Adventures into the Unknown

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Salutations: Dr. Levine, Graduates, et al

I appreciate the honor of being asked to participate with you in a singularly important and joyous moment – the receipt of a degree confirming your status as a Doctor of Medicine, of Science, of Philosophy – and membership in a group of professionals whose concerns are the health and well-being of patients, of communities, and of peoples throughout the world.

Especially intriguing to me is that, with the passage of time, past professional boundaries, real or imagined, are becoming less distinct. Thus, the growth of important multi-disciplinary working groups that embrace relevant expertise in medicine, in public health, in nursing, in engineering, and in an array of other basic and social sciences. This portends well for the future.

Public health and medicine have been my life for the past half century. My adventures have been diverse. Indeed, in perusing my employment record, a prospective employer might have reservations about hiring someone whose C.V.indicates that he hasn't been successful in holding any job for very long. Now, not all the changes were by choice-as for example-- 1977. I had just completed 11 years as Director of the World Health Organization's Smallpox Eradication Program. I had become an acknowledged international expert in smallpox. There was only one problem -- there were no smallpox cases. Imagine a cardiologist awakening one morning only to find that there were no hearts. I was stranded - without marketable skills. That is when I became a Dean. But there is a lesson here for all of you -choose your specialty with care!

It was a number of decades ago that I was seated as you, about to receive a diploma. Most of us at that time had two thoughts running through our minds –one was speculation on what a still uncertain future might bring and the second, how soon a commencement speaker might conclude his remarks so that we could get on with the serious business of the awarding of degrees and celebrating a transition into a new life. I promise to be brief.

I have often been asked – "How did you embark of your career?" I never came close to speculating on what the next 50 to 60 years would actually bring. At the

time, I saw my future being in internal medicine. I had ruled out public health as a specialty. I knew little about it. In fact we had only two lectures labeled as public health – one dealing with syphilis and the other with pit privies (toilets). The infectious disease field was to be avoided. Many asserted that with penicillin and other antibiotics becoming widely available and new vaccines in the pipe line, infectious diseases were soon to be concerns of the past – so said Nobelist Sir Macfarlane Burnett and the Surgeon General of the United States, William Stewart.

It was difficult to speculate on what to expect. Dwight Eisenhower was then President -- George W. Bush and Bill Clinton were each 8 years old and the word "Beatles" referred to insects. There had been no smallpox cases in the U.S. for more than 5 years but, so great was the fear of epidemics that smallpox vaccination was compulsory for all children before school entry. There was only hope that there would be a polio vaccine. However, Jonas Salk was hard at work here in Pittsburgh. Measles, mumps, whooping cough, and diphtheria were accepted as inevitable and, like learning to ride a bicycle, necessary problems intrinsic to growing up. There were no cell phones no computers; no internet; no twitter. Some have puzzled as to how we could possibly entertain ourselves.

My career took a totally unexpected turn at the end of internship. The military draft was still in effect and I received notice that further deferment from compulsory service was not possible -- that I was obligated to Uncle Sam for two years. One could choose any of the services as well as the Public Health Service. A position at CDC in the Epidemic Intelligence Service was one option. I applied for it for no really good reason other than that it clearly provided an educational experience – besides, there were no uniforms, no military formalities, no regimentation. That was then!

It opened up a new world. There was one new challenge after another. No two outbreaks, even of the same disease, were the same. Every one was a challenge. There was often no certain road to diagnosis; no blue print for resolution. Each was an adventure as we sought to decipher cause and possible applicable measures. One such experience was in Punta Gorda, Florida, with the first large, definitive outbreak of what came to be labeled "chronic fatigue syndrome". There was often a need to seek widely for expertise and to involve them as part of the team -- microbiologists, veterinarians, entomologists, attorneys -- even politicians. Discussions with community leaders were requisite in order to dissect the anatomy of the outbreak and in undertaking control measures. The learning curve with every outbreak or new disease challenge could not

have been more steep. I felt as tho I was seeing disease in a third dimension.

And so began a career at CDC in public health. Smallpox became an increasingly major concern during the 1960s as air travel increased and with it, the threat of smallpox importations from Asia and Africa. Europe experienced more than 30 imported outbreaks during the 1960s. We feared that the U.S. was next. I had primary federal responsibility for dealing with smallpox if cases were imported.

Meanwhile, WHO Director General Marcelino Candau requested that I become Director of a new 10 year global smallpox eradication effort. The target for the last case was December 1976. Many argued that no disease could be eradicated. Moreover, they expressed grave doubts as to whether WHO had the competence to oversee such an effort given the failure of malaria eradication. Candau also opposed the program because he was confident that it would be a failure and its failure would further harm the credibility of WHO. Approval for the program in the World Health Assembly had been by a margin of just two votes. Candau blamed the U.S. for having been a decisive factor in deciding to move ahead with the program and wanted an American to head the program so that all could see where the fault lay when the program went down the tube. It was not a promising assignment,

On arrival in 1966 in Geneva, the WHO headquarters, my doubts redoubled. Smallpox was present in 43 countries with some 10 million cases and 2 million deaths. The annual WHO budget was to be $2.4 million per year, not enough even to buy the vaccine needed. Thus our first initiatives were for laboratory assistance to revamp vaccine production methods, to resuscitate vaccine production facilities, and to introduce a new vaccination technique that used less vaccine. Weekly case reporting systems were needed where none existed before. We deliberately recruited younger staff who were eager to take on new challenges – many, in fact, were recent medical graduates. A senior health official observed later that it was advantageous to have them because they didn't know that smallpox eradication had been decreed to be an impossible goal.

Execution of the program was difficult as programs were needed in 50 countries and our headquarters staff consisted of just 10 persons, 4 of whom were physicians. Most of us spent half of our time in travel status. Eventually we acquired more staff, including Peace Corps contingents from the U.S., Japan, and Austria. However, we never had more than 150 international staff at any one time. Some 71 different nationalities were represented.

National programs began to grow and improve. By the eighth year country staffs

totaled more than 120,000. Ten years and eleven months from the start, we were able to announce to a disbelieving world that we had discovered and isolated the world's last case of smallpox. The last case in a chain of person- to-person infection that has extended back more than 3500 years – to the time of the Pharaohs. It was a disease that, over the centuries, proved more devastating than any of the great pestilential diseases – plague, cholera, leprosy or whatever.

How did it happen? The program itself was constantly evolving; imaginative change was welcomed. As our understanding of smallpox epidemiology changed, so did our strategies for vaccination and outbreak containment. More effective techniques for operations and evaluation matured. We discovered and dealt with a new smallpox-like disease called monkeypox and proved that it was not a threat to the program. A new, young staff found imaginative ways to cope with smothering bureaucracies. We found that tradition and government inertia were not cast in concrete.

Similarly, public health and medicine are in the process of increasingly rapid evolution. There are no fields or specialties that will or can be static or routine. The very boundaries of what we once identified as the provenance of medicine and those considered to be the responsibility of public health are merging steadily. There is increasing focus on the health of the community as a whole.

And- as never before- it is apparent that what happens in Europe or Africa, or Asia, or Latin America can have a major impact on our own and on the world's well-being. The effects can be rapid and potentially catastrophic. Lest we forget, the first cases of what we call AIDS were detected only 30 years ago. More than 35 million have died and it is now the fourth leading cause of death in the world. Even as we speak, a new coronavirus is spreading in the Middle East and a new influenza virus H7N9 is spreading in southern China.

For myself, I can only report that the challenge and excitement of pioneering developments that may transform a community, or a nation or the world can be as exhilarating as is any journey to a destination where there are no maps that clearly define the territory nor rules prescribing exactly what can and cannot be done.

Best of luck to all of you in embarking on an exciting journey at the most challenging and demanding time in human history. Your country needs the courage, conviction and dedication of a new generation and the world needs it no less; to break out of the straight jacket of conventional solutions and to bring creativity and optimism in designing a better, more equitable world.