Different nations are now trying different remedies for this disparity between scientific knowledge and social practice. Communism, in so far as it is based upon the ideal that all men are equal in ability or character or social value, is scientifically false. In a democratic society all men are not and never will be equal in power, wealth or social value, but they do have equal rights to life, liberty and opportunity. Leadership of wealth may be as useful as any form of leadership—witness our great educational, charitable and scientific institutions established by private endowment. All "share the wealth" programs would be ineffective to change effectively the present status. Sharing all income above $5,000 would give only $200 to each of twenty million families, or approximately $50 to every man, woman and child in the United States.

Fascism is no satisfactory solution of the problem of insuring life, liberty and opportunity to every person. It destroys liberty of press, speech, thought and conscience; it censors science and religion, reduces the mass to the condition of robots and cannon fodder. It is based on war psychology, does not educate the people for peace and freedom, puts everything under a dictator who must maintain a reputation of supernatural grandeur. It may work well for a time, but always ends in disaster.

"Rugged individualism" in the sense of "every man for himself and the devil take the hindmost" is no remedy for the present ills of society. We have had too much of this in the past to be content to go back to it now. It served well in a pioneer stage of society, but will not work in a crowded state.

Democratic socialism seems to me the safest and sanest social order. It avoids the extremes of communism, fascism and individualism, and yet contains elements of all these, and as such it conforms to that inexorable biological principle of the necessity of preserving balance between contrasting principles or opposing forces. Fanatical extremes of individual freedom or of social regimentation have no successful prototypes in biological or human history. Democratic socialism best preserves this balance in the social order.

It best preserves freedom of experimentation. The scientific method of learning is by experiment, trial and error, and finally trial and success. There is no other path of progress. Many mistakes are made, but with freedom to experiment they will be eliminated. This is the great advantage of free government. In this sense it is true, as Lincoln said, that "A free government is better than a good government."

Democratic socialism is best for the education of the masses. The ultimate aim of all education, whether of children or nations, should be to fit for freedom and cooperation, and both children and nations must learn by experimentation.

The spirit of science and the method of science must spread to society and government. Scientists must take a more active part in solving social problems. Such progress will be slow but sure. Science and ethics are the chief hopes of social progress.

EDWIN G. CONKLIN

PRINCETON UNIVERSITY

RESPONSE TO ADDRESSES OF WELCOME

President Farrand, of Cornell University, and President Conklin, of the American Association for the Advancement of Science:

ON behalf of the Society of Sigma Xi, let me thank you most warmly for the gracious and kindly words with which you have signalized this occasion—the fiftieth anniversary of the birth of Sigma Xi. Our appreciation to you, President Farrand, because you represent Cornell University, the place of our birth, the source of our early inspirations and the mecca of our members on this, our fiftieth birthday; and to you, President Conklin, because you represent the American Association for the Advancement of Science, the fostering mother of the organization of science in our country, and because we are honored here to-day by the presence of that great organization in an official and collective sense, as a participant in the events which are intended to mark this occasion.

We thank you both for your kindly words and for the generous terms with which you have referred to our society and to its work during this first half century of its life.

In particular, I would wish that your kindly welcome and generous words should be understood as intended, not only for those who have the good fortune to be here present on this occasion, but also, more widely, for all our members, no matter where they may be found, in this broad land or beyond the seas. Doubtless they are here in spirit, perhaps through the wizardry of modern radio; others, at a later time, may read in printed word some account of these exercises, and I would hope that all such will feel that your words are addressed to them as well as to those within the immediate reach of your spoken words.

We are, as you have said, here to celebrate the fiftieth anniversary of the organization of the scientific honor Society of Sigma Xi. The present moment is not the time for any detailed reference to the history of this event or to the history of the society during this past half century. This will come appropriately at a later time in our exercises as you will note from your programs.

If I may, however, be allowed a word, more personal in import, I would take the opportunity of ex-

pressing my own deep personal feeling and interest in this occasion. Coming to Cornell when the society was only five years old, and accepted as a member, I remained for thirteen years in this atmosphere which has engendered the Society of Sigma Xi and which had sent it on its mission throughout our broad land. The memories of the birth of the society were still fresh in those years. I have known personally three of the founder members of the society, and among them Henry Shaler Williams of blessed memory. From one of the others, Professor C. B. Wing, now emeritus professor of civil engineering at Stanford University, I bring sincere regrets that he can not be present with us on this occasion, together with warm greetings to you all.

For these reasons, from my early acquaintance and association with these pioneers of our society, by reason of my period of thirteen years spent most delightfully in the intellectual, social and physical environment which Cornell affords, the present occasion holds for me a peculiarly keen and special interest.

And so, through the years which have passed since those beginnings, our society has come to the mid point of the century. Of our history during that period, you will, as I have said, hear more in a moment. But in reviewing the past, we must not forget the future. The past has gone beyond recall. The future is still before us. We may draw lessons from our experience of the past; we have the future in which to apply these lessons. Let us, then, while we think of the past, keep our faces toward the future with a firm resolve that, so far as in us may lie, the future of our society shall show an ever rising gradient of progress in the scope and effectiveness of its service to the cause of science and the scientific training of the young.

Again, let me express to you both our profound appreciation for your words of welcome and cheer to us on this occasion.

WILLIAM F. DURAND

STANFORD UNIVERSITY

BRIEF HISTORY OF SIGMA XI

THE Society of the Sigma Xi is a fifty-year old youth movement on a high level and a large scale. It was started on the campus of Cornell University in 1886 by nine young students under the guidance, but not the control, of the justly well-known geologist, Professor Henry Shaler Williams. Its purpose has always been to promote research in pure and applied science. The method followed in the pursuit of its object has always been the encouragement and recognition of excellence of college and university undergraduates and graduates in the pursuit of science courses. It associates into one body all students who exhibit special ability in science, regardless of the field of endeavor. The preamble of the first constitution sets forth this object and this method definitely.

> Friendship in Science. While those whose heart and soul is in their work, are coping with the great problems of Nature, let them remember that the ties of friendship can not be investigated, but only felt. Let them join heart and hand, forming a brotherhood in Science and Engineering; thus promoting and encouraging by those strong, personal attachments of friendship, the highest and the truest advances in the scientific field. To lend aid and encouragement to those newer brothers, who likewise laboring in the same sphere are aspiring to honored positions. And in collegiate halls to award an honor, which to scientific recipients shall signify, "Come up higher."

During the first quarter century of the society's history, branches of Sigma Xi were established in 28 institutions in which science and technology were notably strong, and 300 young men and women of marked accomplishment in science courses were annually elected to membership.

For 25 years the activities of the national organization were a summation of the activities of the 28 individual units. But in 1913 and 1914 it began to appear that the society as a whole was confronted with problems which affected not one chapter, or several chapters, but all chapters alike. A national policy became necessary. The first of these questions was connected with the inevitable expansion of the society. What institutions should be given charters for chapters? A strict definition of conditions was made—president and trustees of an institution contemplating a chapter must be favorably disposed toward research; there must be apparatus and facilities available for research; there must be members of the faculty who have had adequate training for research; there must have been a continuous output of research for a number of years; there must be appropriations for research.

A second national problem arose about this time—what should constitute eligibility for election of young men and women into the society? All students in the institutions where there were chapters had had opportunity to show excellence in science by their scholastic record, but only a very few had had a chance to exhibit an aptitude for scientific research by actual research work. The situation in the universities and colleges themselves made necessary a distinction among candidates for election into the society, and eligibility requirements were strictly defined. Those students were eligible to membership who, as judged by actual scientific investigation, had exhibited an aptitude for research; and those were eligible to associateship who had shown marked excellence in one or more departments of pure and applied science. In both cases it