

TALK GIVEN AT MT. ST. JOSEPH FUTUROLOGY CONFERENCE - June, 1976

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First of all, work is one of the most basic aspects of our lives that we do every day and what collectively shapes the kind of society that we must then live in. I think it is worthwhile our looking at the concept of a job which is rather different from the concept of work and is really a rather recent invention associated with the rise of the industrial revolution. Performing a job did not require one's full faculties. A job implied the concept that a person was selling his or her labor; sort of an abstract concept, to an employer as a commodity in a market transaction, and what to do with the rest of that person during the hours of the job was that person's private problem. In fact, this concept of the job was very nicely summed up by the description of the worker as the "hand." You know, "farm hand," "factory hands." — And the employer only wanted the person's "hand"—the rest of the person was irrelevant. And this definition of human work as labor led naturally to the equally sharp distinction between it and leisure—which became time for oneself, play, recreation, entertainment--when one tried to put one's life back together again. I believe that both the cultural and economic crisis that western type industrial societies are facing today relate to the way they structure the tasks of production and the experience of work for their members and the use of leisure and the use of time itself.

These industrial societies and their current crises are related to the way in which they organize the efforts of their members. There are two interacting aspects to this problem: first of all the objective societal effect and the sustainability of our current modes of industrial activity; and secondly, there are the subjective and personal aspects that are the effects of this industrial life style and how they affect human life, work, leisure, and meaning. I am going to try to explore these two aspects of our current crisis of industrialism. I believe that the work experience and the societal processes of industrial production will both have to change drastically if we are to make the great global socio-economic transition in the next 30 years to a more benign form of technology and industrial societies, that can live in harmony with each other, with their members and with the eco-system.

First, let's look at the objective world - the macro-system - as best we are able, and our western industrial systems, which have since World War II based their policies on ever increasing economic growth and maximizing the consumption of material goods as the best way to achieve greater prosperity and satisfaction for the greatest numbers of their citizens. These policies have been using the concept of fiscal and monetary management developed by British economist, John Maynard Keynes, in his book, "The General Theory of Employment, Interest, and Money"



which was published in 1934. Very briefly, Keynes showed that depressions, such as that in the U.S. in the late 20's and the early 30's, could be created because too much of the money people earned could be saved and withheld from investment - and that this and other factors could cause an economy's total levels of investment, production, employment, and consumption to sink to very low levels and just stubbornly stick there. So he advocated conscious investment policies and, by so-called "priming the pump," put people back to work and increase consumption and get the economic engine moving again. Now it only required a small leap of imagination on the part of economists to hit on the idea of constantly priming the pump and managing a continual rise in production and consumption and economic growth, which they hoped to be able to regulate by the taxes and money supply policies. And thus, macro-economic management was born.

Since World War II most industrial societies have used those Keynesian macro-economic management concepts to try to sustain economic growth, to the point where they are now little more than used to resolve social conflict by printing money. This device will work if resource inputs are reasonably cheap and in stable supply. The only trouble is, of course, now that the rest of the less developed world is saying "No." They, of course, may be poor but they happen to be rich in the resources and the energy and the materials that these kind of Keynesian force-fed industrial economies must have; and, of course, they've noticed our weakness - the fact that all these industrial societies are "resource junkies," "energy junkies," - and in order to sustain this kind of mass production, mass consumption, economic growth, we must have access to supplies of these cheap resources. And so, of course, what the Third World and the less developed countries are saying is "No" - either by cartelizing their resources or by nationalizing them or by political means, such as in their demands for a new economic world order, where they want to raise their share of the gross world product from 7% to about 25% by the year of 2000. They are sending us a message.

In fact, the way they look at our economy in some respects shocks us. They see our economy as the most inefficient economy the world has ever seen, because it only has 6% of the world's population but apparently requires to chew up 40% of the world's irreplaceable resources to provision it. And of course exports don't by any means account for that discrepancy. The message they've been trying to send us of course is - whether it's in the United Nations' meetings - the one that was held on the Environment in Stockholm in 1972, or the one that was held on the subject of Population in Bucharest a little later, or the one on Food in Rome last year - is certainly that they cannot, they don't think that we can expect them to, be worried about population control unless we begin to worry about over-consumption. And I think that what they are forcibly bringing to our attention is not a one-to-one ratio between population and resources. There is the very important variable that none of us have been paying attention to - and that is per capita consumption. And, of course, they are beginning to draw this per capita consumption problem to our attention, using such illustrative means as what they call

Indian equivalents and where they will point out that it is 15 times more of a disaster in terms of using up world resources when an American child is born than when an Indian child is born. And so therefore at their levels of consumption there can be 15 Indian children born for each one American child before they need to worry about controlling population.

And so of course as they focus our attention on the over consumption, they also draw to our attention the fact that it is now fuelled by billions of dollars of advertising and by military production and that all of this is justified as having to proceed exactly the way it is now in order to sustain jobs. And what we find now is that we have got our economies now so impacted and institutionalized and locked on to these patterns of mass production and mass consumption that to try to change anything is seen as impossible because it will throw large numbers of people out of work. And, in fact, almost all a politician has to do or a businessman has to do today in the United States to justify any project, however silly, is to say that it creates jobs. And, this is the path that we've arrived at this point. Of course, one of the reasons that a shift of any kind into more sustainable modes of production requiring less renewable energy and materials and resources is so difficult is because people have exchanged their roles over the last two or three hundred years in industrial countries from agricultural workers, small farmers, independent entrepreneurs, self employed people, such as they were at the founding of this nation - and they have now become industrial peasants. We are all industrial peasants today. And we have discovered that as we totally rely on these jobs created by large institutions, either in the private or the public sectors of our economy, that at the same time that we must totally rely on these jobs, we don't own the jobs. And so most of us must work for someone else.

Now, it interested me very much what Rollo May was saying last night about how in order to create one's own values and to contribute new values to a society going through a value crisis such as ours is right now, one cannot be a conformist. And yet in this kind of an industrial society where none of us own our jobs and most of us are totally dependent on our jobs, how can we be anything else but conformists? And you see a tragic example of this where many of the employees of the Lockheed Company were interviewed about what they thought of the behavior of the Lockheed Company in bribing foreign officials and breaking the laws - and most of them were much too scared to step out of line and to judge this behavior as socially irresponsible.

Most of them said, "Well, you know we can't worry about that - we've got our jobs to think of." So you see how much that becomes magnified when an entire nation has to feed this kind of personal value formation and development because they are afraid, and economically insecure.

And of course, this is part of the crisis that we're facing at the moment, that whole industries are now becoming suspect of being unsustainable, whether it is,

for example, the aerosol can industry... Now maybe there is an industry that never should have happened; and yet if we have to do away with that industry, hundreds of thousands of people are potentially going to be thrown into economic insecurity. We might look at the whole question of nuclear power, as another example. There was an enormous industry developed with taxpayers dollars, and now we are having serious second thoughts about it - and yet people's jobs depend on it. And similarly, the vinyl chloride industry - we're discovering the price that workers are paying for this industry. Similarly, military production, where any attempt to cut the military budget - whether it is to cut out the B-1 bombers or anything - immediately, a group of people who are employed on that project or work on a military base somewhere say, "No, no, no, no" - we can't touch that because of jobs.

A whole other group of industries are presenting a different kind of a problem. Those are the industries based on factory to market, for example, the automobile factories. You know children below the age of 16 can't be allowed to drive cars. And yet the automobile industry employs 1 out of 6 people in the American economy. All of these automobile corporations are geared to growth more growth next year. The stock options of their executives-the entire corporate institution - is a growth dependent institution. Although you get some sense of reality, for example, Lynn Townsend, the President of Chrysler, began to be quite realistic about 18 months ago in saying, "Well, we never expect to have anymore 11 million car years. Maybe we'll just have to cut out a lot of the overhead and the management fat and reduce the size of this company - to gear it down to a 6 million car year. Maybe that's sustainable." But you can see the horrendous repercussions to this sort of thing. The recent flurry of good times and increased sales that Detroit has been experiencing, you could say has been purchased by every single one of us in relaxed credit and the whole problem of pumping up this sort of consumption by printing money. So when Detroit now has a good year because of the relaxation of credit, the rest of us pay in inflation.

More and more companies are telling us that not only must we all subsidize thru inflation their increased market growth and their increased sales, but that we must also bail them out if they fail. This is the latest round - and many corporate executives are telling us now that apparently their main reason for being in business is not what we always were taught it was, and that was to produce products, but now that they are charitable institutions in business to create jobs for us all. And of course, that raises the issue that if we must subsidize these institutions with our tax dollars, we must say jobs-producing what? What are their priorities; and is the product that the company is producing really vital for national defense or whatever, or is it even frivolous or unnecessary, or even counter-productive-like alcohol and tobacco? So these are the kind of Pandora's box questions that companies will open themselves up to when they start justifying their existence based on the fact they provide jobs rather than their original purpose of producing products. One way to bring this rather sharply into focus,

is to imagine what would have happened 50 years ago if the buggy whip industry said, "We must have government subsidies, and the taxpayers must bail us out to save the jobs." Well, of course, we would be knee-deep in buggy whips and the internal combustion engine might have been aborted altogether.

Similarly, the scale of these enterprises and their capital and energy and materials intensive technology that they use, produce heavy environmental and social costs. Environmental costs we can see all around us, of course, from pollution; but the social are very interesting also. For example, social or excessive mobility, where companies believe that they have the right to move middle management people anywhere they want. What are the social costs of this commitment to mobility? Some of them are very difficult to quantify, but we feel them - unstable communities, sometimes depressed or alcoholic wives, or disturbed children in schools. Similarly, other kinds of locational decisions that companies make - to move into a community and build a plant - then 10 years later maybe move out. And all of those people that bought private homes and the town, which provided social infra-structure for their new influx of people and sewers - police and fire protection, sewage disposal - now all that is suddenly left on their hands including have to put those people on their unemployment roles. We are now realizing that corporations of this size create enormous social impact on our communities, while still being able to make these decisions more or less on a private basis. What we are discovering is that not only have they treated air and water as free goods, but also the delicate web of the social ecology, which has been considered just as much as a free good. The community patterns, the social sanctions, the cohesion that communities have, has also been disrupted.

We are beginning to feel now a sense, sometimes above the threshold of sensory awareness of these dis-economies, and dis-services and dis-amenities - the bads that always come along with the goods. One of the problems with advertising is that advertising only tells you the good news. It tells you about the sparkling dishes, but forgets to tell you that you may have to give up the sparkling rivers, the sparkling lakes. It is very difficult for consumers to make decisions, whether they can really afford to buy these products, if they don't get the full story. The only advertising that I know of that gives the full story is that which is required of drug manufactures. They have to say, "Here are the indications for the use of this drug, and here are the contra-indications." If we had a similar sort of truth in product advertising, then consumers would be much more informed and much more able to make decisions because they would have some inkling of what those bads were and where they would be displaced in time and space. They could begin to look out for them.

Up until now our advancing technology has been shaped to pursue the narrow goals of feasibility, productivity, and economic efficiency. However, these concepts, as we all know, ^{are} rather imprecise and value laden. For example, if

you're talking about efficiency, the first question that you must know in order to evaluate what somebody means by that word is—efficiency for whom. Efficiency at what system level? So, never let an economist or anybody use that word in your presence without asking them to put a set of time and space coordinates around it. They must tell you whether they mean to maximize efficiency in a one year time frame, or a five year time frame, or a ten year time frame, or for sustained yield productivity over the long term, because each one of those different specifications of efficiency will require totally different policies. Similarly, they have to tell you whether they mean consumer efficiency, or producer efficiency, corporate efficiency or do they mean societal efficiency, or do they mean ecosystem efficiency, because in that space dimension there are completely different specifications for what policies one would employ. We are beginning to see that not only are these sort of inaccurate models of efficiency, but we are beginning to see that economics itself is not a science but rather a normative discipline which today is impeding the public debate about what is valuable under new conditions that we are facing. A perfect example is that we now have the anomaly that air is free under our current system, but tobacco is valuable. In other words, the price system is at this point so inaccurate that we would not even know the value of our own survival requirements accurately. These sorts of narrow, economically defined ideas of efficiency or productivity are no longer enough because their pursuit has led to this broad range of unanticipated second order consequences and this mounting backlog of social and environmental costs.

We now have to face the question of whether this path of technological and industrial development may not be evolutionarily blocked, that rather than moving to what Daniel Bell has described as the post-industrial state - that rather salubrious vision of the future where we would all wear white collars and work in the service industry and the knowledge industry and we would all self-actualize - instead, we may all be moving in the direction which I have termed in one of my articles as the entropy state, where complexity and inter-dependence have become more unmodeled and more unmanageable and the resulting unanticipated social costs begin rising exponentially, eventually exceeding the society's productive capabilities. Just like a physical system the society sort of winds down of its own weight - the weight of all these transaction costs. The interesting thing is that some of these, some of the more mature industrial societies, may have already drifted to a soft landing in a steady state - this kind of worst possible steady state, the entropy state, with their still having an apparently rising GNP but inflation masking their declining condition. Everybody is working on the cost side of the balance sheet and we add all these social and environmental and transaction costs to our GNP's as if they were real product, so we have no way of separating out which ones are the costs of other really productive activities.

The interesting thing is that if an economy is not being managed, it will manage itself. In fact all systems manage themselves. Only the system, at this level of complexity, can model the system and only the system can manage the system.



What we're seeing now is inflation - is the pathway that all of these industrial societies are taking down off the great joyride of the last 30 years. And inflation is a terribly difficult thing for us all to deal with. But I sometimes like to play devil's advocate and say "Inflation, you know, is the great mystifier and the great peacemaker because you don't know who to be angry at and we're all just quietly taken down off the joy ride without every really knowing who is to blame." And maybe that is better than all taking to fisticuffs. I don't know, but it's a thought.

Daniel Bell's growing service society where we're all working as bureaucrats and pushing paper and working in the transaction cost end of the economy--that whole thing is simply social costs. But the rest of it, in other words, each order of magnitude, of technological virtuosity, and managerial size, dictates an equal order of magnitude of government bureaucracy and coordination and control. When you have a private chemical industry, for example, that is creating hundreds of unknown chemical compounds every year, don't be surprised if we have to have Federal Trade Commission and FDA and EPA and all of those expensive scientists and computer models to find out what happened to it and how it is going to affect the social system and our health. This is a meta-level trade off that is simply not being dealt with. The basic trade-off that all industrial societies are now facing is this meta-level trade-off. To put it another way, trade-off is between continued complexity, specialization, the division of labor and the social costs that incurs in these transaction costs. How do we do business with each other in this kind of complexity, and of course the costs in human boredom, because the jobs, as they become more and more specialized, are more and more boring and less and less human. So, that I think, is the basic trade-off that all of these societies are reaching at the moment. In this economy we are at the moment in the midst of a great economic transition from a society based on maximum material production and consumption based on non-renewable resources, that is, fossil fuels and uranium, to a society which will have to be based on minimizing consumption of material resources and recycling - and based on the use of renewable resources, such as solar, wind, wave power, geo-thermal, and managed for sustained yield productivity over the long term. The farmers understand sustained yield productivity, but manufacturers never have.

As our technological virtuosity created even more material fruits, we have also paid too little attention to the quietly growing crisis of how they were going to be distributed. As our production processes became larger and more complex, and more capital, energy, and materials intensive, they of course required fewer and fewer workers. And yet we still cling to the obsolete economic concepts that lead us to misunderstand these processes: for example, that the relative contributions to production by the various factors of production, land, labor, capital, technology, can be neatly quantified so as to derive a just formula for the distribution of the goods and services and income they produce. Now, those kinds of simplistic formulae which worked in the past for simple production processes no longer serve -

it is no longer possible to separate which is entitled to whom because the process has become so complex and supported by tax dollars. It also no longer serves the goals of social justice, since when you have a completely interdependent economy based on massive interlinked technologies and enormous production facilities, it becomes not only an intertwined social process, but we have now reached the stage as I mentioned before, when taxpayers rather than capitalists and entrepreneurs, are providing much of the risk capital for the innovation. One of the justifications of private production was that the private entrepreneur took the risk with his capital, therefore, he was entitled to the products, but if the taxpayers take the risk, then you have to have a whole different system of distribution and of course, at the moment that many of the taxpayers are taking many of these risks they are not represented in the decision making processes. Now, when the decision making processes turns out not to be so good, they are also asked to bail the companies out at the other end.

So I think that the price that we have paid for the almost total dependence which we now have for employment on these massive industrial enterprises and the government agencies that they have to have to coordinate their activity has been lost - self reliance, fear, insecurity, the inhibition of our ^{own} value formation process, as well as vulnerability to the vicissitudes of the economic conditions that are not only beyond our control at the macro-level in Washington but world economic conditions because we have now created an interdependent global economy and we have forgotten to write the program for how to operate it. So we are desperately trying to do that in the new kind of monetary agreements that are going to be necessary to run it. So now every individual is in this dreadful, vulnerable position of having conditions of his basic security dependent on all kinds of global economic conditions over which he can no longer possibly hope to maintain any control.

Since World War II, we have been drifting to a more capital intensive, automated technology, in search of this mirage of efficiency as I call it, while we have been excluding more and more of our citizens from the production process - the young, the old, as well as minorities, and the less educated, whom we have designated as the hard-core unemployables. Few people after World War II addressed the question of whether the economy as a whole was capable of providing enough jobs if the shift toward automation continued. Lots of people discussed the need for a guaranteed minimum income to take care of all the human casualties who were shaken out of the production process. But, as you remember in the late 60's, legislation for guaranteed incomes was rejected, and it sort of floundered on our concept "the puritan ethic" and the underlying dictum: "no workee, no eatee." So we failed to recognize the logical corollary of that dictum, "no workee, no eatee," and that is, if work is to remain the only path to entitlement to an income, than we will have to, in fairness, insure that everybody has the right to a job.

This aspect of the distribution issue is now firmly on the agenda in the form of the Humphrey-Hawkins Bill, the full employment bill, which calls for economic policies

to stress full employment, and I think that this basic issue will now underline most of the upcoming election. Of course economists trained in the old ideas of the Phillips curve trade-off, as they called it, between unemployment and inflation (which, incidentally no longer works), these economists say, we cannot possibly pass the Humphrey-Hawkins Bill, because it will be inflationary. The point is it will be inflationary unless we make substitutions. In other words, we cannot bail all the corporations out that want to be bailed out; we cannot bail all the banks out; we cannot bail out all of the other institutions which I believe will have to be allowed to decline—and bail out the individuals who are being hurt because they are trapped in these old institutions. So, yes, we will have an increased inflation if we do pass the Humphrey-Hawkins Bill - without attacking what substitutions we are going to have to make. If we get that sorted out, I think the Humphrey-Hawkins Bill not only need not contribute to inflation, but will be a great stabilizer of the economy. Since World War II, and before, we have constantly bailed out capitalism and saved capitalism from itself as it reached these sort of crisis and then we enacted social legislation which stabilized the system. I think this is the kind of effect that Humphrey-Hawkins may have.

I also think along with this discussion of full employment and people's right to an income under these kind of conditions, we are re-examining the whole economic pursuit of labor saving devices when the chief problem in all industrial and developing countries has become disemployment and unemployment. I think that we are now beginning to ask to what extent these kind of big bang capital intensive technologies do not simply concentrate power and wealth and knowledge in fewer and fewer hands at the expense of making the rest of us poorer, more powerless, and actually increasing the sum of human ignorance. This is the real issue in nuclear energy, that people who have been brought up in a democratic tradition understand that this technology is so complex that it will have to be managed in a totalitarian way by a "priesthood of scientists," as Dr. Alvin Weinberg says. But it cannot be democratically controlled; it is an inherently totalitarian technology. And I think that this is the very real fear of nuclear energy, and why people may be willing to trade other forms of a more benign technology, and even less energy, than be willing to submit to this type of authoritarianism. So at the same time that we were shaking more and more of our citizens out of the bottom of the economy, these very capital, energy, and materials intensive processes have of course become increasingly vulnerable to world-wide shortages, cartels, rising prices and a shortage of capital. So the continual substitution of capital, energy, and materials for human resources is now unsustainable and the symptoms are clear: structural unemployment and structural inflation. At the same time we now have a shortage of investment capital.

Now economists do not think you can have this because they are still operating on the assumption that the basic model of the equilibrium model of supply and demand. That tells you that supply and demand will always be in equilibrium at a certain price and that leads you to discount the possibility that on the supply side there

may be absolute shortages of energy or materials or capital and it is equally unrealistic on the demand side, because demand which is the only thing it can deal with, is only expressed in this system with money. It cannot deal with need; it cannot deal with advertising, where demand is created; and it cannot deal with culture, which teaches us one way or another what to value. So this model does not help very much our understanding the new world that we are going in to. And, of course, in order to understand these new problems on both the supply side and the resource side, and the demand side and the distribution side, economists are either going to have to incorporate insights from thermo-dynamics and biology and hard sciences on the resource side and on the social side from psychology, general systems theory, sociology or else their discipline I believe will become defunct because it is no longer modeling what is going on. I am sure you all have noticed that economists are indeed going through identity crisis and they are being rather regularly laughed at.

So it is my contention labor, or, I prefer to say, human resources, have now become the more efficient factor of production and of course this is a rather nice thing to happen right now when resources are becoming short, when we have from 8% to 10% of our population unemployed depending on how you count. The reason that we have not noticed that human resources are the more efficient factor of production is -- I think the 2 largest reasons are: 1) due to the fact of our tax structure being skewed to create additional incentives to substitute more capital for labor: tax credits for capital investment, for example. If you are going to give people tax credits for capital investment in the hope that will create jobs and get people employed again, the better way to do it, it seems to me, is to give incentives to employ people directly, because we know that quite often you give companies tax credits for capital investments and they don't create jobs with it at all. Sometimes they use it to dis-employ people, such as supermarkets that automate their check-out counters. That is a perfect example of what I mean about different measures of efficiency, because that is certainly efficient for the corporation, but it is not efficient for the consumer, because the consumer no longer has the prices stamped on the products; and it is certainly not efficient for the workers, because a hundred thousand checkers will become dis-employed; and it is certainly not efficient for the society because the tax payers are going to have to pay the unemployment insurance costs, and also now that corporations are multi-national in scope, they can take those tax credits and they can take that capital and invest it abroad. They can invest it in Taiwan or somewhere and set up a needle factory where they can find cheap labor. So, in other words, there is no point giving them tax credits on the assumption that they will create jobs. It would be better to give tax credits directly for employment, including being self-employed--you ought to be able to employ yourself and get tax credits. I think that if we skewed the system where the basic strategy is to subsidize the people in the economy so that they re-deploy themselves into new patterns rather than subsidize the institutions in which they are trapped. So we can allow the old institutions to decline, as they must, and instead subsidize the people with re-training--we need some public works'

jobs in the cities - all of the transition strategy. That would be my basic way of getting from here to there through this transition - subsidizing people rather than institutions.

Another reason we have not yet noticed 2) that the human resources are now a more efficient factor of production is because the Bureau of Labor Statistics, and all of our economic projections are still projecting labor costs as increasing in a linear relationship relative to the costs of capital, energy and materials; but, of course, it is now capital, energy and materials that have gone up. Therefore, that is no longer a linear projection and labor is becoming more and more efficient relative to the cost of capital, energy and materials. But the statistics have not picked that up yet.

I started an organization last summer to try and draw attention to some of these issues called Environmentalists for Full Employment, because it seemed that it was absolutely disastrous that we keep on chewing up physical resources and energy and environmental resources and throwing human resources out of work. The only possible way we can have an economy which fully employs our human resources is to stop using up our natural resources so fast. The nice part about that is that it is also an environmentally benign economy.

Now I had to go through all of that on the macro-level to get to my point that we must move, I think, to a lower investment and more human resource intensive economy in the future and concentrate on intermediate scale technologies that will be based on these sustainable resources. And of course the payoff for individuals and their work is that not only will such a shift insure that everybody is employed, but it will also provide more congenial, varied, satisfactory work roles - satisfactory work roles for people. And I am confident that this future world of work will be organized around the Buddhist idea of "right livelihood." Some of you may have read a book written by a friend of mine called Small is Beautiful by E. F. Schumacher. Basically the Buddhist concept of right livelihood is a holistic concept which re-integrates person, society, and eco-system. It is based on, first of all, external ecological principles, that is, the respect for life, for all life forms, and sees all natural life as just another aspect of our selves. The other principle is that work is valuable in itself, that work is the way that we shape ourselves, the way we challenge ourselves, the way we express ourselves, by creating useful, beautiful and life-giving activities and services to ourselves and each other - and the product is secondary. There is a product, and sometimes it is beautiful; but it is secondary to the whole purpose of work as self-actualization. And I think that technologies * -designed to be inexpensive, accessible to everybody, to raise everybody's productivity from the very primitive level but not much that we have to concentrate our productivity into these overly powerful, centralized, and violent means of production. The three or four best books in exploring this whole area of appropriate technology, I would say, are Schumacher's Small Is Beautiful, Ivan Illich's Tools for Conviviality, David Dixon, who wrote a very nice little book called Alternative Technology; and of course the now famous Whole Earth Catalogue; which tries to explore the kind of technologies and the new types of life styles

* for such life enhancing human purposes are going to have to be these kind of sustainable, renewable, humanly scaled technologies -

and relationships and production facilities that they create for people.

I think that with these kind of intermediate technologies we can avoid paying the social and environmental costs of massive and totalitarian technologies. We can avoid these transaction costs of these same type of technologies - unemployment and welfare payments - We can avoid the cost of excessive government regulation; and, at the same time, we can decentralize our living arrangements and decentralize our economic and political life somewhat. Also, I think we can re-use the wasted spaces in our declining towns. In fact, there is a poster that sums it all up for me. The poster says ("Stop Tourism - Make Where You Are A Paradise.") I've got that pinned up in my kitchen, I think it is really nice.

The other thing of course that we will have to do is to reduce material consumption for those of us who have too much and most of us - most industrial societies - are suffering more from the diseases of affluence, from the pathologies of over-consumption than from anything else. At the same time we must reduce the amount of competition. We've over-rewarded competition. Every eco-system has equal amounts of competition and co-operation and both are required. But we have over-emphasized one and considered the cooperation to be a sort of peripheral activity to be performed by women and not added to the GNP. We were the ones that had to bind up all the wounds of the casualties from the competition and clean up the mess and the pollution and we are not going to do that anymore. And so I think that it seems that employees, white/blue collar employees, of all these big institutions that we have today are instinctively aware that the maximizing of production efficiency has not reached its limits, both external and psychological, and so you are getting the new interest in worker self-management, in flex-time, work sharing, twinning - all of these exciting new concepts for defining productivity and efficiency at these other levels that we have forgotten, as we tried to maximize one national, you know, thing.

The whole work sharing thing, let's not forget, also has to be applied in the home because, of course, in the pioneer days most production took place in the home and finally, of course, it was taken - technologies got larger - out of the home and women were compensated by being told they had to be the conspicuous consumers of all the gadgets and that stuff you see. I think that there will have to be also more work sharing in the home. For my sisters in the audience I would like to draw your attention to the fact that we are partly to blame; you know, that the men went off on this very mischievous kind of trip that they got onto in the larger world around them. And that was that we agreed to take on all the duties of maintaining the home environment, and the nurturing - and so we let them wander off and gave them too much time for this mischief that they got in to. So, we will re-arrange that a little bit and the world will be less dangerous!

So, I think I am just going to very briefly go through some of the things that you already know. In addition to the worker's self-management, flex-time, work sharing is the dropping out - the trying being self-employed. I'm one of those rare

* care of all basic necessities of life. We agreed to socialize the children, We agreed to take. . . .



endangered species - I'm self-employed. It is a bit scary sometimes but there are enormous rewards. Most of all, the rewards are you have time and you have the freedom to say whatever you damn well please! Now we are getting also the executive drop outs who can no longer stand the moral schizophrenia of feeling that their own personal goals are in conflict with the goals of their employers. We are getting the technological dropouts - the defectors, like the three scientists from G.E. who joined the ranks of those fighting nuclear energy. We are getting the whistle blowers and we get also some of the really exciting things going on in the whole world of work. I will call your attention to a new newsletter, that is produced under a grant from the German Marshall Fund, put out in this country, called The World of Work Report. It is a world round-up, produced by an organization called The Working American Institute. I can give any of you the address who may want it. This will keep you up-to-date with all of these new kind of plans for humanizing work. On the level of corporate organization, there is the experimentation with the idea of the commonwealth which Schumacher talks about in the book Small Is Beautiful. This is where everybody owns the thing and they decide each year how much of it will be plowed back into capital servicing and internal uses and how much will be plowed back into the community. They generally spend about 60% of their net profit on community projects. It goes into a foundation - and they have a rule that the maximum size of a commonwealth shall be 350 people. Schumacher believes that any corporation or commonwealth with more than 350 people is evil. There is another very exciting thing going on: that is the trend toward cooperative enterprises. This is mushrooming all over America, and it is very thrilling to see the way they are lobbying very effectively in Washington to have all the unnecessary restrictions against the development of cooperatives of all kinds. It is now beginning to be possible to repeal all of those restrictive laws; and it all revolves finally around the basic understanding of our founding fathers of the role of property. They all understood the difference between private property for the purposes of human autonomy and self-reliance and security and private property endlessly accumulated into massive corporations so that it could be used to oppress others. It was Jefferson who said that he feared banks more than standing armies and it was Franklin who had a lovely statement on the proper role of property, and how accumulation of property could, as he put it, commence a tyranny. So I think that this is the kind of re-examination that we have to make, and I think that if we look at all of these things that we can make a natural evolution of the system we have to this kind of a new system, with different work relationships, and productive relationships that need not be oppressive and need not be centrally managed from Washington, and, hopefully, it will be a benign and happier place for us to live.

Thank you!

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