

Aldous Huxley (1894–1963)
The Final Revolution
26th of January 1959

This lecture was given at a symposium named “A Pharmacologic Approach to the Study of the Mind” which was held at the University of California's San Francisco Medical Center on Jan. 25-27, 1959. The recording of the lecture can be found in the Aldous Huxley Papers of the UCLA Library Digital Collections, tape 217.

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This is the editors transcript of the audio. An edited and censored version of the lecture can be found in “Aldous Huxley, Moksha, Writings on Psychedelics and the Visionary Experience (1931- 1963)”, edited by Michael Horowitz and Cynthia Palmer, 1977, Chapter 26.

Edited versions of this and other lectures from the symposium can be found in book form in “A Pharmacologic Approach to the Study of the Mind.”, Featherstone, Robert M., and Simon, Alexander. (Editors), Springfield, IL: Charles C. Thomas, 1959.

Edited by Hans Frederik Ross Nielsen

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Legend: <Editors addition>, [Editors comment], {Description of non-verbal sounds}.

Mr. Chairman, Ladies and Gentlemen. Let me begin by thanking Dr. Leake (1896–1978) for the very kind words he has spoken about me, and my all to numerous books, I was rather alarmed, I must say, when you gave the full catalog, and I don't think it is a full catalog, unfortunately. And, I asked myself here tonight what exactly am I doing in this company. I'm probably the only bachelor of arts in this large concourse of doctors of various sciences. And I come here as a kind of ignoramus in the midst of a great sea of specialized knowledge. There is a very curious line which has been preserved from the Greek poet Archilochus (c.680–c.645 BC). A line which runs as follows—it has been actually made the title of a very interesting essay on Tolstoy by Sir Isaiah Berlin (1909–1997)—“The fox knows many things, but the hedgehog knows one big thing.” Now this is a cryptic line, I mean in the matter of natural history, it's clear what it means, that the fox has all kinds of tricks, but the hedgehog can fold itself up into a ball and can completely resist the fox. But as Sir Isaiah Berlin points out, it's a line capable of application in many fields. He points out that in the field of literature, for example, there are the fox writers and there are the hedgehog writers.

There are the foxes, who look over an enormous area who know many, many things, of whom, of course, the supreme example is Shakespeare (1564 (baptized)–1616). And there are the hedgehogs, who confine themselves who are one pointed persons [sic.], who concentrate upon one idea and develop it to the limit, and here the supreme example is, of course, Dante (c.1265–1321).

But this thing can be applied, I think, in other fields. In the present instance I think we can apply it to the specialists and the non-specialists, and here I can say that I am a kind of

rather low-class fox in the midst of a great number of very high-class hedge-hogs, {general hilarity} and what am I doing? What is the value of my presence here?

Well, obviously I can't compete with any of the hedgehogs. I listen to the papers here and many of them to me are exceedingly interesting and I derive a great deal of profit from them. But I confess when the hedgehogs go too chemical, then I just fold up and don't know what is being talked about. Nevertheless, I do feel that the fox, with his knowledge, rather superficial knowledge, of many things, his wide-ranging many-pointed activity, has a value, and can do something, above all if he is prepared to work with the hedgehogs.

We are up against, of course, the great problem of specialization. What is to be done about specialization? I was reading the other day an extremely interesting book which is going to come out this spring, dealing with my grandfather's activity as an educational reformer¹. He was, over and above his activities as a biologist, he was tremendously interested and active in social affairs, and he was largely responsible for the curriculum of the London School Board when education was made universal and gratuitous in England. And he did a great deal in making the University of London into a really modern university, with specialist departments in all fields. I mean he realized that you had to have specialization in order to explore the depths of scientific knowledge. But the interesting thing is that twenty years later, two or three years before his death, he was deeply concerned in undoing the effects of specialization. He wanted to—in some way—to get the people in the University of London—to get the professors out of their separate pigeonholes, and to meet together in a sort of concerted effort to pool their specialized knowledge and to bring it out into the world at large. And it's interesting to note that this, after nearly seventy years, still remains one of our enormous problems. How to make the best of both worlds: the world of specialization, which is absolutely necessary, and the world of general communication and interest in the larger affairs of life, which is also necessary.

And here I think the man of letters has a contribution to make. He can, if he chooses to associate a little with hedgehogs, do something to form a bridge between science and the general world. And this, I must say, seems to me a matter of the most crucial importance at the moment. We seem to have a really schizophrenic attitude now. We separate the two to such an extent. And I think it isn't at all difficult to start making bridges. For example, if I had the control of education I would certainly start pointing out to children, of quite small age, that the fundamental rule of morality, the golden rule—do as you would be done by—begins on the sub-human level, even the sub-biological level. It begins on the level of the plants. If you want nature to treat you well, you must treat nature well. If you start destroying nature, nature will destroy you, and this basic moral precept is fundamental in our present knowledge of ecology and conservation. And in the same way, what we know now about ecology points to the fact that nature exists in the most delicate balance, and that anything which tends to upset the balance will produce consequences of the most unexpected character and often of the most disastrous character. And here again we are forgetting to—we perceive the deep biological foundations of the ethical sense, for example so fully developed by the Greeks. The sense that you must never go to excess, the sense that hubris of overweening pride, is one of the greatest sins of all, and this truth is deeply founded in nature.

And we see then that many of these most important ethical truths flow quite naturally and simply from the scientific facts, and I feel very strongly that this kind of bridging between the two worlds of pure science and the world of ethics should be made from the earliest age.²

1 Bibby, Cyril. T. H. Huxley, Scientist, Humanist and Educator. (New York: Horizon Press, 1960)

2 Cf. Bertrand Russell, *The Impact of Science on Society* (New York: AMS Press, 1968) p.30: “[...] not much can be

But meanwhile, the man of letters, I think, can do quite a lot to establish this bridge. And meanwhile I think it's important to point out, that in this particular field, in which this conference is interested: the relationship between mind and body, brain and body, and the general physique and spirit, men of letters have devoted a great deal of thought to this subject, and have produced some extremely interesting, what may be called pre-scientific, results in this field. For example, if one compares the psychology say of the middle ages or the psychology of the 16th Century with the great literary works of the period, if one compares medieval psychology, for example, with the poetry of Chaucer's (1343–1400) *Canterbury Tales*, one perceives the enormous superiority of the literary artist to the scientific man of the period. And the same is perfectly true of Shakespeare. When one examines the official psychology of the epoch, one is amazed by its crudity; but when one looks at the plays of Shakespeare, one is still more amazed by the enormous subtlety of the psychology, and the penetration which was shown by this extraordinary man. And it is an interesting fact that the official psychology, scientific psychology does not begin to catch up with literary psychology until well on in the second half of the 19th century. I mean, before the—what may be called modern psychology—it's incredible to see the barrenness of the official psychological doctrines in comparison with the literary psychology of such novelists as Balzac (1799–1850) or Dickens (1812–1870) or George Eliot (1819–1880) or Dostoyevsky (1821–1881) and Tolstoy (1828–1910). One is astounded at the poverty of the scientific formulations in comparison with the extraordinary richness and subtlety which these men, by observation and intuition, had set down in their novels. And it's amusing, too, to see the way in which certain of the problems which are being discussed now; the effect of drugs upon the mind, were discussed and understood by the great masters of literature in the past.

I mean we were mentioning the problem of alcohol just now. It's interesting to see how the great masters of literature in the past perceived the fact that the effects of alcohol were profoundly different according to the temperament and constitution of the persons who took it. And, incidentally, I haven't attended all the sittings of the conference to date, but among those I have attended I was struck by the absence of reference to the profoundly important fact that the human species is more variable than any other species in the whole realm of nature. In general we may say that specie variability increases as we rise up the evolutionary scale, and that the maximum of variability is in the human species, that we are profoundly different as individuals, one from another, both structurally and even bio-chemically. And it's interesting, for example, to see the way that Shakespeare for example points out that the drunkenness for example of a Falstaff is totally different from the drunkenness of a Cassio, who is this big military figure belonging to the extreme of what <Dr. William> Sheldon (1898–1977) would call the somatotonic pole³ of human variability. And that both these drunkennesses are again quite different from the drunkenness which would be manifested, for example, by a person with my kind of physique. Which—I would be—probably feel extremely ill and be very, very melancholic, Cassio would be extremely aggressive, and Falstaff would be

done unless indoctrination begins before the age of ten.”

3 The psychologist William Sheldon would distinguish between three types of human physique or body types, the ectomorph (slim and tall), mesomorph (muscular), and endomorph (chubby) type. After interviewing hundreds of people, Sheldon linked three fundamental components of human temperament to these three body types. He named them viscerotonia, somatotonia and cerebrotonia and then renamed them endotonia, mesotonia and ectotonia. He would use a triangle to describe the relation of the three types, hence the “somatotonic 'pole'” The extreme mesotonic (somatotonic) person would be very action-oriented and assertive, hence the typical military leader (e.g. Shakespeare's Cassio) would be of this category.

extremely jolly⁴. And of course this profound variability between individuals is to be noted, I suppose, in regard to, not merely to alcohol, but to all other drugs. And I merely point out this fact to show that the literary man has made very acute observations from very early on in the history of culture. So that we are—as I say—we are not completely useless, there are many things we can do, and I think that—at the present moment I do feel very strongly that it is one of the functions of literary men to act as bridges between the specialists on the one hand, and the nonspecialists, who constitute the great mass of the world on the other.

Again, we come now to the question of language. In his paper yesterday, Dr. Elkes (1913–1965) stressed the fact that the language is lacking very much for discussing many of these problems, and he expressed the hope that within a short time we should be able to make use of mathematics for discussing these questions. Well, so far as the general public is concerned, mathematics is not very helpful. And here again the man of letters, I think, can do a very important task, and this is an incredibly difficult task. I mean our problem is to adapt a language which is really not in the least suitable to describing a continuum of mind and body, a universe of complete continuity—This our language, as I say, it not at all well adapted to this. And we have to, somehow or other, to invent some means of talking about these problems in an artistically varied way which shall present them, and make them accessible to the general public. Ideally, for example, we ought to be able to talk about say a mystical experience in terms, simultaneously, of theology, of psychology and of biochemistry. This is, of course, a pretty tall order, but unless we can do something of the kind, it will remain extraordinarily difficult for people to think about this continuous web of life, to think about it as a continuum, and not in terms of the old Platonic and Cartesian dualism which so extraordinarily falsifies our picture of the world⁵. How we are going to do this, how the literary men are going to achieve this miracle of language, I don't know, but I think it has to be achieved. And maybe we shall—some future Shakespeare will arise with an immense command of language, who will be able to take the existing—our existing English, and somehow, by some miracle of poetry, or miracle of poetical prose, render this picture of a continuum. This is something I myself have thought about a great deal, and frankly I just do not have enough talent to do this, but I fell very strongly that it needs to be done, and I hope, that some day or other, it will be done. As long ago as the beginning of the 19th Century, Wordsworth (1770 – 1850) in his preface to the Lyrical Ballads made the statement that the time would come when the remotest discovery of the physicist and the chemist would become a suitable subject matter for poetry. Well, 150—more than 150 years have passed since then, and still these two fields remain very much apart. We haven't—it must be stated—that we have not yet made the necessary fusion, and this is a matter I feel that men of letters should think about very carefully, as I say, the problem is an incredibly difficult one. But this is—it presents a challenge which certainly we should try to meet. Because the need for such a new language, expressive of the fundamental unity of the world, is enormously necessary—I feel—at the present time.

Well, so much for a sort of apology for my existence here.

Now, let us get down to this—what is the, supposed to be the theme of this talk, which I have called The Ultimate Revolution. This is to my mind a very interesting and very important problem, to which the present conference is, in one way, quite relevant. The Ultimate Revolution, as I see it, is the application to human affairs, both on the social level and on the

4 Huxley is relating himself, Cassio and Falstaff to the ectomorph, mesomorph and endomorph physique respectively.

5 On this point, the reader is challenged to work through the works of Plato and consider the question himself.

individual level, of technology.

Now what is technology? Technology, technique in general, I suppose, is the application in a perfectly conscious and rational way of well-thought-out methods of doing things efficiently. The watch-word is essentially “efficiency.” And the beginnings of technology, in modern times, of course, were to be seen in the field of industrial production, in the field of applying machines and factory work to the problems of producing, first of all, woven goods, then metallurgical goods, and increasingly in other branches.

But of course, hand in hand, with the application of technique, to the methods of production, with the creation of more and more complicated machines, it became necessary to apply technique to specifically human spheres. In general we may say that the more complicated the physical machinery is, the more complicated does the organization have to become in the society which has to use these machines.

The application of technique to sociological and political and governmental problems, of course, is very ancient, in a rather sporadic way. For example, in the—we read in the Old Testament, it occurs both in the Book of Samuel and the Book of Chronicles, we read that King David ordered the numbering of the people. He ordered a census, which is, of course, one of the first procedures which any efficient and technically minded government has to do. But it's interesting to note that he ordered it expressly against the will of Jehovah, and expressly as the result of temptation by Satan. So that we see that in this Bronze Age period, in which the Book of Samuel and Chronicles was [sic.] written, there was a strong anti-technical feeling. People felt very strongly that there was a great danger in letting the government come in and find out all about them, which is what a census is.

And there is, of course, a great deal of foundation for such a suspicion, because in point of historical fact, we see that one of the great bulwarks of liberty has always been inefficiency. The desire to be a tyrant has existed very frequently, but the means for being tyrannical have been extraordinarily inadequate. The spirit of despotism was strong but the flesh was weak.

Take the case for example like Louis XIV (1638–1715). Louis XIV proclaimed himself an absolute monarch and would have liked to regiment everybody, but in point of fact his technical armory was extremely inadequate, and it was quite easy for individuals to slip between the meshes of his very widely woven net, and escape altogether. And even in the time of Napoleon (1769–1821), one is struck by the inefficiency of his police chief, Fouché (1759–1820), who was a man of enormous ability, and who had a highly-organized department. But compared with the efficiency of police forces even in the democratic state today, these people were wildly inept. And there was a great deal of individual liberty, simply because the people on top couldn't get hold of the masses, they were unable to regiment them however much they wanted to do so.

Well, these sporadic and preliminary efforts at what might be called technicizing governmental control, of course, have gone on all through history, where certain societies have made surprising advances. I mean, for example, the Roman world was amazingly well-organized in many ways. They technicized the military forces in a way which they were never technicized again until, certainly, the second half of the 18th Century. They had a technical and rational system of law such as again as we didn't see until the time of Napoleon and the reform of the English law during the 19th Century.

But of course all of this disappeared, and we had during the Middle Ages an extraordinary anti-technical or non-technical world in which organization was, so to speak—one doesn't like to use the word—but it was in a way, natural. There were the organizations which grew up, the guilds for example, which grew up from the association of people doing the

same sort of thing, without any kind of worked-out system.

And it was all remarkably inefficient, and required, of course, to be completely broken down at the time of the French Revolution in order to make possible the great developments of technology which followed thereafter. These, what may be called these natural societies, had to be atomized, and broken down so as to permit organization on the grand technical scale to take place. {break in audio}

Well, today we see the application of technique to human affairs on a greater and greater scale in all countries, and for myself I would say that the really important distinction between the Communist world and the world of the West is based—not really on Marxist theory in as far as that calls for the public ownership of the means of production, I don't think this is the really important factor in the situation today. It is a sort of mythology of the Soviet world. But the real fact is surely that the Communists are prepared to permit technicization to go to the absolute limit, whereas we have considerable qualms about allowing this thing to override our old traditions of personal liberty and democratic institutions.

Even in Marx (1818–1883) and in Engels (1820–1895) one sees the extraordinary importance which these writers gave to the technical aspect of social organization; and what we certainly see in Russia now is a world in which technology is given completely free play, and in which man is more and more subordinated to the needs of technology. And the nature of the tyranny, it seems to me, is essentially the turning of a man—who is in his deeper nature, a spontaneous, rather lazy spasmodic creature—his subordination to technical devices which make him work regularly, steadily, and in accord with a prearranged plan, he is the slave of a totalitarian society, which is the expression of an immensely highly technicized organization.

And one of the dangers, it seems to me, that confronts us is precisely this: that we are being forced by technology along the same road which the Russians have voluntarily taken, but we are being pushed this way. Technology tends to grow and develop according to the laws of its own being. It doesn't at all develop according to the laws of our being. The two things are quite separate, and man now finds himself subordinated to this thing which he created, and subject to its laws, which are not at all human laws. And this seems to me one of the gravest dangers which confronts us now.

And we see this technicization going on in many, many fields. For example in the field of government, it is becoming—even in the liberal and democratic governments, it's quite clear that the whole apparatus of government is becoming more and more technicized. For example in this country there are, I believe, no less than fifty-six agencies of the government dealing with statistics alone; I mean it is so necessary for us now, to have this immense armory of technical knowledge in order to permit the thing to run at all.

And then there is—the actual powers of the government have been so immensely strengthened by the advances in technology. The police, for example, have powers which, as I said just now, the police of Napoleon simply couldn't approach at all. And it's not merely a question that they possess superior arms or that they possess the means of communication which the older police forces did not possess. It's also a question that they have extremely elaborate methods of recording things. I mean that there is a—everybody's position is recorded on punched cards and on microfilms and so on. This is an entirely new fact. There is an immense mass of information about everybody in the hands of the central government which never existed before. This thing for which David was punished has now reached a pitch of perfection which was absolutely unimaginable even a 100 years ago. So that—and this is only one of the fields in which we see the advance of technique.

We see it again, of course, in the economic field where, even in the Western countries,

the old habit of leaving the economy entirely to the free market is largely replaced by a most elaborate system of plans going on everywhere. And there is this planification according to carefully worked-out rational methods, which is a feature—not merely of the totalitarian states—but of all the democratic states as well, a little less whole-heartedly in the democratic states, but nevertheless it is an important feature even there.

And in general I would say that this speeding up of technicization is being even further accelerated by the enormously rapid increase in numbers at the present moment. As the numbers increase, so do the problems of organization. The difficulties merely of doing something about these numbers, and the enormous difficulties which arise as numbers press more and more heavily upon resources entail inevitably a much more intensive planning activity of the central government. And it entails further and further technicization of all activities so that it seems almost inevitable that as the numbers increase during the next fifty years, as they evidently will—we are increasing now at about over forty-five millions a year on the planet—that as this happens, I think we must inevitably see a further technicization, and a further strengthening of the central government, a further usurpation of functions which used to be in the hands of private people, by the central authority.

And now we come to the most interesting and possibly the most alarming aspect of this technicization of human life, which is technique as applied to individuals, not merely to societies on the large scale, but to the individual, and this can be divided into various categories. There is, first of all of course, the amazingly well-developed technique now: propaganda. Propaganda may be defined as opposed to rational argument, argument based upon facts. Argument based upon facts aims at producing an intellectual conviction; propaganda aims, above all, at producing reflex action. It is aimed at bypassing the rational choice based upon knowledge of facts and getting directly at the solar plexus, so to speak, and affecting the subconscious. And, of course, the efficacy of propaganda was demonstrated on the most terrifying scale in Hitlerian Germany; it is demonstrated again in the Communist dictatorships, and it is demonstrated in this country by the extreme effectiveness of commercial advertising.

And this technicization of the means of getting at the human unconscious, is—to my mind, presents an enormous danger to our whole traditional conception of democracy and of liberty. It seems to make complete nonsense of the democratic process, which is, after all, based upon the assumption that voters make rational choice on the basis of the facts applied. I mean when one reads in a book like *The Hidden Persuaders* that in this country both political parties employ advertising agents to run the machinery of their campaigns, one is extremely alarmed, and one wonders how long the democratic tradition can go on surviving in the teeth of a technical method which is carefully, carefully rigged to bypass rational choice, and to affect people on a level below reason, on almost a physiological level. This is a very, very grave question.

Then we see again the technicization of persuasion as it is manifested in the processes of brainwashing, which are based very carefully upon the work of Pavlov (1849–1936), and which, as far as we can judge from the results achieved in China and achieved among war prisoners in Korea, are exceedingly efficient, and are probably going to become more and more efficient as time goes on. And finally we come to the question of attacking the human being on the physiological level, by pharmacological means. And here is where the present conference, I think, has to start thinking about —what is going to happen to these drugs as they are developed. How are they going to be used? How are we going to be sure they will be used well? It seems to me perfectly on the cards that—suppose for example that a euphoric

drug far more efficient and less harmful than alcohol is produced—which seems to be perfectly on the cards—and if this should be made available, if it should be introduced into every bottle of Coca Cola, then clearly, as I ventured to point out more than twenty years ago in *Brave New World*, this could become an incredibly powerful instrument in the hand of a dictator.

What is becoming, I think, quite clear now is that the dictatorships of the future will probably not be based on terror, as the dictatorships of the immediate past have been, the dictatorships of Hitler (1889–1945) and the dictatorships of Stalin (1878–1953). Terror is an extremely wasteful and stupid and inefficient method of controlling people. The Romans discovered this many years ago. As far as possible they tried to rule their empire by consent and not by mere coercion. And we are now in a position to do far better than the Romans, because we have this enormous armory of techniques which will permit the rulers to make their subjects actually like their slavery. In *Brave New World* I made the distribution of this mysterious drug, whose name is now being taken by the Wallace Laboratories (for something which is not nearly as good, I may say), the distribution of this drug was a plank in the political program—it was one of the great—it was simultaneously one of the great instruments of power in the hands of the central authority, and at the same time it was one of the great privileges of the masses to be allowed to take this drug, because it made them so happy. And this naturally was a fantasy, but it's a fantasy now a great deal nearer to being realized than I thought—than it certainly was, at that time.

And it seems to me perfectly on the cards that there will be within the next generation or so a pharmacological method of making people love their servitude, and of producing a kind of—producing dictatorship without tears, so to speak. Producing a kind of painless concentration camp for entire societies, so that people will in fact have their liberties taken away from them but will actually rather enjoy it, because they will be distracted from any desire to rebel—by the fact of propaganda, brainwashing, and brainwashing enhanced, possibly, by pharmacological methods. And this seems to me to be precisely *The Final Revolution*.

In the past we have had revolutions which were all on the periphery of things. The environment was changed in the hope of changing the individual at the center of the environment. Today, thanks to the application of techniques to human beings, we are in a position to change the human being here at the very center, so that he will not have the—the present revolution, this ultimate revolution, will concern the man and the woman as they are, and not the environment in which they live, and in this consists, I think, the extraordinarily powerful and the ultimate nature—I don't see how one could go any further than this—the ultimate nature of this revolution.

Now the question arises, what, if anything, can be done about this steady advance of technicization? It's obviously, quite out of the question of stopping technicization. This is going on whether we like it or not, and also it seems perfectly clear that without a steady increase of technicization in many fields it will be almost impossible to manage, or to provide a decent life for the rapidly increasing numbers of the human species. So that we have to put up with the fact that this technical process is going to go on, and is going to go on developing according to the laws of its own being exactly as it has developed before. But it's going to be developed for the purpose of producing more and more efficiency, not necessarily at all for the purpose of producing fully developed human beings. That has nothing to do with it, nor have any questions of ethics got anything to do with it. The categorical imperative of technology is efficiency. This is what it is out for, what it is working for, and for nothing else.

Now the question is, can we resist this, can we make the best of both worlds? It's not a question, as I say, of hoping to abolish techniques. This is quite hopeless, I think. It's a question of somehow making the best of both worlds so that we can enjoy the results of technology, which is [sic.] order and efficiency and the profusion of goods, and at the same time enjoy what human beings have always held to be of supreme importance, that is to say, liberty and the possibility of spontaneity.

This question of spontaneity is terribly important, and it is actually one of the great enemies of technique. A human being living in a highly technicized productive unit is simply not allowed to be spontaneous. It just interferes with the plan laid down in advance by the engineers and technicians who decide how he shall work, and in this way he, the human being, is profoundly diminished, because he is not permitted to be spontaneous. Well, our problem is to find some way of permitting this spontaneity to come to the surface, of allowing liberty to exist and yet to allow technique to develop to the limits to which it has to develop, without any doubt. And this is an incredibly difficult problem. And it's a problem which is exceedingly urgent. Because this is something which I certainly have learned in the last few years, cause in a light-hearted way, when I wrote *Brave New World* in 1932, I imagined that this sort of world [Recording ends here. The following text is from the 1977 edition of *Moksha*] would come into existence about 500 years from now. But a number of forecasts made in that fantasy have come true within twenty-seven years, and it seems quite likely that a number more of these forecasts will come true within the next generation, so there isn't much time. The urgency is greatly increased by the enormous growth of population.

When one reflects, for example, that countries like Mexico are going to have their populations doubled in the next twenty-four years⁶, one sees we must start doing things at once. And I would think that the first step is to try to find out what is likely to happen. In the past we have let ourselves be taken by surprise by the development in technology.

I don't think it was necessary. I don't think it was necessary that we should have been taken by surprise by the development of the factory system at the end of the 18th Century and the beginning of the 19th. If we had sat down, if our ancestors had sat down and tried to foresee what was going to happen, I don't think they would have had to subject millions of human beings to an absolutely infernal life, in what Blake (1757–1827) called the dark, satanic mill of the period. If we had used a little imagination and a little good-will at the time, I think we could have saved many millions of people from incalculable misery during two or three generations.

And I don't think we have to let ourselves be taken by surprise again. I think we have a large mass of facts, and with a little imagination, we can project these into the future, and we can see fairly clearly what is going to happen, what is likely to happen, provided we don't blow ourselves up in the interval. It seems to me it is exceedingly important for the hedgehogs, the specialists, to get into contact with the representatives of other, non-scientific specialities and with representatives of the ordinary lay public. And I can imagine a conference upon a much larger scale, not necessarily larger in numbers, but on a more variegated scale, than the conference going on here today. It would have representatives of various scientific disciplines meeting with representatives from government, from business, from the field of religion, sitting down and trying to imagine (A) what is likely to happen, and (B) what can be done to mitigate the results, which, if left to themselves, I think will be extremely dangerous and extremely undesirable, I think there must be such a conference, there must be a meeting of minds to try to work out some kind of educational policy, some kind of governmental policy,

⁶ Population in 1961: 36.3 million. Population in 1985: 74.0 million. Just a bit more than double.

some kind of legal policy in relation to this enormous process of technicization, which has been going on for the last 100 years, which is continuing with mounting acceleration, and which is going to take us goodness knows where within the next fifty years.

And I close, therefore, on this idea: that in such an institution as this, in the University of California, in the medical department or in one of the other departments, there should be a periodic conference of quite different types of people to think about these problems, and as I say, if possible, to work out some means by which we can make the best of both worlds. The best of the purely human world, and the best of this extraordinary, wonderful and terrifying world of technique.