MAN HAS ACHIEVED THE POWER TO CREATE AN ENVIRONMENT SUITED TO HIS NEEDS. THIS POWER COMES FROM DEVELOPMENTS IN THE UTILIZATION OF ENERGY, ADVANCEMENTS IN CHEMISTRY, AN INCREASE IN SCIENTIFIC PROBLEM SOLVING ABILITY AND COMPUTER TECHNOLOGY. THESE SOURCES OF POWER RESULT IN THE DRIVE TOWARD THE DEVELOPMENT OF DESTRUCTIVE POWER, THE CAPABILITY OF UNLIMITED PRODUCTION AND UNLIMITED INFORMATION GENERATION, THE CAPACITY FOR GREATER SELF-KNOWLEDGE THROUGH BIOLOGY, PSYCHOLOGY AND PHYSIOLOGY, AND THE POTENTIAL FOR A TECHNOLOGICAL ENVIRONMENT. RESPONSES TO THESE CONDITIONS INVOLVE 1) BREAKING THE LINK BETWEEN JOB AND INCOME THROUGH GUARANTEED INCOME, 2) ELIMINATING WAR, 3) AIDING POOR COUNTRIES, AND 4) CONTROLLING TECHNOLOGY. NEW DIRECTIONS IN UNIVERSITY EDUCATION SHOULD FOCUS ON PROBLEM SOLVING AS OPPOSED TO COMPETITION, USE OF AUDIO-VISUAL TECHNIQUES FOR SEEKING KNOWLEDGE AND ALLOWING TIME FOR CREATIVITY. REACTIONS TO THE PRESENTATION ARE GIVEN. THIS SPEECH WAS PRESENTED AT THE CONFERENCE ON YOUTH (MERIDEN, CONN., APRIL 26-27, 1966). (JH)
The Current Values and Changing Needs of Youth

REPORT OF THE
CONFERENCE ON YOUTH
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The Connecticut Association of Secondary Schools
The Connecticut Association of Public School Superintendents
The Connecticut State Department of Education
The State Commission on Youth Services
Introduction of Dr. Robert Theobald

Arthur W. Kairott, Chairman of the Department of Secondary Education, University of Hartford

Robert Theobald is a British socio-economist whose recent work has been focused on the implications of cybernation for the societies and economies of both rich and poor world areas and the relations between these areas. He was born and raised in India, holds an M.A. degree from Cambridge, England, and did post-graduate work at Harvard.

In 1957 he left the organization for European Economic Cooperation and work on comparative productivity in order to devote the bulk of his time to studying the effects of abundance on the scarcity-organized American socio-economy. He now lives with his wife in New York City and divides his time between consulting, lecturing, speaking, and writing on both sides of the Atlantic.


It is with a great deal of pleasure that I present Robert Theobald.
A couple of things really impressed me in the material that was sent out before this conference. First, you said you don't know. This is, in my opinion, the beginning of wisdom. I would suggest to you that anybody who claims to know what we should be doing at the present time is a charlatan and should be promptly removed from any platform on which he cares to stand. (This will get rid of a lot of people and a lot of platforms!) And, secondly, you stated that the purpose of this conference was not to improve existing curricula but rather to think about the whole process of education and socialization. I'm not really sure, however, that you believe what you said. We are not just talking about neat changes in the work pattern but about total and complete changes in the life cycle, about which we know, and can know, I suppose, very little. We certainly know less than we ought to.

Power To Create Environment

If we're going to make sense of what is happening to us, we have to understand the world in which we live. I would suggest to you that none of the patterns of analysis presently existing in the disciplines is really relevant for this new world. I want to suggest, with great brevity, one analytical frame that may give us some handles on our situation: that man has essentially achieved the power he has sought for so long, the power to create an environment to suit himself. We're not quite there yet but we're getting there very rapidly.

Sources of Power

This power comes, as I see it, from four developments. First the availability of abundant energy which, as Harrison Brown pointed out in his book The Next Hundred Years can be turned into anything else: man can make fresh water out of salt, can get minerals out of low grade ores, and can transform one material into another. Secondly transformations are being made emminently more possible by something I choose to call alchemy; in other words, the ability to produce useful raw materials out of basic chemical materials. This is what the space program is proving very rapidly: that if you have a big enough budget, a material can be designed with any particular set of properties that you want. This power is going to develop very rapidly indeed. Thirdly, we have a very vast increase in the amount of brain power, but a very peculiar type of brain power: one that is only good at solving structural problems. In other words, if we tell somebody, "This is the problem", he will give us an intelligent answer, but if we ask "What is the problem?" He'll say "Ugh!" Fourth, there is the computer itself. The computer is a rational thinking machine of great power. You cannot avoid that word "thinking" unless you are willing to claim that only human beings think: then computers, by definition, don't think. But if the process of coming to rational conclusions about sets of data is thinking, computers think. Indeed, they already think a great deal more clearly than the vast majority of the human race.

Danger in Computers

Computers are being treated as the new "gods" in our society. When the computer has provided an answer, we do not challenge the answer. We refuse to remember what the computer scientist keeps on trying to tell us: that you will always get the answer to the question you ask, that only if you put in the right data and ask the right question will you get the right answer.
There is a story which illustrates this point. It's the story of the computer which belongs to a friendly power, which is asked what city should be bombed to do the most harm to Russia. The computer, being very rational, answered "New York". For if the friendly power bombed New York, and bombed it intelligently, the Americans will assume they have been bombed by the Russians. They will therefore bomb Russia. America has more bombs than the friendly power and it will have done more harm to Russia than it can possibly do directly. That is the danger of the computer. And this type of analysis is happening all the time.

Five Resulting Drives

These four sources of power - energy, alchemy, brain power and the computer result in five drives.

Toward Destructive Power

There is a drive toward unlimited destructive power. This is the reason that the Vietnam war is dangerously stupid. Unlimited destructive power means that wars must end, and the sooner we accept this fact and start teaching our children, the more chance there is that we might learn soon enough to prevent total destruction. But how much teaching can we do stating that war is inherently self-defeating while we have a war going on?

Toward Unlimited Production

Secondly we have a drive toward unlimited productive power. Now, by this I do not mean that we have everything that we can possibly want. Indeed, so long as America continues to insist that happiness is $1,000 more than a man presently has, we can never have enough. What I mean is that the amount we can expect to have will rise very rapidly and that in just 100 years, we would have, even given present rates of productivity increase, something like $256,000 as the average family income. As Robert Heilbroner, the economist, has so unpleasantly put it, the only way you can possibly cope with that is through a collective "vomitorium". The real question is, when is enough, enough? When does consumption get in the way of satisfaction? I would suggest to you that this moment is nearer in America than most of us are willing to admit.

Second, we must recognize that this drive towards unlimited productive power will result in the elimination of a very substantial number of people from the job market because it will eliminate all structured jobs. (Structured jobs are those for which the decision-making rules can be set out in advance. Teachers do not, "hopefully", do structured jobs.) However many types of service workers such as bankers, lawyers, engineers, as well as people engaged in factories, are going to be replaced by computers and machinery. This is just as true at the middle management level as it is at the blue collar level; and I am equally perturbed about the problem of the middle class as I am about the problem of the working class.

Towards Unlimited Information

Thirdly, there is a drive towards unlimited information. I have developed new definitions of an optimist and a pessimist. It is based on the fact that we all receive more paper than we can conceivably read; so we pile it on the nearest flat space until one day it becomes psychologically threatening: at this point we do one of two things. If we're pessimists, we simply sweep the whole lot out. If we're optimists, like me, we carefully cull through the pile, putting aside the things we're absolutely going to read, and they go on the bottom of the next pile.
Information is not much good unless it is absorbed: one of the most disturbing things I have discovered is that groups no longer know how to talk to each other because their vocabularies and concepts are so different that they don't even know what the other group is talking about.

Towards Unlimited Biological Knowledge

Fourth, we have a drive towards unlimited self-knowledge through biology, psychology and physiology, the problems this particular issue poses are immense. They involve us in deciding whether we wish to use a variety of techniques to change the human race.

Towards Technological Environment

Finally, we have a drive towards a technological environment. We must learn to live in a technological environment or we will be destroyed in it. This drive cannot be turned back but I see a grave risk that we will try and turn it back: that there will be a development of what I call a neo-Luddite movement, the equivalent of what happened in the nineteenth century in Britain when the hand-workers tried to smash the machines.

New Approaches Necessary

I believe, therefore, that we have to look for new methods, new techniques, new structures, new institutions suitable for our immense power because today's socio economy is designed to increase power than than to control power. Man has been the great predator from the beginning of time. Orwell and Huxley saw this truth: they were very acute social critics who saw exactly where our society was going unless we took decisions; it seems clear that the drift of our society is precisely towards the type of world they discussed. If you believe I'm exaggerating, just think about the implications of the statement by a previous speaker that young people are going to take more and more drugs in the context of "Brave New World". You must also examine the implications of the fact that we're moving into a society designed to manipulate information so that we hear what we are meant to hear. In fact, even today I sometimes feel Orwell greatly underestimated the problem because he argued in "1984" that it would be necessary to change yesterday's newspapers to accord with today's reality because somebody might go back and check. Today, however, the "truth" changes frequently but hardly anybody gets upset anymore. This is true of government and of business: in government it's called "manipulation of the news" and in business it's called "public relations".

Possible Responses

What are we going to do? I would suggest to you that there are a minimum of four steps. First, we have to break the link between jobs and income. Our society is based on the fact that if you do not hold a job, and you do not have a grandfather who left you a department store, you must find a job. There will not be enough jobs to go around and even today the only way we can keep enough jobs to go around is by stressing the value of consumption. If you believe that a consumption-oriented society is going to bring up a good generation of children, I do not.

The Guaranteed Income

The way to break this pattern is the guaranteed income. The guaranteed income is a philosophic principle which states that a man has a right to live, simply because he was born. It is an extension of Jefferson's statement that a
man cannot be free unless he owned land. However, there's not enough land to go around anymore. The available alternative is to provide man with an absolute right to a share in the production of machine systems.

There is a peculiar urgency about this because the guaranteed income is going to be the next demand of the Civil Rights movement and that it is going to be the key issue in many parts of the country in the near future. If you think your communities are ready to understand the guaranteed income at this point in time, you're a lot more optimistic than I am.

Elimination of War

Secondly, we have to eliminate war as a method of settling international disputes. This is so obvious that it shouldn't need to be repeated. Unfortunately the statement that war is unthinkable has become such a bromide that we don't listen to ourselves when we say it.

Aid To Poor Countries

Thirdly, we are going to have to do something about the problem of the rich and the poor countries and this requires that we cease believing that most poor countries can export enough goods to pay for their imports. This is naive or dangerous nonsense. Our only conceivable possibility is that we begin to provide the capital and the technology that the technology that the poor countries can absorb and that we do it in a much more gracious and intelligent way that we have so far been willing to do. And just as, if we fail to do something for the ghettos in the very near future, we will be confronted with a growing split between the negro and the white, so, on the international level, we will be confronted with a world split between the rich and the poor countries, the white and the non-white nations. I would suggest to you that the chances of survival of the human race for very long under such conditions would be extraordinarily poor.

Control of Technology

Finally, we're going to have to learn to control technology. Man has got to learn to be humble. We live on what is being increasingly called a "space ship", a space ship which is dominated by rules of ecology and climate that we are far from understanding but where we suspect that disastrous long-run developments may be far more easily triggered than any of us like to believe.

Education Not Manipulation

Man must not only become humble in this way. Every one of us must personally be humble. This necessity brings us right back to education because none of us knows enough not to be humble. Such as fact is anathema to far too many teachers. Many teachers are willing to take a number of questions but eventually when they get frustrated, they want to be able to say, "It's so because I tell you it's so." Until we get rid of this attitude, there will be no education. We will continue to have manipulation.

Let me give you my own distinction between education and manipulation. Manipulation, or brain washing, is the process of confusing the mind of a child or an animal or an adult, until they are willing to take as gospel anything that is said: this is what most of the educational process consists of today. Real education is the process of talking to the strengths of human individuals and trying to reason with them to help them understand. This requires "dialogue".
Earlier Responsibility

Humility on one side calls for responsibility on the other. We're going to have to ask the student, the child, the adult, to be far more responsible much earlier than they have ever been. We can no longer afford to have people saying it isn't their responsibility. Have you noticed that it's terribly difficult to tie anybody down to being responsible for anything these days? There was a comment this morning about "buck passing". It's a highly developed art. You try to find out why something didn't happen and get the answer: "Well, somebody else didn't want it", or "It wasn't our responsibility."

Honesty and Cybernetics

Honesty is also vital because we live in a cybernetics world. A cybernetics world is a world in which the decisions are made on the basis of information. However, if the information is incorrect, you cannot conceivably make correct decisions. And, this, of course, is why information distortion is so serious. You can believe in democracy, as I do, on the basis of Churchill's statement that "Democracy is the worst of all possible form of government except all the others." You cannot conceivably believe in the democracy if you give people incorrect information.

Love, Not Theory

Finally there is "love" - I gather that this poor word has been thrown around in this conference as everywhere else these days, but perhaps it was given a little more strength than it usually receives these days. Love is not the wishy-washy emotion that our advertisers have tried to turn it into. Love is the process of being involved. I have some very real doubts about our ability to love in a technological era which are perhaps best expressed in a story about a Frenchman who went to a Communist conference. He said at this conference, "What happens in your ideal Communist state when a beautiful young girl is run over by a trolley car?" The meeting broke up in disorder. The next morning, the Communists delivered their ukase: "In ideal Communist societies, beautiful young girls are not run over by trolley cars." There's some logic to that statement because, if you have an ideal world, you don't have tragedy! And this is precisely the point. We are not going to have an ideal world despite the effort of the people I call "the centralizing cybernators", the people who are trying to get rid of the human beings. Don't let's kid ourselves - they are. Anybody who wants to get evidence should look at a book by Robert Boguslaw called "The New Utopians", which is about how human beings are an awful "nuisance" in an efficient society. As my wife put it recently, (she's the anthropologist in our team and should be getting credit for most of this speech.) "When human beings are already in a state of sensory atrophy, it's a lot easier to deal with a machine than it is to deal with a human being because human beings are, after all, untidy, smelly and dirty."

Only Values Are Still Valid

I hope I have convinced you that the reality of our world is not what we currently think it is. If this is true, it follows inevitably that the socialization pattern designed for an industrial age must necessarily be irrelevant to the cybernated era into which we are moving and that therefore we must re-examine the whole of our socio-economic system. And I mean everything except for some values. Consider the list of required values for a cybernated era: honesty, responsibility, humility and love. These are the Gospel values or the Golden Rule. They are the key necessities for survival; and this can be proved out of hard social science analysis. If we'd explain why these values make sense in terms of current needs and argue that the adult world is inappropriate because it isn't observing these values, then perhaps we might be convincing.
How Much To Inculcate?

Such a suggestion calls into question the whole of our socialization pattern? I will now ask questions for which I have practically no answers at all. My first question is "How much do you have to inculcate in the child?" This, after all, is a very fundamental issue. How much can a child discover for himself? We talk a great deal about education through discovery but at what point does the child become capable of discovery? Although it's clear to me that he can discover a great deal more than most of us want to believe, if he's given a fair chance, this was brought out in Summerhill. I do not think, however, that the book proves the whole of the case that it tries to advance, i.e. that you don't have to put any restraint on children.

Internal Not External Discipline

The second fundamental question is "At what age can internal discipline take the place of external discipline? The very awkward question raised in the Summerhill book is that none of those educated under the system, at least on the evidence in that book, seems to be really remarkable. They are good, they are well adjusted, they are doing their jobs very nicely; but they're not leaders. At what points in life do you have to tell a child. "You must practice because if you don't practice, you're not going to be a good pianist?" Or don't you ever have to? At what point do you put a child on a sailing ship and say, "now come out and sail", giving instruction but forcing him into situations he must extend himself to handle? When we've answered these two fundamental questions, which I don't think we really give much attention to today, then we can go on to some other questions.

Failure To Be Realistic

Are we going to have schools and universities at all or anything that we would recognise as a school or university? Schools and universities today are custodial institutions designed to keep people away from the world: our disciplines relate less and less to the real world. I remember talking to somebody who was trying to recruit some economists for his business. He said, "You know, it's very sad. I just met a brilliant guy. He's been taught the discipline of economics very well but the only thing he's fit for is to teach the next generation of economists. He knows nothing at all about the world in which we actually live." I'm sure we can demonstrate this same reality in a lot of our other disciplines.

Now what about the fourteen-to-eighteen-year-old child: the focus of your discussion. What does he need as a maturing animal? (It's perhaps useful to employ that word "animal" occasionally to remind us of part of the reality about ourselves.) What about the issue raised by Margaret Mead and Erik Erikson who have argued that the real need of people at this age is to have something physical to do in life and I don't mean only occasional sports and physical fitness exercises?

Why do we have age grades? We talk about life-long education but we still put people through universities with all eighteen-year-olds together and all the nineteen-year-olds and all the twenty-year-olds. Why?

What about the evidence that shows that ten-year-olds can teach nine-year-olds better than adults teach nine-year-olds when they're doing badly?
New Directions

There are certain things we might begin to think about for the university; I believe some of these ideas may apply to high school education but my experience has been primarily in talking to university students so that I don't know enough about high school students to be able to talk with confidence.

In Problem Solving

First and very obvious is the whole area of problem solving. Let us give students problems to which we don't have answers and then say, "Help us to find appropriate steps.", and there are enough issues of this type so that we're not going to bog down for lack of something for people to study. One of the great advantages of problem solving methods is one learns there are no final answers. If there are final answers, it isn't a real problem. That's why the disciplines are so dangerous; they produce neat, tidy answers and people therefore grow up to think that the world is a neat, tidy place, and they forget about process, they forget that things change, they forget that the world is not tidy.

In Cooperation

Secondly, what about cooperative grading? You know competitive grading is a pretty dismal technique. When you get right down to it, it says, "Let us bring up our children so that they learn to kick other children in the teeth for this is the way to get high up on the curve." Why don't we have "cooperative" grading? Why don't we say that the whole class will be graded on the overall performance so that there is an effort to bring all the students up rather than push them down?

I'd be quite willing to abolish grading altogether but I don't think very many students at the university level are ready for this and I suspect there are not very many at the high school level who are ready for it either. We can build competition into cooperation. I'm not saying we don't need people to strive. I'm not talking about a lotus eater's world. The cybernated era as I see it is going to be tougher, not easier.

In Seeking Knowledge

Thirdly, let's get round to using some audio-visual techniques but let us minimize the use of teaching machines. Teaching machines assume that we know what is a fact while in reality our big problem is that we must discover the facts. Education today should be trying to find out what we don't know or, more accurately, trying to uncover the facts we don't know we know.

In other words, we must believe that somewhere in our knowledge patterns we can find what we need to live in the future. However, we adults don't know it: perhaps our only hope is that the young can discover it for us. However, once you've taught somebody something, he doesn't forget it. It's like building a city. With the first roads you put into a city, you determine the pattern and if you don't like it you have great difficulty changing it. We should not put something into a child that we're not sure about; but we do it all the time. Indeed only too often we see that as our whole job - to tell children what they ought to know: from the time they get into the first grade, they are set down in front of a teacher and told, "We have the answers. Don't learn anything else." There are too many schools left where the student who thinks for himself and doesn't pay attention and is imaginative gets the bad grades just as there are far too many university professors who give A's to the student who regurgitates with maximum efficiency.
Finally I am now arguing that there is a very simple solution to the problem of university overcrowding. Instead of taking five courses per semester, students should take three courses and receive the same amount of credit towards a degree. Of course, this shocks most of my colleagues and they say, "But the student will goof off." I say, "That's the best prospect I've heard in a long, long time."

One of the few things we know about creativity and thinking is that it requires a period of " goofing off" in the most literal sense. It can therefore be argued that our universities and schools are presently designed to prevent thought. Let's be very clear about this. We keep people so busy that they cannot conceivably think. Maybe we like this because we suspect that if young people really had a chance to think about the world in which they were living they would get upset, and they really would start trying to change things.

Change Invites Discomfort

Now, what happens if you take my talk seriously? Well, first your life becomes very uncomfortable. Let's be quite clear about this and I would suggest to you that none of you accept what I'm saying casually. Once you have accepted these arguments, you will live in permanent tension between what the establishment wants and what you want; between what you know is needed and what you know you can get.

On the other hand, let us not underestimate how far you can go once you start. A conversation I had with my nephew who's thirteen will illustrate this. We were talking about this whole issue and got to the whole problem of defining work and leisure. I had been doing a sort of Socratic dialogue with him and naturally frustrating him. I led him up to dead ends and he both mentally and physically said "Ugh". He was obviously hating every minute of it, so I asked, "Are you at work or at leisure?" and he said, "I'm at leisure." I said, "That doesn't seem to me to make much sense; I thought you weren't enjoying it." and he repeated, "I'm at leisure." I said, "Well, what would happen if I came to you in school and did exactly the same thing?" and he said, "I'd be working." When I asked him why, he said, "I'd be working because I'm forced to go to school."

Thus if we start taking seriously the things I heard toward the end of this morning about really wanting to listen to young people, and to take them seriously, they're going to take us for a ride. We will move a long way because they understand quasi-instinctively that our sets of institutions are not suited to the world in which we live.

By-Passing the Institutions

I have started a program at the college level which is perhaps a partial answer to the question raised this morning. How do you get change? I believe you get change by going outside the institutions and by building informal information movement systems which reach the relatively small percentage of people who want to do something and who, when knit together, can do some very startling things because they can by-pass their own structures.
I've created something I call campus dialogue on the Individual in the Community of the Future. This challenges students and faculty to do what they think is important. It's a totally democratic system. It makes people feel that they're not alone and provides them with communication facilities when they do something significant. When you open possibilities, all sorts of things start to happen which older people claim couldn't possibly happen for they "know" the limits of students.

Getting Student Action

Let me give you some examples. We started a newspaper this year from scratch. This newspaper now goes on to about fifty campuses. For the last four issues the paper has been put out entirely by the university student editors. I went up to the School of Social Service in Chicago three weeks ago and I said that there's a crisis developing on the subject of the guaranteed income because Professor Cloward of the Columbia School of Social Work has come up with a new strategy which suggests that instead of trying to keep people off welfare, everybody tries to get onto welfare. This would overload welfare and the officials in cities and states would find themselves forced to favor the guaranteed income to avoid bankruptcy. I stated that it was their responsibility to do something about this and suggested that they ran a conference and set up a newsletter. In three weeks they did precisely that: they set up one of the most significant conferences in a long time and published a newsletter. It is hardly necessary to state that if I had gone to any of the established organizations in the field and made exactly the same case, they would have said "That is a very interesting idea but, of course, we will have to get approval," and six months later if I had written back and asked, "What happened to the idea?", they'd have said "Well, unfortunately it got lost somewhere in the bureaucracy."

Can Students Trust Us?

I'm pretty sure these sorts of activities can be started with high school students but they shouldn't be started unless you're willing to follow through. Students have been played with much too long and they don't trust adults any longer; in many ways I don't blame them. We've told them hundreds of times that we mean to do something significant and an almost equal number of times, when they've started something, we've kicked them in the face. The question is, are we really going to mean it if we start it?

I think we have to start with the students. But don't let's pretend that they're going to do what we want them to do. You can't have dialogue when you say, "We've decided exactly what we need; now come and confirm it for us." If we're not very careful, that's precisely what we will do, or we will say, when they have told us what they want, "Well, of course, that's very interesting but it's totally irresponsible and it's unfeasible." Remember that most of the great inventions have come from people who didn't know what was "impossible". This is also true for social change.
Interrogation of Mr. Theobald by:

John Schramm, Managing Director of the Kazanjian Foundation

I think perhaps if there's any contribution I can make, it'll be in the general background of the economic aspects of the presentation that Mr. Theobald made. I base some of my observations on the following assumptions. Economics is too important to leave exclusively to the economists. Economists have a normal, protective instinct to preserve the status quo in their theory and can be normally resistant to new theory which largely invalidates it. While descriptive economics is vitally important, I do not delude myself that economics is or can be completely objective. A completely value-free economics is a nice ideal but, with human nature as it is, it will probably remain an unattainable one. The issues involved here are complex and profound and, I think, turn largely on values. I believe in standing for a normative, that is, an ethical approach to economics, but I do not expect that my particular set of values will necessarily be acceptable to you. In terms of a little more technical perspective on the theme that Mr. Theobald elaborates with such color, interest and provocativeness, while I don't accept many of his conclusions, the fact that he stretches our minds and stimulates us and upsets our complacency thoroughly justifies his presence here today. I have had the pleasure of hearing him once before and I enjoyed it even more the second time around.

No Statistics on Technological Change

The National Commission on Automation, Technology, and Economic Progress made a report which was produced, I believe, in the latter part of January of this year or in early February. Presumably it was carried in toto in the New York Times but certainly summaries of it appeared in some of the large papers. It was composed of a very distinguished group of people, in my judgment; I happen to know personally and to have great respect for its chairman, Dr. Howard R. Bowen, a noted economist, formerly chairman of the Department of Economics at Williams, former president of Grinnell College, and now president of the University of Iowa. He is a man who has made many scholarly contributions. Generally in his field he is rated as a middle-of-the-road, free of all hysteria and extreme tendencies. As I understand this report, there is no adequate and meaningful statistical measure of technological change in the broad sense of the term on which safe predictions of future trends can be based; so that one's knowledge of the rate and significance of technological change must be derived and determined from his intuitive judgment. That doesn't necessarily imply that one's judgment is wrong, but I don't think the case can be made authoritatively by Mr. Theobald. But it follows that I can't prove authoritatively either that he is conclusively wrong. I would like to quote, if I may and set the scene objectively, because this is a very controversial area. There is another very legitimate school of thought in contra-distinction to Mr. Theobald's. One of the most widely accepted of present day opinions, as I understand the report, is that a scientific and technological revolution is currently in progress. This opinion is sometimes expressed by the phrases "explosion of knowledge," "second industrial revolution," "automation revolution," and so on. The assumption is that historic trends have been interrupted by an erratically accelerated rate of advancement in scientific knowledge and in technology. Often it is asserted that the current state of science and technology is qualitatively different from that of the past and, as a result, we are in a new era when most production will be automated, human labor will be redundant, and life
(Interrogation following Mr. Theobald's speech -2)

will be transformed through new materials, new products, new ways of doing things, and new leisure. Often World War II is regarded as the water-shed dividing the old era from the new.

It is extraordinarily difficult, if not virtually impossible, to establish the validity or falsity of these opinions, partly because appropriate quantitative measures of the rate of technical change are not available and partly because the true impact of recent technical innovation cannot be known for many years in the future. In this situation, it is easy for different people to make widely variant claims according to the way they feel about the current pace of change. These differences of opinion would be of little moment were it not for the fact that widely varying conclusions on public policy flow from one's views about the pace of technological change. Those who believe that radical revolution is occurring argue that widespread unemployment is inevitable and that hours of work must be drastically reduced and provision for leisure time must be greatly extended. Those who believe that present and likely future trends represent a continuity of long-term past trends argue that the policy requirements for the years ahead require a fiscal policy that provides adequate purchasing power, improvement in the mechanism by which people adjust to change, and possibly continuation of the long-term decline in working hours—prescriptions that would have been as appropriate in the past as in 1965.

Factors Limiting Change

To allow you to come to a conclusion and to exercise your own intuitive judgment and perhaps analysis, let me read from the report some of the major factors that these experts feel are leading to a limitation of the rate of technological change and leading to the acceleration of technological change, and then you are free, like the rest of us, to draw your own conclusions based on the viewpoints of the two leading schools of thought.

Factors Leading to the Limitation of the Rate of Technical Change

First, as technological change accelerates, risk or expected obsolescence of capital becomes more rapid and the expected rate of return needed to justify investment becomes greater. As technological change is speeded up, increasing risk tends to be a brake on the adoption of still newer technology.

Factor Two. The more obvious application to technological advance is made first, obviously, and the cost involved in developing an innovation of any given effect will tend to increase. As you press towards efficiency, it's harder to make proportional gains—the old truism. The speed of airplanes, for example, represented unprecedented gains over slower forms of locomotion, but it will be more difficult to make proportionate changes in the future.

Factor Three. As research and development increase in magnitude, we probably are forced to draw upon the talent of a progressively lower order of ability and imagination.

Factor Four. Because of the relatively increasing size of the service sector of the economy, technological change and advance may be more difficult to apply than it has heretofore been in the essentially productive
sector. There is a limit to what a society can achieve or absorb without breaking down in a given period of time with the notable exception, perhaps, of war.

Judge for yourselves, then, whether we're running into a society which is revolutionary in its changes or whether some of the dramatic things that Mr. Theobald referred to represent a little more colorful aspect of long range trends.
I enjoyed Mr. Theobald's interesting talk. As an economist, I could take issue with various portions of the talk.

First, we should start with the definition of economics, which is the allocation of scarce resources between alternative ends in such a way as to maximize satisfaction. Economics as a discipline becomes entirely irrelevant because, in the Theobaldian world, there are no scarcities. We are just glutted with goods and services; hence there are no scarce resources to worry about allocating. Let's go into detail about some of his particular theses.

Effects of Automation Not Established

First of all is the assumption that automation brings about unemployment. Has this been rigorously established at any place along the line? Indeed, it has not, I believe, and these effects are not known in detail. For example, an economist named Pollack has suggested that 1955 was a year which contained five times as much automation as the previous five years, and, in the year 1955, three million new jobs were created, there was a one million reduction in unemployment, and two million were added to the labor force. Another economist says, "The greatest danger with respect to unemployment arises, not through unduly high but through unduly low rates of automation." His general argument is that, in any event, automation is inevitable, you can't fight with destiny, you can't stop the avalanche. If you don't automate, someone else will. You will be absorbing imports from foreign countries rather than producing domestically, and this will induce a high rate of domestic unemployment. But Mr. Theobald did not argue that automation will not take place; so I shouldn't give that impression.

I do want to point out that the effects of automation on unemployment are not clear. Mr. Lebergott of Wesleayan, who has a book on unemployment, ("Men Without Work," Prentice Hall, 1964) has several pages on the effects of automation. He has measured statistically the correlation between the percentage of manufacturing employees who are unemployed and the percentage of idle manufacturing machinery. If automation is something new and different, at this point you'd expect that the percentage of unemployment would have gone up drastically in recent years and that the percentage of idle manufacturing machinery would have gone down; you'd think that the percentage of idle manufacturing equipment would go down because of the new equipment being used more intensively and being capable of being used on a three-shift operation.

Suppose you compare, as Lebergott did in last Sunday's New York Times, the automotive industry, where there have been eight-fold increases in productivity between 1900 and 1957, while employment increased by a factor of 100, with the furniture industry, in which there is essentially no change in productivity and employment has only doubled. The current levels of unemployment are fairly low. The tax cut policy and various fiscal policies have cut this down currently below 4%. Here we have the peak of automation and we have employment dropping. In a more general sense one can argue that unemployment is merely bad administration.
We have essentially no need to have high rates of unemployment and it has not been shown how automation will bring this about.

**Doubts Satiation**

I want to argue against the satiation hypothesis - that we will be glutted with goods and services. I hope we can do some research and find more things that might possibly be of use to us, not to mention the public area things, hospitals, conservation, urban renewal, etc. Mr. Keyserling, in a New York Times review of Mr. Theobald's book, contended that it would take five decades to reach levels of income which are still not, by any of our standards, considered too high. Presumably we'll think up a few more things we can consume.

**Questions Guaranteed Income**

Professor Frank Graham, in a book that came out in 1932 called "The Abolition of Unemployment," said that "the faintest grasp of economic fundamentals would show the folly of giving money away without securing any return whatever when the recipients would be only too glad to perform a productive service therefor." I am quoting this with respect to Mr. Theobald's alleged positive contention, namely guaranteed income. In simplest terms the question is whether we give away this money for nothing, that is, whether we're so glutted that we're better off giving the money away for nothing or whether somehow we couldn't get some use from the money spent. The guaranteed income is only one of many possible fiscal policies. Mr. Theobald made no attempt, in his limited time, to establish that this is a better way than ways that are being currently tried. I think he would have some difficulty in establishing this thesis of giving away income with no return.

As to the second part of his talk, one cannot argue against love, honesty, and virtue. I'll leave the education discussion in the third part to the educators.

In closing, I will argue that the connection between automation and unemployment has not been firmly established. Secondly, it has not been established that automation is vastly different from the Industrial Revolution and its continuation into the present, and finally that we are far from being satiated with the great things of life.
Mr. Theobald's response to interrogation of Dr. Thomas Whitin and John Schramm

"Without breaking down" was the key word. I claim that we are in the process of breaking down precisely because we do not control the speed of change. Secondly, I wrote an article called "The Great Non-Debate". This seems to me to have been a prime example of a complete mis-match between what I said and the comments. Thirdly, I would quote from Wiener, who wrote in the same issue in which Lebergott wrote: "In fact, the computer, with its promise of a million-fold increase in man's capacity to handle information, will undoubtedly have the most far reaching consequences of any contemporary technical development. The potential for good in the computer and the danger inherent in its misuse exceed our ability to imagine." That's one of the computer people who probably knows most about this. If you had computer people in this room they'd come up here and say, "Why is it you keep on down-playing the reality of this problem?"

Finally, this is a value question. Do we believe in full employment or do we believe in full unemployment? A society in which a man has a right to live in the way he wants to do when the machines produce for him or do we insist that he continue to be caught up in this social system? Perhaps, now, you see why I call myself a socio-economist.
QUESTIONS FROM DISCUSSION GROUPS ANSWERED

BY MR. THEOBALD

(Discussion groups under the leadership indicated on the program met after each of the five principal speeches. At the meeting following Mr. Theobald's presentation, each group was asked to formulate a question for Mr. Theobald to answer in the closing session of the conference.)

Question I. Shall we restudy basic human needs in light of the inevitable future you envision?

I assume that the key word in that question is "shall". I would argue that, as a rational Martian reporting back to Mars on the prospects of our restudying the prospects and the needs of the human race, the answer is "No". Very clearly, "No". But that as a human being, I am not willing to accept the conclusions I reach as a rational Martian. Now, why would a rational Martian reach this conclusion? I think it's fairly clear. Both Toynbee and Spengler say, that fundamentally, cultures do not change themselves and have not changed themselves. In the past when cultures became irrelevant, they either withered if they were far enough away from any other culture or they were destroyed. Today you cannot allow this to happen any more, because there is no way that American culture can wither or be destroyed without taking the world with it. The key country is America. If America can't come to grips with the problem, we will not survive.

I've been working at trying to get people to take the necessary steps for several years, and very intensively for the last two: I see no evidence that the steps presently being taken are keeping up with the needs. However, it would be eminently possible to keep up with the needs if everybody in this room and other people like those in this room decided to do the things you can do. But we all tend to say, "Well, we haven't quite reached crisis point yet" or "If we do that, it's too risky", and the things that need doing don't get done fast enough. We drop a little further behind all the time.

This, you see, disposes of the argument that we are making progress. Of course we are, but the problems are increasing faster. I wrote in "The Challenge of Abundance", in 1961, "There is evidence that many forces threaten to break loose in the 60's which have the capacity to destroy us and our society." I would suggest to you that evidence for this statement is now fully clear and the methods we are going to use to cope with, or even analyze, these forces are not yet in existence.

Question II. What are the implications of rapid changes in technology for the place of job training, vocational education, as part of the secondary school curricula?

What about abolition? But the correct answer is more complex than abolition because I think training people to use their hands is still a viable use of the educational system. I think many of us are not complete unless we have some ability to use our hands.

This question, of course, takes us into the whole problem of uniqueness. Are we going to be willing to cope with uniqueness or aren't we? And, by uniqueness, we mean much more than the school system is presently willing to accept. We want everybody to learn English, and to write English, and to read English well. But English or any written language is only one way of expressing oneself.
There are a lot of other fundamental languages, including that of film, that of hands in terms of the things one turns out, etc. and the assumption that everybody is going to learn to write brilliant English in a world where much communication is carried through on television and radio strikes me as extraordinarily naive.

Of course, if you push this argument into the under-developed countries, you realize that we are depriving ourselves of any chance of communicating with the underdeveloped countries with sufficient rapidity by insisting that they become literate. And this is stupid because we now have techniques of communication which do not depend on literacy: particularly radio and television.

The other matter this question raises is "What sort of jobs are going to be left?" You remember I said that the structured jobs are going to be taken over. The structured jobs are the jobs where you either relate to machines or act as machines. The supermarket clerk is in reality acting as a machine. All the people doing mechanical and industrial services are acting as machines. The economist confuses everybody because he agrees that we are going to have more people in services but fails to recognize that there is a fundamental distinction between mechanical services and human services. The problem at the moment is that we are trying to give people the capacity to carry out mechanical services where we ought to be trying to give them the capacity to carry out human services. For example, if you go to nursing school, you will discover that in a regretably large number of schools, students are being taught that nurses should not talk to patients, that their job is to cure the body. Yet the whole point about nursing is that a person is not only a body: because he is ill he needs physical treatment and emotional support.

Human services mean relationships of human beings to each other: and therefore I'm indeed in favor of motherhood, love and virtue. I'm for them, however, on a different level. I'm for the prime virtues because they're the only way we can survive: I've spent a lot of time trying to find out how we can survive without them and failed miserably. I should add that in today's world it's necessary to state that one is for love and virtue for they are not supported by everybody.

What should human beings do in the future? Four things, I think.

First, self development, both physical and mental. I would suggest to you that the student has already understood both of these: that young people have decided they don't like flabby bodies and that the dancing they are doing is a "statement" that they want to show that they are not machines - just as we wanted to show in the waltz that we were machines. Dancing in the nineteenth century was machine-dancing: students today are showing that they don't want to be machines.

Secondly, we will engage in human relationships.

Thirdly, we will engage in human services. This disposes of the fear that there won't be enough to do. One person to educate every child, one person to every ill person, one person to every old person, and you're beginning to use up everybody very fast. There's plenty of work to do.

And finally, politics, the creation of the good community.

I haven't said anything very surprising here: what I said is that if we cease to relate with machines, we must relate to other human beings. But when you think of what it means for our educational system, it is very fundamental. Our effort now is to make people relate to other people as machines. You know, love in a school would be a very difficult thing to cope with. What do we
substitute for the concept, rooted in the Judeo-Christian tradition, that it is virtuous to earn one’s living through the sweat of one’s brow if it becomes necessary to maintain a society in what is essentially a world of leisure? What are young people to substitute for this old concept? I have here another question which relates.

Question III. Is it a false premise to view work and leisure as a dichotomy? How do we learn values in a leisure society?

The point is that they are not dichotomies. Let’s go back. Primitive tribes in many cases do not have words for work and leisure. They are not separate concepts. This is what Marshall McLuhan is talking about when he says we are moving out of a world of fragmentation back into a holistic world. He says that life once again is becoming a seamless web of experience. I think this is a conceivable result and therefore it’s not a world of leisure. This means a desire for the four types of activity I’ve mentioned: human relationships, self-development, human care of human beings and politics; and within this, as I’ve said, love, humility, responsibility and honesty.

If we argue that the old values make sense: then we have to admit that the adult world doesn’t make sense because it has turned its back on the precise values which are necessary for our survival; but how do we do that without creating a disastrous generational split? Indeed, how do we avoid a disastrous generational split anyway when we are probably going to have to reserve the structured jobs for the old while encouraging the young to engage in non-structured activities because the old need the structured jobs?

Question IV. Assuming that the guaranteed annual income is achieved under the conditions described, what would you conceive would be the resultant problems with respect to basic human needs such as incentive, motivation and self-realization?

First, let’s get out of the way this issue that at $3,200, which is the level I proposed in "Free Men and Free Markets" the issue of incentive would be a serious one. If we are not willing to pay people that much for a family of four, we should be, and there really isn’t much question of incentive at that level. This is pure decency. Beyond that I would suggest to you that, at the moment, Americans have a pathological desire for toil, and that I think people may pay to get jobs over the next twenty or thirty years rather than being paid for them. In other words, the amount of structured toil will be less than the number of people who want that structured toil. We’ll disguise this reality in lots of ways. We’ll call it apprenticeship or we’ll call it education or whatever, but that’s really what we’ll be doing.

If you look at the record, if you look at the steel workers’ experiment, if you look at the studies of middle management and welfare people, you’ll find people don’t want to goof off. In fact, life would be a great deal easier if they did. Our precise problem is that they do not wish to goof off.
As far incentive, in the long run, it's got to come from inside. It's got to be internal sanctions because there's no way to run on external sanctions. Let me give you one example: honesty. Censorship is a flop. Let's be quite clear about this. There's no way you can censor because you cannot tell on the intellectual level whether somebody's trying to tell the truth or whether he's telling lies. For example, you cannot tell whether I am saying to you now or whether I am simply trying to con you. Actually, I'm trying to tell you the truth. I feel very strongly about this. I think anybody who tells a group a lie in the belief that it will get them to do the thing that he wants is playing God, and I don't think anybody's intelligent enough for this. But you can't tell. When the Founding Fathers talked about the necessity for a free press and free speech, I am sure that they did not assume that anybody would conceive that statement as a justification for the deliberate distortion of the truth. Yet that is what we presently use it for. What they said was, "People's opinions must be allowed to clash so that we can come to the truth" but it was meant to be their genuine opinions, not their opinions about what would advance the interests of the corporation or the government or whatever particular group they happen to be representing.

I have tried to imagine a world in which people are not internally motivated and where the virtues I have talked about as necessary do not exist in conjunction with the type of power we are now developing: I have failed. This may be a lack of imagination on my part but I cannot find a way in which, if we keep our present values, we can possibly survive.

Therefore, I have to say, let's "go for broke" because if we do not redevelop our fundamental values, in other words, if we do not come to see the philosophy of the nineteenth century as a fundamental aberration, I don't think we'll survive.

Question V. What is the relationship of the reconstruction of our values to the age of cybernation and will you expand the life plan under a guaranteed income society as it particularly pertains to the role of youth in the society and their values?

You've gone beyond the limits of what I know. And this is where I throw it back at you. And this is where I think youth itself has got to tell us because I can't. We were talking out in the corridor about the problem this raises. We were told that we should talk about the nature of the family in the schools.

I am quite sure that, within two weeks, if the students became sure that they could talk genuinely in the schools and that they would not be in trouble for what they said, we would have long passed the present tolerance level of the society in which we live. For example, their views about the necessary evolution of the family are way beyond anything that we, as a society, feel is tolerable. We say that the family must ratify certain types of relationships. Children would ask awkward and fundamental questions such as "What is monogamy all about?", and they're not the only persons challenging our present views. As some of you may have seen, a doctor recently proposed that we should cease to be monogamous at sixty. The trouble, it seems to me, is that we in this room have been saying that we would like to talk to the young about the sort of world in which they would want to live but how long would a community tolerate the young talking about the sort of world they wanted to live in?
Let me raise one other issue here. It seems to me that, in a very real sense, we are in a custodial relationship to the next generation; but on a different level than we usually mean by custodial. What I mean is that we have the power to keep the world in existence long enough until this generation can cope with it. But I have some very disturbing evidence that perhaps we don't want to. I remember talking to someone at the National Council of Churches Meeting in Louisville. Following a speech by me, he said, "You know, one of the most disturbing things I hear from older people is: 'We didn't have these possibilities; why should the young people have them?""

Question VI. What is meant by a guaranteed income?

The guaranteed income is a philosophical concept stating that a man is entitled to an income sufficient to live with dignity simply because he is alive. The only way that this can be introduced is through what is known nowadays as a negative income tax. The negative income tax technique required that if you income is below a certain level, you will be brought up to this level by direct payments from the Federal government. The negative income tax is being seriously considered in Washington for adoption at the end of the Vietnam War.

The issue remains as to whether it is a guaranteed income or whether we simply shift the power to determine eligibility from the local welfare bureaucracy to the Federal bureaucracy. I don't think it needs any stressing to say what happens if you put that sort of power in the federal bureaucracy. The Poverty Program was not meant to wreck communities but the Poverty Program is wrecking communities because the Federal Government cannot use such power except to wreck communities. As a person said to me in East Harlem, "$1.25 an hour is the best way to destroy community I've yet discovered." This can move one step further when one goes to the Negro or the minority priest and you say, "You've got a hall that you don't use in your church. We'll pay you $50.00 to use it once a week. And such a person isn't going to offend the establishment anymore. Very effective, it may not be meant to happen this way, but it does.

Question VII. What is the meaning of education and its structure if we take away compulsory free educational institutions?

You won't be surprised when I tell you that I have no answer to that question. However, such a step would not be possible without fundamental change in television programs: indeed we should already have thought seriously about the fact that the prime socialization agent of the child from the time it's born until it's five is TV. If you can believe we are inculcating values we want through the TV set during that period, you're more optimistic than I am: for I think we are inculcating the values of permanent debt and frenetic consumerism.

Question VIII. How do you get people to see the development of individuals as more important than achievement or efficiency?

I've added the word efficiency to the question. Once again: I do not know. I don't know how we get back to accepting that people do not have to be pleasant all the time, that people have to have sharp edges if they're going to be interesting people. I don't know how you get back to the acceptance of tragedy: instead of our present attempt to eliminate tragedy and, therefore, at the same time, eliminate joy. I don't know how you run a school system which really takes each child and turns him into the individual he's capable of being.
But I do know that the availability of people and the availability of the computer and the availability of power makes it possible to build such a school system if we want to.

We have the same sort of choice in the poverty arena. We can abolish poverty tomorrow if we want to. We can but we don't want to. We can start moving towards uniqueness if we want to but we don't want to. Unique individuals foul up systems. They foul up the system because they act in unpredictable ways and this, given our present ordering of society, is intolerable.

You are therefore driven back to the following problem. Our only chance to produce unique human beings is to get them out of the places where machines can do the task and put them in places that human beings out to do the work. This is the prime reason why the guaranteed income is necessary now so that people can be freed from toil that machines out to carry out and for which efficiency is required.

In conclusion, let me point out that directions of action depend on what you do when you leave this meeting. The decision as to what to do must inevitably be a lonely one because if you're going to try to get something done, you're going to stick your neck out.

You must ask yourself the question, "Is it worth it?" My answer must be in terms of our capacity to create an infinitely better society than we've ever had. But not without tough-minded decisions, not without willingness to take risks.