I THE AGE OF SCIENCE

We live in an age of science. I do not say "an age of technology" for every age has been an age of technology. We recognize this when we describe past civilizations as the Stone Age, the Bronze Age, and the Age of Steam or of Steel, thus implicitly admitting that the stage of civilization is determined by the tools at man's disposal—in other words, by his technology. . . . Science, unlike invention and technical skill, is a relatively modern concept.

The characteristic feature of our age results from the wedding of science and engineering. It is the working together of disciplined curiosity and purposeful ingenuity to create new materials, new forces, and new opportunities which powerfully affect our manner of living and ways of thinking.

Neither curiosity nor ingenuity is a modern impulse. . . . The distinctive feature of science and technology at the present time is the accelerated pace of their development. This is partly due to continually improved techniques and organization, and it is partly due to the great accumulation of knowledge and art, because the

more information and tools we have at our disposal, the more powerful can be the attack on any new problem.

Fundamentally, science means simply knowledge of our environment. Combined with ingenuity, science becomes power.

I believe that the advent of modern science is the most important social event in all history.

The geographical pioneer is now supplanted by the scientific pioneer. . . . Without the scientific pioneer our civilization would stand still and our spirit would stagnate; with him mankind will continue to work toward his higher destiny. This being so, our problem is to make science as effective an element as possible in our American program for social progress.

There is "something new under the sun" in that modern science has given mankind, for the first time in the history of the human race, a way of securing a more abundant life which does not simply consist in taking it away from someone else. Science really creates wealth and opportunity where they did not exist before.

Whereas the old order was based on competition, the new order of science makes possible, for the first time, a co-operative creative effort in which everyone is the gainer, and no one the loser.

It is hard, now-a-days, to realize how revolutionary have been the changes in man's outlook upon life which have been wrought by science.

With the advent of science came the beginnings of a profound change of intellectual approach to the interpretation of Nature. Supernatural causes, manufactured in the imagination to satisfy the desire for explanations, were superseded by natural causes discovered in the laboratory. The universe came to be understood as a vastly complicated mechanism built of electricity and energy, and operating with marvelous precision in accordance with a system of laws.

As the complexity of the structure of matter became revealed through research, its basic simplicity, unity, and dependability became equally evident. So we now see ourselves in a world governed by natural laws instead of by capricious deities and devils. This does not necessarily mean that God has been ruled out of the picture, but it does mean that the architect and engineer of the universe is a far different type of being from the gods assumed by the ancients, and that man lives and dies in a world of logical system and orderly performance.

This change in our understanding of the world has not only profoundly affected our conceptions of the place of man in the universe and his attitudes toward it, but it has also exerted an influence on his political organization.

I think we can certainly say that, insofar as development in science is concerned, we are now in an era of vigorous development both of science itself and in the techniques of organization, administration, and support which form the environment in which scientific progress can be made.