

would get us over the crisis; which would see science through these periods of stress.

The first period I would like to look at is the period at the beginning of the 17th century, the beginning of the Scientific Revolution as it is now called.

The second period is the early days of quantum mechanics; the crisis in the early 20th century when the attempt was made to reduce atomic and subatomic phenomena first to the laws of classical physics and then the rejection of these laws and the attempt to see science as something quite different from what it has been since the Scientific Revolution.

The crisis at the end of the 16th century was a very severe one. The old medieval picture had broken down ; the medieval methods had vanished; reason seemed to be a blind alley; the great medieval philosophers such as William of Ockham, Duns Scotus, had pointed out that reason leads you nowhere; you cannot reason out a theology and theology therefore must be taken on faith from scripture; reason seemed to get you no farther than the quantification of angle density on pinheads. It seemed to be a dead end. And so, the question raised at the end of the 16th and beginning of the 17th century was, "How do we get out of this cul de sac? How do we get out of this dead end and come back once again to some kind of vital relationship with nature and with knowledge?"

Two men, I think, stand out--at least for my purposes they stand out because I want to speak about them this morning; they are Francis Bacon and Renè Descartes. Neither was really a great scientist, but they were philosophers of science and each felt that he had the answer to this impasse. Each felt that he had the way out, he had the definition, if you will, of what science was, so that, in fact, there could be a new attack, a renovation, a rejuvenation of the intellectual world.

Let me begin with Bacon. His dates, incidentally, if you want them, are 1561 to 1626--to give you a kind of chronological coordinate. Let me first speak about Bacon and his method. Here we will see very definitely a method which is very much alive today. In fact, at the end of this talk, if I have time, I want to come back and point out that Baconianism is probably the official philosophy of science in most of the research laboratories of the world today.