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Convocation Address

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VITAL ASSETS

"These are difficult and troublous times!" How often have we heard that expression, and how true it is! I presume that every generation has had that outlook since the day when man first began to aspire to better things. It seems likely, indeed, that there never was a time when man was entirely at peace with his environment because all nature is in constant struggle, and man as a member of the natural world has not been free of natural laws.

But man through his superior endowment of thought, reason and memory has attempted to lift himself above the ugly expressions of competition and conflict, and has endeavored to place his existence on a higher plane of organization. Though he has failed repeatedly in these efforts (and the present state of affairs represents perhaps the most colossal failure that could be charged against collective man), he has in certain fields achieved notable success. One of the most outstanding triumphs to his credit is undoubtedly the promotion of health and the preservation of life, which have been made possible through the developments in science and preventive medicine. And it is significant that to accomplish this end, it has been necessary that man learn to cooperate with fellowman.

In all this, lie our vital assets--health, science that laid the groundwork for it, and the principle of interdependence of man in health and science.

It is not through chance, but through the happy combination of many factors, that we find ourselves here this afternoon. Among these factors, are first our parents who aided and encouraged us in our

progress. Society itself has been good to us, and through the application of the accepted principle of democracy in education, we have received a training in far greater numbers than in former generations and in any other land. This University, your alma mater, stands as an example of the State's deep concern for its young, by offering that priceless prize--opportunity. But the factor in your career that I should like particularly to call to your attention is the safeguards that have been placed about your life and health, and that have brought you thus far along your road.

Your benefactors in this regard have been your parents who were mindful of every faltering step and each mouthful of food; your family physician who ushered you into the world and shielded you as you grew; and the agencies of community and State that assiduously protected you by applying the principles of modern medicine and public health.

These are blessings too many to count, too significant to measure. We are likely to overlook such commonplace things, and yet our everyday experiences are each one related to safeguards provided us--provided as a result of that intangible sense of responsibility that the community such as ours feels for its individual members. Numerous progressive measures, social and economic as well as medical, have contributed to our well-being. I do not deny that much is yet to be attained in the promotion of the public health, but I do wish to point out that we, as in no previous generation, are blessed with this vital asset of health.

An examination of our vital statistics shows us that in the last 40 years, the death rate has been markedly reduced, and that

most of this reduction has taken place in the age-groups under 14 years.

A large factor in this saving of life in the early years has been the reduction in the risk of death from infectious diseases. Thus in this country at the turn of the century, five times as many persons as now died of tuberculosis (200 and 46 per 100,000 population). Sixteen children (1 to 14 years) died of diphtheria, as recently as 1911, for each child that now succumbs to that disease. Typhoid fever was a common disease, causing just about 100 times as many deaths in our principal cities as now. In Columbus, there is now about 1 death from typhoid each year for 123 in 1900.

The result of this phenomenal situation is that we represent an ever increasing number surviving the vicissitudes of early life. This increasing surety of life and health allows us to paraphrase the familiar quotation, and say, "There, but for the grace of God and medicine and science, I lie!" It is clear that we are living in an era favored in these respects. And while advances have been on the way for a longer period of time, the acceleration has been most marked in the last fifty years. We now find ourselves at the peak of this public health achievement. We are, then, the elite, the chosen. We are, in effect, the product of successful competition with the forces of nature. But it has not been easy. Our life and health have been bought at a price--at the price of careful planning, vast expenditures, unified effort and hard work.

I describe our situation, unique in the history of mankind, so that we may realize not only our blessing, but also the challenge that confronts us. A laissez-faire attitude toward vital matters

is not enough even to hold our gains. So tenuous is the thread of life, so real is the competition of man with his natural surroundings and unseen parasites, that we must use all our resources and intelligence in the struggle.

We ourselves have had distinct advantages, and if we appreciate the priceless assets of life and health, we must pass them on. If we love our children, we have a challenge to increase our heritage for their benefit, and as citizens in a democracy this challenge is real. Health is a right to which each is entitled, and a right entails duty which we must discharge intelligently, not blindly. To be equal to the challenge, we must understand what elements have entered into our present position, and here we find science as an essential factor. The scientific attitude and method are a second heritage, constantly at our disposal as a source of strength.

Curiosity is the most significant of man's mental qualities. Particularly has man been curious about causation, and since the beginning of history, he has speculated on the cause of disease. When it was recognized that infectious diseases might be due to demonstrable agents, the search for them led to the development of special techniques; thus was Bacteriology identified as a distinct science. The results of bacteriologic research have been the basis for medical and public health approaches to epidemic disease.

Bacteriology, of course, grew along side other sciences and together they worked out a method applicable to the solution of objective problems in all scientific fields. This is the "scientific method", which is predicated on the investigator's having curiosity, vision, imagination, and undefeatable morale; and the test of the

method is the principle of predictability.

The scientific method is not the exclusive possession of the scientific laboratory, although here we should see it operating at its best. We live by it, in the modern world, and consciously or not, it has pervaded modern thought. I do not hold that the scientific method is applicable to all problems of human relations in the same way that it has proved fruitful in laboratory research. But scientific research is the foundation on which social questions can profitably be placed. The superstructure dealing with the human side of the question may then be built with sounder judgment. It is no accident that we have the terms "social science" and "political science." They might be held invalid because of the unpredictability of the human factor. But there can be no serious objection to the use of such terms if they imply a method of approach, and that is what I am speaking of here. Their use significantly represents the modern attitude of objectivity, analysis and deduction, and illustrates the point that even in human affairs scientific procedure is an asset available for our use.

But are we using this asset intelligently and to its fullest extent? If we ask, "has the application of the scientific method been entirely satisfactory?" we should be impelled to answer, "no". Why? Chiefly because the various sciences have not kept pace, one with another. A few examples are in place.

It can be justifiably charged that science has made possible the type and extent of modern warfare. It is trite, so well recognized is it, to say that a solution of our human relations must be found before we can hope to solve the problem of international conflict.

The development of the dive bomber and the tank has outstripped our knowledge of the physiology and psychology of the men who must drive these machines. The power of the automobile engine does not take into account the human equation in mechanized traffic. Another well-known disparity is scientific improvement in agriculture and failure to use agricultural products effectively and to the benefit of society as a whole.

And let us come back to the first asset, namely, our survival of the hazards of infancy, childhood and youth. It has drastically altered the ratio of the various age groups in the population, so that more and more people are living in the upper age brackets. But in saving life, we have introduced new problems: how younger people as a group can find places in the economic world; what we are to do medically about the diseases of advanced age; how we are to care for the increasing numbers of economically dependent persons. It is not by chance that we have such schemes as the Townsend plan and the platform of "ham and eggs every Thursday."

Clearly, the applications of science have not been entirely satisfactory. The advances in the subjective sphere have lagged behind the science of the objective world. Is this, however, a charge against science and the scientific method, and a basis for an injunction against scientific advances?

Science is outside any control by human edict. It is an evidence of the basic quality of curiosity of man, and it is impossible to curb it. Instead of restraint of scientific investigations, balanced and mutual progression in the various fields of human endeavor is to be fostered. Nor can there be an arbitrary guidance

of scientific effort by any dictatorial command. Research is man's right, undenied and undeniable in a democratic atmosphere. Let us cherish this right of scientific freedom, and realize that as a possession of democratic society it can remain a tool and not become a master.

But is it sufficient that we appreciate how the improvement in health has resulted from scientific work, or that we possess as an established right of democracy the freedom of scientific thought and endeavor? Is the possession of these assets limited to this country? We must realize as the next step in our understanding that these are world possessions. Communities, peoples, nations the world over are concerned about the same problems. To be sure, there is considerable variation as to the extent of progress in research and its application in matters of health and science. But the point is widely accepted that the pursuit of health and the freedom of science are inalienable rights of humanity.

In peacetimes, the great forces of human betterment from all corners of the globe unite to promote their common program. In time of war, these mutual exchanges are carried on between friendly nations, but we see barriers rising between warring nations, even though their basic interests are thereby affected.

Let us think for the moment ^{on} the question of why nations consider that matters of life, health and science are outside the pale of narrow nationalistic interest. First, scientific and professional men are fundamentally objective in their outlook; they are impelled by their nature and position to seek their most satisfying rewards in their scientific work and in the observation of its application.

This outlook is shared by scientific men without respect to nationalities, and science knows no boundaries. Second, nations benefit by a mutual consideration of vital matters, and progress is thus made internationally, instead of nationally. And third, insofar as infectious agents and communicable diseases are concerned, mutual dependence is inescapable, for more materially than science, infectious disease knows no boundaries. Isolationism is impossible and international dependence is inevitable.

To make it clear why nations are interdependent in these respects, it is necessary to observe the ways by which diseases are transmitted over long and short distances: by man, either ill or as a carrier of disease when he is well; by animals, as sources of human infection, either wandering over the country or carried in transports of man; and by insects moving independently, or on animals, or in man's vehicles. Man has vastly improved the situation by his scientific discoveries in respect to epidemic diseases, but he has immeasurably increased the facility of their spread by developing the social habit of community life and particularly the methods of frequent and rapid transportation. The steamship has carried cholera, smallpox, typhus and bubonic plague from port to port. The automobile and train transport the human carriers of malaria, dysentery and typhoid, from city to city and nation to nation. The airplane carries infected insects and humans ill with infectious diseases over long distances in incredibly short time. Psittacosis (parrot fever) has been a world problem for man because parrots carrying the virus have been shipped from South America and Australia to distant parts of the world. Yellow fever occurs in

the jungles as well as in the towns and cities of South America, and airplanes using landing fields in northern South America could carry infective mosquitoes to the Caribbean area and to the United States. Yellow fever occurs in East Africa, but not in Asia. The vast hordes of India and beyond have been, heretofore, effectively isolated from direct contact with East Africa; but now they are only a few hours distant by airplane. A most vicious malaria mosquito was recently introduced into South America from West Africa, presumably by airplane traffic.

Does all this mean that the threat of international and intercontinental spread of epidemic disease must prohibit friendly commerce and traffic between peoples? Has modern science outrun itself and devised mechanisms that will be the undoing of man himself? We must reject as unthinkable the idea that man is not to associate with fellowman in other regions, nations and hemispheres.

To meet the situation, we have found methods that restrict the wandering of many epidemic diseases over the face of the earth. There are at hand man-made methods to control the element of nature, so that man may enjoy his freedom of movement. The solution of the difficulty lies in these available resources: first, knowledge of the infectious agents and the ways they are transmitted; second, the international exchange of this knowledge; and third, the distribution of information on the incidence of epidemic disease. Not only is the solution at hand, but it is actually in operation. The degree of control of many epidemic diseases over the world is in proportion to the degree of exercise of these principles. This is not a hypothetical situation; it is, in peace time, an operating

principle. It requires no crusade, no conversion, no sacrifice of independent action. It is a covenant of interdependence.

Life, health and related science are world possessions, then, and we are individuals in a field of world interest. With the advantages of profiting by these world measures goes the responsibility of mutually sharing our experiences in the same field. In these respects, we are unquestionably citizens of the world.

There is, admittedly, a selfish aspect of this point of view; but in the larger sense it is unselfishly humanitarian. We are interested in the occurrence of bubonic plague in South America, so that we ourselves may be protected against it. But we are also concerned because of our regard for common experiences in life and health in our fellowman. At the present time, international groups of scientists are studying and controlling tuberculosis, plague, typhus and yellow fever in South America. And so it has gone, all over the world, the stronger helping the weak, and the weak helping the strong, an exchange to mutual advantage. This is an undeniable corollary of the democratic principle.

The future possibilities of the application of this practice challenge the imagination. What could not be accomplished in the improvement of the health of nations? For the nation is as strong as the health of its members. Health is so personal, so intimate, so inherent in the welfare of the individual, that it is the finest example of democratic interest. Its multiplication by the number of persons in a nation does not destroy its value for the individual, but only puts personal gain on a national scale. With benefits go hardships, and some must restrict their selfish bent, so that others

may have freedom from disease and liberty in self-development. The personal element of mutual dependence may be the basis for an even wider understanding between nations.

And on this basis, let us venture an expansion of the idea of the covenant of interdependence. If nations could be influenced to look on all interests of mankind--political, social, economic--as of common concern; if all peoples could have the same respect for each other in these matters as they do in questions of health; if all international relations could be on the same bases both of self-fish unselfishness and of regard for common interests--then, periodic upheavals might be avoided. We seem to need a spiritual element in our international relations in order effectively to bind nations together in a world organization. Could this, the common concern in questions of health and science, be the essential ingredient, the spiritual bond?

World citizenship in these matters is our hope for the future.

I have attempted to discuss some of our vital assets; first, that we may appreciate our unique position in the history of mankind as regards health and the challenge that this privilege presents us; second, that we may understand the force of science in our inheritance and the strength we have in science if we employ it as a tool in democracy; and third, that we may realize our world citizenship in life, health and science and the hope it brings as a basis for an international covenant of interdependence.

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