

176** Bloomberg School of Public Health, Commencement, 5/23/01

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My first thought when I received the invitation to participate in this commencement was that it would be a good opportunity to honor a person I so deeply admire, your Dean, Dr Al Sommer.

The greater part of my professional life has been as a bench microbiologist working on basic issues of genetic structure and function. It would gladden my heart to know they might eventually have some benefit to remedy human afflictions. I don't pretend to be a frontline worker in public health; and all the more reason for me to look up to those who have been in the trenches. The good that Dr Sommer has done in demonstrating the vicious consequences of Vitamin A deficiency worldwide, and then in promoting the simple and low-cost remedies, is just incalculable. And now we see how he uses that same zeal and analytical insight in public health education, and in world health. It is no accident that Johns Hopkins was the chosen recipient of that wonderful \$100 million donation to promote our global struggles against malaria; and no one could be more reliably confided with that trust. So it is a deep honor for me to share this podium with you, Dr. Sommer.

---- Graduates, faculty, family, friends ... this is time to mark a turning point in your lives, and for a brief pause to reflect where public health is going, today and tomorrow. Millions are dying of old and new plagues overseas; and we are not free from recurrent risks of the same at home. Inequities and gross inefficiencies in access to health care are still rampant. At the same time, the future has never seemed brighter for the ebullience of new biomedical knowledge to attack these problems. 'Round the country, we still see many fossilized rifts between basic science, medical art and practice applied to care, and to preventive ideals expressed in public health -- that is the health of large populations. I know of no institution that has done better than Johns Hopkins to bridge those rifts, against all kinds of economic and political pressures to guard those fiefdoms. If you don't understand my allusion, reflect on the payment systems that govern the flow of resources to those areas. Nationally, research and public health respectively command just a few percent of our total health budget, in no way related to the aggregate benefits achieved.

Of course we should not wonder that many unthinking people turn the other way at public health instrumentalities. They are often admonitory "nag, nag, nag". Wash your hands. Don't smoke; Be moderate in drink. Look out to balance what you eat, and forgo many joys of the table. Take care for safe sex. Exert yourself. Take those vaccine shots. Avoid those "recreational drugs" - you might become addicted. Drive safely. Look out for those toys that go bang! Put more moderately, these cautions require that one educate oneself, exercise self care and self-responsibility while healthy (hopefully most of the time). For the slothful majority, it is easier to ignore all that, and then confide in the care of another professional for extrication from a health problem when it does emerge. Many, many will go a long way to avoid a physician and prefer a kind of faith-healing in the swamp of alternative medicine. Authentic medicinals also grow in that swamp; but it is profoundly illogical to imagine that something must be innocuous because it is "natural", yet rely on it to be potent in confronting disease.

Besides public education, we have a ways to go in the education of professionals: personal hygiene in hospitals, to minimize nosocomial infections; the diagnosis and treatment of depression in a primary care setting; pain management; the prudent use of antibiotics.

Underlying health promotion, now mainly assimilated to common sense, are fabulous scientific challenges and opportunities. In the last few days' headlines we read that 1/4 Americans should be on cholesterol-lowering diets, and 1/7 would benefit from taking cholesterol-lowering drugs, presumably for all their lives. Excluding, perhaps, the very young, that amounts to half the people in this auditorium. Already, many lives have been saved by use of these new miracle drugs, the "statins". We might be both elated and concerned at the surprise that they have several unpredicted benefits to add to their virtues. Concerned, because there may yet be other less welcome surprises, idiosyncratic ones from genetic polymorphisms, or interaction with other inputs, or from very long term chronic administration. A major responsibility of the public health community will be the encouragement of such salutogenic research and its application, on the one side, and tireless vigilance in very long term studies

to assure safety of such an interminable intervention, on the other.

Another headline referred to growing anxieties that our hottest new anti-inflammatories, so called COX-2 inhibitors, may have ancillary difficulties with cardiac problems. Is the side-effect real? Is it merely a substitution of aspirin (with all its own difficulties) known to have cardio-preventive utility?

The new world of high throughput pharmaceuticals, and genomically informed drug targetting, is bound to offer many like options for very large scale intervention. Genetic screening itself offers a host of ethical dilemmas, as well as opportunities to enhance the specificity and potency of individual medication. Such remarks apply to other large scale screens like PSA for prostate cancer, which may invite exuberant surgical intervention, or just worry. Similar attractive dilemmas attach to preventive inputs ranging from vaccines to contraceptive pills. Besides the 1 by 1 scrutiny they deserve, we need to be sure that we have an optimal system to reap the greatest benefits, and to be cautioned about the risks. That system today is founded on an adversarial confrontation between a stereotypically greedy industry and stuffy federal bureaucracy that, if nothing else, has greatly inflated the entry cost of innovations, and ultimately their cost to consumers and taxpayers.

Our most acute challenges globally have to do with infectious disease: the great killers - malaria, tuberculosis, HIV. First of all we have to be on the lookout that new and emerging plagues will further complicate the scene. New diseases are in every week's headlines; and we have the grim reminder of the cattle slaughtered to contain the bovine FMD -- things like that can happen to humans as well; we recall the great flu pandemic of 1918. So surveillance for old and new enemies comes close to the top of the list. HIV has been a tough antagonist, as with many other viruses it is hard, but we need, to devise chemical cures that complement the behavioral, i.e. self-care. That has begun to work in the U.S., but there is not so much to be proud of in how that was handled here, and no basis for finger-pointing abroad. Malaria, tuberculosis: it is inexcusable what a pittance of research has gone into what is obviously achievable by way of new pharmaceuticals and vaccines. Perhaps for these, and certainly for diarrheal disease, there will

be room for new concepts like that of the microbiome -- explain -- the extension of our own genome to include the other inhabitants of our body space. We may eventually wonder what is the optimum level of antigenic stimulation we may need for robust immune development: some British doctors believe that the rising prevalence of asthma may be related to our being overprotective about our children's exposure to minor ailments. This seems problematical for Baltimore. These questions are all amenable to the efflorescence of new scientific tools and concepts that typify this, the DNA century. Public Health, perhaps even more than personal medicine, will be the vehicle for the most cogent use of that knowledge, just as the germ theory accompanied sanitation and other expressions of hygiene as the major source of health improvement a century ago.

Good luck on your next great adventures.