner would be in common use only 20 years hence? The surgeon general, then as now, was prepared to offer advice: "Imbibe long, cool drinks; keep your windows closed (sic); keep the spinal cord protected (wear hats outdoors); be discrete physically, mentally and emotionally." Government offices were closed during that heat wave except for the Printing Office, the Treasury Department and the Prohibition Bureau.³ What a different era, what a different agenda of problems and solutions, and yet it was a year when many of us here were alive.

The rapidity of change and the documentation of catastrophes, instantly communicated around the world, have been significant factors in eroding a public confidence that either individuals or institutions have the capacity or ability to intelligently guide their futures. The fact that catastrophe is more worthy of attention than good news abets this. A vivid illustration of this was the year 1974, in India. Because of an improved eradication campaign and better reporting, the numbers of smallpox cases ~~being~~ recorded daily were higher than any in 15 years. The apparent disaster was endlessly recounted in headlines across the country week after week. However, in August 1975, not a year later, India celebrated its Independence Day and, in a memorable ceremony, declared its freedom from smallpox. The event was reported in a terse article on the fifth page of New Delhi's principal paper. The coverage was especially disappointing because beginning in the autumn of 1973, a perennially maligned Indian health service had made a vigorous commitment to the apparently impossible task of smallpox eradication, and in less than two years, had succeeded. One component of its strategy called for more than 120,000 health workers to visit each house in India during a one-week period each month to search for cases - and this they did. Independent assignment showed that more than 90% were indeed being visited each month. The magnitude of the effort is better understood when one appreciates that the number of households in India is three times that of the United States. Eight tons of forms were required for each search. The capacity of the Indian health service, as an institution, to effect rapid change was and is vastly greater than any had imagined, and such may be said of health structures in other countries in which we worked. What had been lacking was a plan and direction.

What occurred during the course of the smallpox eradication program served to reinforce a personal optimism that we have the capacity to meet the challenges of the coming decades. Our problems are three - to decide which are the essential issues, to make necessary political and moral commitments and to identify and support the necessary leadership.

The issues of the coming decades encompass a spectrum of problems - from agriculture to energy; ~~to~~^{from} political and human relations, to the fundamental question of whether this planet can support man himself. Problems germane to medicine and the biomedical sciences do not exist in isolation. However, at the heart of the problem is the recognition that resources are finite. Were it possible to alter the denominator in the equations - the population of man - the range of available options would greatly expand. Wanted, healthy children born to healthy mothers is at the core of the problem.

Interestingly, it is the year 2030 - exactly 50 years hence - when the world's population is predicted to reach the 10 billion mark - a figure $2\frac{1}{2}$ times greater than the population today.⁴ A 1969 National Academy of Sciences report concluded that a world population of 10 billion "is close to (if not above) the maximum that an intensely managed world might hope to support with some degree of comfort and individual choice."⁵ Forecasting is anything but an exact science and the scenarios of the futurists have to be accepted with qualifications. Nevertheless, it is all too clear that we in North America occupy a privileged position in an increasingly densely populated, interdependent world. Regrettably, even today, many regard the developing countries more as charitable wards than peoples who are integral to the fabric of our own existence. And yet, even now, they provide one-fourth of our raw materials and account for one-third of our export market.⁶ It is in these countries that the population is growing most rapidly.

If as your Agenda says, "our children are our greatest natural resource, and our neglect could jeopardize them, ourselves and our future," you must ask which are "our children"? Even if we consider

(only this country, we find that tens of thousands were born in Mexico, in Vietnam, in Haiti, in Cambodia. Children from Afghanistan are now beginning to arrive. ~~In the same manner that~~ ^{do the same thing now} so many of our own ancestors, driven from their homes by natural or man-made catastrophe, sought refuge in the United States, in Canada and other countries of the New World. Increasing numbers now living in developing countries are seeking to do the same. The trickle of migration which we now record, predictably will grow to become a stream, perhaps even a flood tide. What should be our response? Will we and each of the other more affluent, industrialized areas build a wall like that which divides eastern and western Europe? Would it work if we did so? Would it be possible to say to others less fortunate, "send us your raw materials, buy our manufactured products and agricultural produce but your people are forbidden to enter this privileged walled enclosure"? The solution is not only unrealistic but politically impossible and morally questionable. To date, we have careened from crisis to crisis with short-term commitments to meet short-term problems. Governmental policy reflects this - a dollop of development assistance, the addition of a few people to the facade of a border patrol, and costly resettlement and welfare programs for the waves of refugees which enter the country in response to repeated crises. The refugee children become this country's children and our responsibility with the scars of malnutrition, limited education, barriers of language and the trauma of resettlement. The challenge is not unlike that which you faced in the 1930s but on a different scale and on a different plane. From the date of its founding, the Academy has been an advocate of prevention. In fact, to quote from Alan Brown, Professor of Pediatrics at the University of Toronto: "Pediatrics has been the pioneer specialty in preventive medicine. From the very beginning of ... pediatrics, prevention has been the all-important theme, and today the best work is done in preventive medicine."⁷ The year was 1930. The challenge of the coming decades is no less that of prevention but on a broader scale and encompassing a broader range of concerns over a broader geographic area.

The problems ahead extend beyond the boundaries of medicine as they have been traditionally defined - but, sensibly, so do your national health goals which identify needs of adequate income, education, societal setting and environment.

In a jungle of diplomats, engineers, agronomists, merchants and others, can a comparatively small group of pediatric health professionals assume more than a subsidiary role? From my perspective, I believe you could, should and must take a primary role as the catalyst for the bold changes so urgently required.

In a world politicized and polarized, in a world where race and religion are a source of constant friction, medicine and health represent a unique, remarkably apolitical bridge. To me, working for 11 years in the World Health Organization, it was a never-ending source of amazement to observe how readily differences were set aside in the interests of a common goal in health. The two principal contributors to the smallpox program were the United States and the Soviet Union. Not less than twice each year, the Surgeon-General of the U.S. and the Vice-Minister of the Soviet Union met with an American program director to discuss progress, problems and needs. Throughout civil wars in Nigeria, Ethiopia, Pakistan and many other countries, the program continued. Vaccine was distributed to both sides; guerrilla forces not infrequently welcomed and assisted government surveillance and vaccination teams; surveillance teams crossed national borders to work with counterparts in controlling outbreaks in neighboring countries. The WHO smallpox staff was comprised of professionals from 73 countries and donations to the program were received from 44 countries.⁸ In no other field is it more feasible to build bridges of understanding. What could be less controversial than the eradication of disease or better health for children?

It is not enough, however, for medically trained professionals to offer technical guidance in such programs. They must assume roles as planners, managers, strategists - in brief, leaders. In the United States, we have increasingly turned to the professional manager - an

(individual with no special expertise in any particular industry or technology who is expected to step into any position and run it successfully. In a recent article analyzing causes for the current malaise in American business, Hayes and Abernathy,⁹ faculty of the Harvard Business School, identify this trend as one of our principal problems in American industry today. They document the fact that American management, in contrast to Japanese and European management, is increasingly dominated by accountants and lawyers whose energies are directed to quick profits, cash management and corporate mergers. As they state: "The key to long-term success - even survival - in business is what it has always been: to invest, to innovate, to lead, to create value where none existed before. Such determination, such striving to excel, requires leaders - not just controllers, market analysts and portfolio managers." In the health field, no less, we need professional expertise to provide leadership. The problems are too important to be left to the professional managers, the professional diplomats and the professional politicians. If we do, we will almost certainly have politically-conceived, questionably effective, pedantic programs offering short-term solutions. In brief, we need those skills and that expertise which you in the Academy represent - to manage and to lead.

Futurist scenarios are driven by expanding, if not exploding sizes of populations whose rates of growth, however estimated, foreshadow catastrophe only decades ahead. To slow population growth to the point where it can begin to balance resource development is proclaimed not just to be difficult - it is stated to be impossible. Social behavior and social change, it is said, are inevitably slow. Ironically, Rene' Dubos published his book, Man Adapting¹⁰ in the same year that the Smallpox Eradication Program began and made this same point when he said: "Social considerations, in fact, make it probably useless to discuss the theoretical flaws and technical difficulties of eradication programs, because more earthy factors will certainly bring them to a gentle and silent death." We accept the principle uncritically that social change is inevitably slow. I wonder if this is not, in fact, a rationalization for uninspired leadership, and/or an excuse for inaction.

One of many vignettes which I witnessed during the Smallpox Eradication Program illustrates the reason for my skepticism. In Afghanistan, a rigidly orthodox Muslim society, ^{most} a woman, from puberty, ^{as} is consigned to purdah - a life behind the mud walls of a house, never to be seen by any man other than ^{her} her husbands. Most are not even permitted to go to market. To vaccinate members of a household would require that permission first be granted by the man of the house and then, one by one, each of the children and adults could be vaccinated. Even then, we were told, male vaccinators would be unable to vaccinate women. More than this, vaccination was said to be all but unknown in most parts of the country and would be resisted by force. Accepting as fact all we were told by the experts, we foresaw that Afghanistan would almost certainly be the last and perhaps the permanent bastion of the disease. We had no option but at least to try. A strategy was developed in which an advance team visited each village to discuss the program and the intent of vaccination with the village elders. Subsequently, male vaccinators conducted systematic house-by-house vaccination. Assessment teams followed to determine if the teams had reached 80% of the residents. The program required that, if they had not, the teams would be sent back without per diem to repeat vaccination. This provided incentive. We were amazed soon to find that assessment consistently showed coverage exceeding 90%. Three years were required to reach all parts of the country in the first round of vaccination. A second round was then begun because we knew that the many nomadic peoples would certainly have been missed and a new generation of newborns would be unprotected. This time, it took only 15 months and a third round took 9 months. Subsequently, DPT and BCG were offered but now, in many parts of the country, women from several houses were collecting with their children to facilitate the process. In 6 years, social and religious strictures extending back centuries had changed dramatically in a primitive country where orthodoxy is a way of life.

Changes in family planning programs can be no less impressive. Bali, with a population of 2,000,000, a traditional, rural Hindu culture, decreased its birthrate from 44 to less than 20 in just seven years.¹¹

Similar dramatic changes have occurred in places as distant and different as Thailand, Costa Rica, Chile and China. Over the past 15 years, the world birthrate has dropped from an estimated 34 live births per 1,000 population to less than 27 per thousand, a decrease of more than 20%. And yet, according to recently reported results of the World Fertility Survey, one woman in four reported that her most recent child was unwanted.¹² Effective programs to assure these mothers that children who are born will survive would undoubtedly increase this proportion. When you appreciate that in many countries 30 to 40 percent (not 30 to 40 per thousand) but 30 to 40 percent of children who are born do not live for five years, you may better understand the reason for frequent pregnancies. Even so, half of all the married women of childbearing age report that they want no more children but half of these women are not using effective methods to prevent contraception. Dramatic changes in population growth have already begun to occur but the potential for yet more dramatic change is apparent. The problems of effecting sociobehavioral change must not be disregarded but this, I believe, is not our real constraint. The need is for commitment, leadership and management.

For many developing countries, the achievement of smallpox eradication instilled a new confidence. Despite primitive networks of health facilities, transport and communication, and the very limited external support we could offer, a significant victory was won. WHO's successor campaign, the Expanded Program of Immunization, is now rapidly gaining momentum. Its objective is to establish a system which by 1990 will reach 90% of all children with DPT, measles, polio and BCG vaccines. With strong support, I'm confident it will succeed. In strengthening a structure for management and assessment of this program, entire national health networks are acquiring a greater capability to insure that the children who are born are wanted and that increasingly they have an opportunity to realize a productive adulthood.

The potential for therapy and prevention is growing, as never before, nurtured by a magnificent base of biomedical research. You know it well. Immunology, fiber optics, nuclear imaging, radioimmunoassay,

recombinant DNA technology and others are dramatically expanding our horizons. To the press, indeed to many of our colleagues, these developments appear to be the real challenges, the true frontiers of medicine. Indeed they are but there are other frontiers, other priorities, perhaps less dramatic, less newsworthy but far more urgent if we, as a species, are to achieve equilibrium with planet earth. And the cutting edge to that problem is wanted children who are given the opportunity to grow in health to adulthood - but the horizons for doing this do not stop at the borders of the United States or Canada or Mexico. The responsibility for achieving this cannot, must not be relegated to those without technological competence any more than American business can longer afford to relegate its leadership to accountants and lawyers.

The leadership and the articulate voice with which you in the Academy have so long been identified are vital if we are to rewrite the grim scenarios depicted in such as The Global 2000 Report.⁴ But the hour is late and the need for leadership is real. The goals, however, need to be, must be expressed in an "Agenda for the World's Children."

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