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Adventures into the Unknown
Convocation Address --University of Rochester
13 May 2005

It is a special privilege and an honor to have been asked this year to be your convocation speaker and to offer some few words of reflection to those of you graduating from a School so rich in history --a world-renowned institution, at the cutting edge of medicine. I join in congratulating each of you today as you receive a degree that I personally cherish as embodying the most important formative years of my life.

I have been fortunate during my career to have been involved in a very diverse but exciting series of adventures in medicine and public health. However, in perusing my employment record, one might well draw the conclusion that this was a person who wasn't very successful in holding a job for very long. In partial defense, I must note that some of the changes were not entirely by choice. A particularly awkward year for me was 1977. I had just completed 11 years as Director of the Global Smallpox Eradication Program. I was an acknowledged international expert on the disease. The only problem was that there was no disease. What to do when one is suddenly stranded with no marketable skills. Well, I became a Dean. The lesson -- choose your specialty with care!

It was just 50 years ago that I was seated here at the Commencement exercises amongst classmates about to be graduated -- to soon receive our diplomas and, for the first time, to be called, legitimately, "doctor". I believe most of us had two thoughts running through our minds -- one, speculating on what a still uncertain future might bring and, second, how soon the convocation speaker might conclude his remarks so that we could get on with the serious business at hand.

One could no more anticipate a future then than, realistically, one can speculate today as to what the year 2055 might bring. It is sobering to look back to 1954 and to reflect briefly on the state of the world. Dwight Eisenhower was President and George Bush was not yet 10 years old. No one owned or even knew what a cell phone was. There was hope in 1954 that some day soon, there might be a polio vaccine. Only the summer before, we were reminded of the devastating consequences of that disease. Epidemic polio struck Rochester and many of us were asked to act as nurses in manning the great Drinker tank respirators, a number of which held young adults of our own age. Might we ourselves become infected as a result of this close contact? It was an unsettling question as none of us knew whether we were or were not immune. There was no way to know. There was no Medicaid, no Medicare. Everyone then had to be vaccinated against smallpox, at least by the time of school entry- it was, after all, only 5 years since the last cases had occurred in the U.S. Most patients were still housed in great open wards in Strong Memorial. We saw numerous cases of the so-called childhood diseases -- measles, mumps, rubella and scarlet fever -- all considered inevitable rites of passage. Today, each is a teaching case. Organ transplants, kidney dialysis, chemotherapy for cancer, elaborate surgical procedures that we now take for granted, were, at most, products of futuristic speculation. There was no internet; no fax; and few owned a television set.

Fifty years ago, even someone with a Jules Verne imagination would not have come close to identifying this future only 50 years later.

The future through which your careers will pass promises far greater change than this and with elements of threat and challenge and opportunity. There is an enormous

potential for creativity and, as never before a potential to have a positive impact on the lives of thousands.

Medicine and, no less, public health are in process of increasingly rapid evolution. There are few fields or specialties that will or can be static or routine. It is all too clear that the structure of medicine itself, its funding mechanisms, record systems, practice patterns, methods of communication are all at the advent of significant change. Biotechnology and the basic sciences are pioneering whole new fields of knowledge relating to health and disease and the world around us. Where progress once could almost be charted as a linear expression, so many possibilities are opening today that it is increasingly difficult to set priorities – to decide which of a host of directions to follow, or which to fund and support. As never before, it is evident that what happens in Africa or Asia or Latin America can have a major impact on our own and the world's well-being-- and the effects can be rapid and dramatic. Lest we forget, the first cases later called HIV-AIDS were detected little more than 20 years ago. Today, this is the fourth leading cause of death in the world. And in 2005, emergency programs are under way to prepare to cope with a possible influenza pandemic that could dwarf the pandemic of 1918. Meanwhile, the threat of bioterrorism lurks. The release of only 10 grams of anthrax in 4 envelopes terrorized a nation for weeks. Many have put this out of mind but those of us who have been working on the front lines of this problem have difficulty forgetting that we have no idea as to who the culprit was. Nor can we forget that the former Soviet Union is known to have had in storage 30 metric tons of dried anthrax spores and there is no indication that that stock has been destroyed.

A successful response to the forthcoming challenges, will depend, in large measure on the degree of involvement of those in medicine and public health. Today, unfortunately, too many policies and programs are substantially being shaped by politicians, professional managers, attorneys and economists with all too little input from those of us whose primary concerns are the health and well-being of our patients and our communities. Many of our colleagues have been reluctant to assume major responsibility for shaping policy and managing programs -- disparagingly speaking of unwanted paper pushing. Let me assure you, however, that in such efforts there can be both excitement and gratification.

Those engaged in basic research frequently define their fascination with the subject in terms of adventure, of exploring the unknown, of going where none have gone before -- where there is no map that defines what should be done, no guarantees as to outcome but a recognition that success could have a major impact on the lives of thousands or even millions. Seldom do I hear such feelings expressed by those who are engaged in managing programs and, yet, dealing with many of the practical administrative and policy challenges of medicine and public health have attributes that can be equally seen as "Adventures into the Unknown", as "Voyages of Discovery", whether in operating a medical center, a group practice, a research laboratory or a local or national public health program. For me personally, the fascination with creativity of this sort has resulted in my failing retirement now for the sixth time. My wife says seven but I believe it is only six.

Let me illustrate briefly. In 1967, I was given responsibility for developing and executing a global program to eradicate smallpox. Based at the World Health

Organization in Geneva, I had a budget of \$2.5 million per year to operate programs in 50 countries; a license to raise money if I could; a target of 10 years; and a certainty on the part of the Director General and a number of our colleagues that the program could not possibly succeed. There were more than 10 million cases and 2 million deaths that year. The strategy, recruitment and method of execution were left to myself and my staff to figure out. Clearly, this was an adventure without a map. However, 10 years and 9 months later, the world's last case occurred. None have been found since.

As the programs progressed and we visited hospitals, we were puzzled by the numbers of children in hospital with measles, whooping cough, tetanus and diphtheria. As we soon learned, fewer than 5% of children were receiving vaccines such as DPT, measles and polio that were standard throughout industrialized countries. So, in 1970, only 3 years into the smallpox program, we convened a meeting of international health experts and, from that meeting, launched yet another new adventure – a program to expand the smallpox campaign to include 6 vaccines. It took 4 years to finally get this launched but now the Expanded Program on Immunization delivers these vaccines to some 80% of children in the developing world and has been the foundation for the drive to eradicate polio.

A final illustration, my last major adventure, began in late 1977 when three of us began, at Hopkins, a Center to endeavor to educate our colleagues in medicine and public health that we were facing increasing new and emergent infectious disease threats and that major efforts were needed in education, planning, and expansion of capacity to detect, diagnose and treat a new array of challenges, whether originating from Nature or from terrorists. It was a lonely voyage for the first 3 years. Ours was the only Center and

Federal budgets were sparse. The total budget for the Department of Health and Human Services was just \$8 million. Eventually, the President was persuaded of the importance of the problem and requested the establishment of a special budget, many times larger but still a modest one compared to the needs at state and local level as well as Federal. Then came 9/11. Abruptly, I was drafted to direct a new office, operating at the level of Assistant Secretary and reporting directly to the Secretary-- the Office, we decided to call the "Office of Public Health Emergency Preparedness". On January 11, 2002, the President signed a budget allocation of \$3 billion specifically for this program, the largest single sum of money ever made available in support of public health. How to spend \$3 billion was yet another challenge – a voyage into unknown territory with no well-defined precedents to follow. Although much remains to be done, surprising changes have occurred. Today, the ability of the country to respond to such as SARS or the Asian bird flu or smallpox is immeasurably better than just 3 years ago.

During the years ahead, there will inevitably be many opportunities that each of you will have to venture into uncharted waters. Seize the opportunities. We have not had anywhere near enough individuals well-trained in the medical sciences who are taking an active role in shaping policies and developing programs, be it locally, nationally or internationally.

On the occasion of the Celebration of the 100th Anniversary of the Johns Hopkins Hospital, the Dean of Medicine said to me: "You know, I suspect that at the School of Public Health, you are probably responsible for saving more lives in a year than we have saved at the Hospital in its entire history." In some ways he was right but, in fact, it has been the extraordinary team of medicine and public health working together in the

interests of prevention. In the 21st century, we are being confronted with both tasks and opportunities that are greater than ever.

I welcome you all as fellow alumni to participation in a great adventure.