

# AN ETHOS FOR THE AGE OF CYBERCULTURE\*

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## PART ONE—NEED FOR A NEW ETHOS

### I. Introduction

"Acceptability," said John Kenneth Galbraith, "is the hallmark of the conventional wisdom."<sup>1</sup>

Since, however, the pronouncement of the conventional wisdom is the prerogative of those in eminent public, academic, business or labor positions, I am not privileged to bore you with a recital of the conventional wisdom, and—even if I could do so—to entertain you by expounding it at a properly sophisticated level. I must, therefore, look to that arch enemy of the conventional wisdom—the march of events.

If ever a period in the history of man demanded radical—I am using 'radical,' derived from *radix*, root, in its original sense, namely, going to the roots—fundamental wisdom, it is surely this revolutionary period of transition to a new era—the age of cyberculture—the new era that is formed by a science, cybernetics, born barely a quarter of a century ago, and a technology that, for all its precocious development, has barely left the cradle.

Most of us in this room were probably proud midwives assisting in the delivery of the computing machine only a decade or so ago.

Since then, the world has changed radically. Three powerful new phenomena have precociously reached their vigorous, boisterous ad-

olescence—long before the world is prepared for the scientific-social-technological-economic-cultural revolution that has been unleashed. Those in the center of any revolution are always the least disturbed. The hub of a wheel is fairly stable, the eye of a hurricane is calm, and those who create the concepts and forge the tools of complex social revolutions are neither alarmed by the enormous power of their brain-children, nor are they surprised.

Never has a powerful and complete revolution developed more quickly than this cybercultural revolution that is affecting the lives of millions of human beings who have never even heard the new words to describe powerful new concepts. In fact, things have been happening so fast that even those who know a great deal about one of the phenomena have not had time to learn enough about the others—or about the world they are changing.

First among the new phenomena is nuclear science. Introduced to a stunned world in its least attractive manifestation, nuclear science holds untold mysteries, unimaginable terror, and vast promises. Einstein said, when the atom was split everything changed except our thinking. Far too many people still think of thermo-nuclear bombs as super-slingshots. Others realize that nuclear science might provide the vast reservoir of physical energy we need to produce abundance for all mankind. We

\* Cyberculture is composed of "cybernetics," the science of control, and "culture," the way of life of a society.

have great hopes for atoms for peace and must search for a way to use atoms for people.

The second of the powerful new phenomena is not clearly focused yet, although a demonstration of the destructive potential of nuclear science has shocked the entire world to see, at least as a vague vision, the new concept: peace as a positive phenomenon, a valuable and workable instrument to settle human conflicts. That is quite different from man's past experience for since the beginning of history mankind has known as an alternative to war only the complement of war, an interlude between wars, occasionally even a reasonably prolonged absence of war. Even when there was no fighting, war has been regarded as the normal and accepted means to settle conflicts. Contrary to popular opinion, it is not a foregone conclusion that peace will bring about the millenium. There is no reason to believe that conflicts will disappear. And to use peace, rather than war, as an instrument to settle conflicts will require more ingenuity and intelligence and skill than to devise means to win wars. Difficult though it may be to live with, peace is the essential condition, if human civilization is to survive at all.

The least known and most far-reaching new phenomenon is the science of cybernetics and the revolutionary technology based upon its discoveries. Automatic systems and computing machines, even in their infancy, have an impact upon our world that could not have been imagined two decades ago; and they have the clearly foreseeable potential to produce not only unprecedented abundance for human beings, but relieve man forever of drudgery and toil. Yet, even experts still look at the computing machine as a super-abacus.

Any effort to deduce how observable phenomena are likely to develop and affect the environment involves some arbitrary assumptions that must be defined and granted. The major assumption in my hypothesis is so fundamental that, should it prove to be unreasonable, nothing on earth is likely to be proved or disproved again. I assume that the cold war will not be escalated into the nuclear fission of the earth, but that, on the contrary, it will continue to defrost. I further assume that all of us in the field of data processing and automation will

continue to do our jobs with as much ingenuity and enthusiasm as we have in the past and to develop our precocious brainchildren, as we have every reason to expect from our auspicious start.

As we know, there is a great deal of confusion in the public mind about the words "automatic" and "automation," and about the effects of these rarely recognized phenomena. Economic pundits have made solemn pronouncements about the future impact of "automation" and based their predictions firmly upon a past experience with mechanization and its impact upon employment and the Gross National Product. A few months ago, Secretary of Labor Wirtz estimated that automatic systems have reached the intellectual level of human high-school graduates.<sup>2</sup>

Monumental fallacies are incorporated into such statements because the basic premises used by economic pundits and by the Secretary of Labor are incorrect; they confuse automation with sophisticated mechanization and use these basically incomparable phenomena interchangeably. If they could realize that the most sophisticated and efficient mechanical system—no matter how many electrical components are incorporated—is an open system that cannot operate unless the control loop is closed by a human being who must become part of the system, whereas an automatic system is a closed system in which the human component has been supplanted by a computing machine, they would understand that the conventional methods to inoculate the economy against periodic epidemics of unemployment and slackness are no longer relevant.

Before the Congress has been able to accept the Conventional Wisdom of one generation ago, everything changed. Everything but our thinking! And I must quote again John Kenneth Galbraith, who wrote that "the shortcomings of economics are not original error, but uncorrected obsolescence." We rightly cherish our intellectual heritage, but we must not allow it to calcify. The economic-political and social wisdom humanity may have acquired so painfully in the past must be tempered with new insights and forever re-evaluated with an open mind, just as the scientific and technical herit-

age of the past is constantly re-examined and re-vitalized by new discoveries and inventions.

## II. *Agriculture and Cyberculture*

The present cybercultural revolution is comparable in magnitude only to the agricultural revolution, the ferment out of which all civilization arose. The agricultural revolution changed the earth from a jungle into a garden where food gatherers became food producers—who plant and harvest, who create a surplus over their needs and thus build civilizations. With the agricultural revolution man first began to emerge into humanity. He learned to control his environment, to adapt it to his needs, and to arrange his life into social patterns. The agricultural revolution that began to free man for his specifically human task changed the very nature of man.

Every society in the age of agriculture goes through recurring cycles of scarcity and surplus, of leisure and drudgery. For centuries this has been the human situation: part drudgery, part creative endeavor; part scarcity, part waste. The cybercultural revolution can create a world where machine systems produce undreamed-of abundance, and where human beings live human lives and are free to pursue as yet undefined human tasks.

Man in the Stone Age knew his task was to find food for himself and his young and to protect them from the dangers of a hostile world. He carved images on the walls of his cave, and sometimes there must have been a genius who observed the world closely, who somehow saw a pattern in remote incidents. He might have noticed that small plants grow into trees; that seeds spread by the wind or dropped by birds into the earth come forth again as plants, and that roots multiply and that some plants grew on the same spot again and again. He gathered the seeds and put them into the earth himself and watched over them and saw them bear fruit. And the age of agriculture could be born.

Man learned to till the earth to produce bountifully, to tame animals to help him pull the plow, to use the power of water and the wind to multiply the strength of his own muscles. In the course of many centuries man has developed complex tools which extend the per-

ceptiveness of his senses and the skill of his hands, and devised powerful machines to extend the strength of his muscles. But man alone can direct and guide his aids. He must still labor for his bread.

The cybercultural revolution is brought about by the invention of devices that supplement the labor of man's mind. In the age of cyberculture the plows pull themselves, and the planting and harvesting is controlled by tirelessly efficient electronic slaves.

## III. *What are Human Tasks?*

Man must learn to find new tasks to fill his days. If he no longer needs to pull the plow and clear the fields and forge the iron, how will he tire his muscles to earn his rest? How will he use his mind to earn his peace? How will he stand upon the earth he has not tilled in the sweat of his face, and feel that he is its master? What will he do with his life, if he no longer has to labor to earn his right to live?<sup>3</sup>

For centuries, and in every land, men have told stories about all-powerful, completely obedient slaves who would supply riches and ease. The brooms conjured up by the sorcerer's apprentice, the genie in the lamp, the monkey's paw—these are the stories of man's desire for a perfect slave and also of his fear. For man was always aware of his own inadequacy and he was not sure that he could control so perfect a servant with wisdom and with honor.

We can expect that in the age of cyberculture enormous populations will live in leisure. A few will "work." But no-one will labor in drudgery and sweat. This will be technologically feasible in a few decades. Invention can be speeded with the motivation for perfection. During World War II, the invention of radar was accelerated—in the opinion of eminent scientists—by many decades. But cultural lag may delay to bring cyberculture to its maturity for centuries. Reluctance to change obsolete ways of thinking, conflicts of interests, the shortsightedness of those who fear what they cannot fully understand can delay the future and use the best fruits of man's mind for his destruction rather than his joy.

#### IV. *The Problems of Transition*

The problems of transition from an agricultural-industrial to a cybercultural society are momentous. This is only the beginning. Unemployment, serious though it is, is not disastrously widespread yet. But soon it will be, if we refuse to face the fact that unemployment cannot be arrested, even with the most phenomenal economic growth rate in the world, for the acceleration of automation will always exceed the acceleration of the growth rate. Unemployment must be changed to leisure. If we can learn to live with and use our electronic and mechanical slaves, rather than abuse our human bodies and our human minds, we can solve all the other problems that plague us now: the fear of unemployment, the envy the poor nations have for the rich nations and the fear the latter have of the former, the suspicious competition among the powerful. We negotiate about disarmament, but watching the unemployment figures rise, we quickly vote more money to be spent on producing lethal weapons. And as the unemployment monster rises, those who are gobbled up most easily—the unskilled—become afraid and rise in hatred and despair. Unskilled Negroes think it is the color of their skin that keeps them unemployed and white men fear that they will have to share the labor that is not fit for human beings and that none need to do in the age of cyberculture. Unions are losing members and try to stretch diminishing jobs by dividing them among more men, instead of enlisting as members those whose work can be done by machines and teaching them how to live human lives.

The slower the transition from an agricultural-industrial society to a cybercultural society, the greater is the suffering that must be endured, and the smaller the chances that—if humanity survives into the next century—the emerging age of cyberculture will be a good age for human beings. Slow transition does not cushion difficulties any more than pulling a tooth a little bit at a time softens the pain. The difficulties are not caused by the new age, but only by the transition itself—so that the problem can be solved only as transition is accomplished. *The best transition is a fast transition.* If we could have the wisdom to introduce as much automation as quickly as it

is technologically feasible, we could create the age of cyberculture in two decades. Slow transition would bring such intense and widespread suffering that it may break into nuclear war—and end all civilization.

#### V. *Morality and Ethos*

To create the age of cyberculture requires something far more difficult than scientific discoveries and technical inventions. We must re-examine our moral values and our ethical concepts and the deeply ingrained notions to which we give lip service. And we must understand the difference between the moral values of mankind and the ethos of a society. The sanctity of human life, the worth and dignity of the individual are moral values that are absolute; these always have been true and always will be true, as long as there are human beings. But the ethos of a society is transient and it must alter with the needs of the society.

What we call our Protestant Ethic, although it is much older and spread far wider than protestantism, is the ethos of any society that knows scarcity and danger. It is a good ethos where virgin forests must be cleared, and wagon trains sent across a continent. It is a good ethos as long as men must wrest their meager fare from the earth with courage and fortitude and perseverance. In such a society, it is right that man should labor to plow the fields so that he might eat the fruits of the earth and bask in the sunshine of the heavens and dream under the shade of the trees. "Thou shalt eat thy bread in the sweat of thy face" is a good and reasonable precept in the age of agriculture.

Already the ethos of scarcity is becoming an unjust burden. All too often thrift is no longer a god, but the graven image of past days to which we give lip service. To save one's earnings and thriftily mend last year's coat, and use last year's car, and warm up last night's supper no longer is admired. But—the ethos that commands man to eat his bread in the sweat of his face still governs our personal lives and our national policies. Although for millions of human beings there is no place where they can put sweat on their faces, we still believe that there can never be another ethos for the future than the obsolete ethos of the past. And

every year we are condemning more than two million human beings to the swelling ranks of the unwanted. We suspect them of incompetence and laziness, or we pity them. We should re-examine the ethos that condemns millions who are simply the first contingent of citizens living under cybercultural conditions, without any preparation for the new age.

*When human intelligence has invented plows that pull themselves, it is more virtuous to know how to play and to learn how to live for the joy of living than to bemoan the end of human toil.*

As sons and daughters of puritans we do not know how to play and we look with terror at the "threat" of unemployment and idleness, because we can't conceive a promise of leisure. What we call play, recreation and entertainment, is not play, but its very antithesis. Play is something one does spontaneously, joyfully. We rarely do anything just for the joy of doing; but we do a great deal "in order to" gain something else. Instead of enjoying a holiday, we take a vacation—the very word signifies that it is merely a void between the activities we consider real. The "vacation" is something we use "in order to" have more strength for our labors. Recreation is something we pursue "in order to" re-create our energy. Entertainment is "in order to" forget our cares. We eat "in order to" replenish our energy. Our children are trained for the joyless ethos of scarcity and given candy "in order to" do something adults consider virtuous. Only the very young are fortunate enough to be ignorant of this grim purpose and suck their lollipops in blissful ignorance and joy. But even the youngest toddlers are not permitted to play for very long. Before they leave the cradle, they are but required to manipulate educational toys "in order to" learn control of their muscles or "in order to" learn to read. By the time they graduate from kindergarten we have infected our children and impressed them with our grim ethos. The joy of playing for the joy of playing is frowned upon. The joy of learning for the sake of learning has been destroyed by admonitions to learn "in order to" please mother, or to get good grades, or to get into Harvard or MIT twelve years hence. And by the time they arrive in Cambridge, they have not even the faintest

memory of joy and play, and they grimly labor for their "credits," "in order to" graduate to obsolescent jobs.

#### VI. *Ethos for the Age of Cyberculture*

The proper ethos for the age of cyberculture is one that would serve humanity well to build a good society. We know so very little about living human lives in leisure and abundance, in dignity and self-respect, in privacy and the assurance of the fundamental human right to be unique as an individual. We confuse leisure with idleness, and abundance with waste. We view with suspicion the attempt of a human being to preserve his privacy and suspect it to be an attempt to hide evil. And we almost take for granted that an anomalism or eccentricity is necessarily inferior to conformity.

Nothing could be further from the truth! Idleness, like drudgery, is passive boredom suffered under duress, and waste is the misuse of anything—whether it is a scarce commodity or something plentiful. Leisure is the joyful activity of using our human potentials to the fullest, and abundance is intelligent economy, namely, the full *use* of natural resources for the good of human beings. Privacy is the fundamental right of civilized human beings and a necessity if one is to live harmoniously with one's fellow man. The uniqueness of individuals has made all human civilization possible; for the conformist cannot go forwards and only in the individualist's dreams and the dissenter's vision today can the reality of tomorrow be conceived.<sup>3</sup>

To learn to live in leisure and abundance is the task of this generation. Even if we wanted to, we would not have the power to choose between the past and the future. The cybercultural revolution cannot be reversed. But we can choose the future. *We* decide what kind of world we want to leave for our children; what *we* do now determines whether they shall exist in idleness or have a chance to live in leisure.

#### VII. *Early Signs*

Once we have grasped the fact that our present unemployment is only a beginning and that there can never again be a time when the labor of human beings will be required to produce what society wants, we can turn our human

intelligence to the problem of transition—namely, to prepare ourselves for the age of cyberculture by turning unemployment into leisure, by solving the transitional problems of scarcity, and by doing everything human ingenuity can devise to perfect our electronic slaves and complete all processes of automation.

We must rid ourselves of the erroneous idea that unemployment is still a negative period of waiting for a change to the positive state of being “gainfully” employed again. In this country, millions of human beings are in a *negative* state now. Many of them have been in this state for many months, years even, and many know that they will never be in any other state again. All the projections for the future—even the most alarming—consider only our past experiences. Only very recently have a few economists given their attention to the phenomenon of acceleration. “For too long they misled themselves and the public by projecting productivity into the future on the basis of the long-term average rate of past productivity gains. In so doing, they ignored the fact that their averages were a combination of relatively low rates in the distant past with significantly higher rates in more recent years.”<sup>4</sup>

Computing machines and automation are barely in their infancy, and already our world has changed beyond all recognition and comparison. If we consider that all change is slow until it has overcome initial inertia, we can expect, before the end of this century, an increase in productivity that will dwarf the most alarming projections for unemployment. Solomon Fabricant, director of research of the National Bureau of Economic Research, warns that “. . . the long-term pace of advances in output per manhour has speeded up. It was 22 per cent per decade during the quarter-century preceding World War I. It has averaged 29 per cent since. During the most recent period—after World War II—national product per manhour has been rising at an even greater rate, 35 to 40 per cent per decade.”<sup>5</sup> And to this should be added what is cautiously noted in the President's Manpower Report: “Although the statistical data on this subject are too limited to warrant definitive conclusions, it is probable that *underutilization* of plant, equipment, and manpower resources has had significant effect in retarding productivity

gains since the mid-1950's.”<sup>6</sup> Reuther concludes that “under the stimulus of automation and other revolutionary technologies, there can be no doubt that the historical tendency for productivity to move forward at an accelerating pace will continue into the foreseeable future.”<sup>7</sup>

To the acceleration of technological advance we must add—or (more realistically) multiply—the acceleration in the rate of birth. The “war babies” and “post-war babies” will be flooding into the labor market—between 25 and 40 million of them in one decade. No rate of economic growth, no method of spreading jobs by decreasing the work week or extending vacations can absorb the enormous by accelerated flood of unemployment. Any dam or deflection that worked in the past—forced consumption, exploring underdeveloped continents or outer space, for example—cannot be used to counteract the potential power—for good or ill—of the increasing number and perfection of automatic systems that can produce 1,000 cars or 10,000 or 100,000 cars without human intervention and with—at most—a few human monitors to watch dials and stand by for rare emergencies.

If we allow human beings to remain unemployed because machines can do the drudgery of repetitive tasks, we are dooming untold millions to useless lives without hope and purpose. Even if we devise the means to feed them and supply them with the output of machines, they will not long remain in idleness and scarcity, while the products of machines rot in warehouses.<sup>8</sup>

### VIII. *Lessons of History*

Instead of dooming the vast majority of mankind to idleness and unemployment and the indignity of the dole, we must prepare now for leisure and abundance. There are some lessons we can learn from history. In the Golden Age of Greece we can study a society of leisure and abundance based upon wealth that was not created by the labor of any of the members of the society, but by slaves.

We piously deplore the evils of obsolete slavery and believe it right and proper to condemn millions to starvation, or, at best, the indignity of the dole. Let us look at Greek society honestly and examine how an unsurpassed

civilization was created amidst the wealth and leisure which, twenty-five centuries later, might well have been produced by electronic and mechanical, instead of human, slaves.

The Greeks differentiated clearly between the private life of a human being his life in his household which produced the necessities—*oika*, the Greek word for “home,” is the root-word of economics—and his life as a citizen, which Aristotle called *bios politikos*. The “good life” was the life as a citizen, was “good” because man, freed from labor by having mastered in his household the necessities of life, could pursue human tasks. “At the root of Greek political consciousness we find an unequalled clarity and articulateness in drawing this distinction. No activity that served only the purpose of making a living, of sustaining only the life process, was permitted to enter the political realm, and this at the grave risk of abandoning trade and manufacture to the industriousness of slaves and foreigners writes Hannah Arendt.”<sup>9</sup>

However we may deplore the private, or household, life of the Athenian—in this century of electronic slaves we can so easily afford to condemn human slavery—we can only admire the unequalled height of civilization his public life produced. In his public life every Athenian strove to excel, i.e., to distinguish himself from all others, to be a unique human being, an individual unlike any other that ever lived or ever will live. The Athenian lived a human life, in play and work, but never in drudgery and labor. “Who could achieve well if he labors?” asked Pindar.<sup>10</sup>

Several hundred years later and several hundred miles to the west of Athens another society existed whose citizens were freed from the necessity of labor in order to sustain life. But whereas freedom from want and the necessity to labor emancipated the Athenian into a human being who achieved excellence, Roman citizens became an idle mob under equivalent conditions of affluence. The decline and fall of the Roman Empire, wrote Edward Gibbon, is “the greatest, perhaps, and most awful scene in the history of mankind. The various causes and progressive effects are connected with many of the events most interesting in human annals: the artful policy of the Caesars, who long main-

tained the name and image of a free republic; the disorders of military despotism . . .”<sup>11</sup>

The essential difference between Greece and Rome is the difference in their points of view, in their ethical concepts. The Greeks strove for individual excellence; they wanted to create beauty and contemplate the mysteries of the universe. Abstraction and generalization were their inestimable contributions to science. The practical they dismissed as not worthy of discussion and recording. Archimedes, whose practical inventions covered an astounding variety of applications, never thought them worthy of description. He wrote only about abstract mathematics; we learned from his Roman enemies that he invented marvelous machinery.

The death of Archimedes, by the hand of a Roman soldier; as the great mathematician stood contemplating a diagram he had drawn in the sand, is symbolic of the end of an era. The Romans were great organizers, “but,” said Whitehead, “they were cursed by the sterility which waits upon practicality. They were not dreamers enough to arrive at new points of view.”<sup>12</sup> No Roman ever lost his life because he was contemplating abstract mathematics!

Rome, her unemployed citizens idly seeking *panem et circenses*, destroyed herself. The moral disintegration of Rome had begun long before Christ was born. Her conquests brought Rome only material luxury and human proverty. Roman citizens received their dole and idled away their humanity in ever more brutal titillation. “It was because Rome was already dying that Christianity grew so rapidly. Men lost faith in the state, not because Christianity held them aloof, but because the state defended wealth against poverty, fought to capture slaves . . . they turned from Caesar preaching war to Christ preaching peace, from incredible brutality to unprecedented charity, from a life without hope and dignity to a faith that consoled their poverty and honored their humanity. . . . The political causes of decay were rooted in one fact—that increasing despotism destroyed the citizen’s civic sense and dried up statesmanship at its source. Powerless to express his political will except by violence, the Roman lost interest in government and became

absorbed in his business, his amusements, his legion, or his individual salvation.”<sup>13</sup>

We might ask why despotism increased in Rome, why the Athenian sought his excellence in art and philosophy and science, and the Roman in the material luxuries that were all he gained from his conquests. We might ask why Christianity so very quickly forgot that Christ taught human beings to live for the Glory of God, which means to live for the joy of living, of being human and why the ethos of scarcity perverted “living for the Glory of God” into laboring “in order to” assure the glory of the church. We might ask why the Athenian, though conquered and enslaved, mastered even his enslavement and his conquerors. We might ask whether the Golden Age of Athens could have endured if the Athenian had found a way out of his dilemma: his need for leisure and his rejection of human slavery.

Returning to our own century of transition, we can rejoice that we have what humanity never knew before—slaves to free us from the necessity of laboring “in order to” sustain life that are not human, so that we need not be ashamed to enjoy what they produce. For the first time in human history, man can be free. Machine systems can provide him with leisure and abundance, and rescue him from the degradation of being either a slave or a master of another human being.

But machine systems can do only what man wants. If human beings cannot learn to distinguish between human tasks and toil fit only for machines, if we persist in competing with the machine for the repetitive, dreary, stultifying, de-humanizing jobs for which only machines are suited, then humanity will become enslaved by the machine more cruelly than it has ever been enslaved by any despot of the past. For the machine provides us with slave labor; and, therefore, human beings who compete with the machine are, thereby, accepting the conditions of slave labor. Human beings who learn to use the machine wisely, on the other hand, will be freed by the machine to achieve excellence.

We are at the cross-roads: one way leads to the Athens the Athenians could only dream of;

the other to a Rome more dreadful than the most ghastly Roman nightmare.

Greece or Rome—that is the choice we have, the choice we must make now, the choice we should have made yesterday and for which tomorrow will be too late.

## PART TWO—METHODS OF TRANSITION

### I. *Educating the Young*

A practical and relatively painless method to accomplish the transition into the Age of Cyberculture must begin with the education of the young. We are well aware of the fact that unemployed youth has already become a social problem, and we know that what we so inadequately call “juvenile delinquency” is not restricted to the underprivileged. The violence of youth and the crimes committed by children show, of course, the general moral decline. Even more serious than isolated outbreaks of violence, even more desperate than gangs of destructive hoodlums, is the widespread indifference and bewilderment among the young—whether they stay in schools that provide nothing but bland custodial care or whether they are drop-outs.

The real problem of the young is that there seems to be no place for them in the world. They know society looks with dread upon the vast numbers that are pouring out of schools, and they know that it is wrong for them to be met with fear and loathing. They are the future of mankind, and they have a right to be welcomed with joy.

What would happen if the 25 to 40 million young people who will pour out of our inadequate school system in the next decade were not to flood an already overflowing labor market, but enter instead into a period of basic education for the Age of Cyberculture?

It would be infinitely harder—perhaps impossible—to change very profoundly the prejudices of those who have learned to labor and who have labored for too long. If their labor is taken over by machines, we can only make their emancipation which came too late for most to enjoy in leisure, as pleasant and comfortable as society can afford. And we can try to make their idleness not too shameful a thing.



But for the young we must do far more than train them to become another obsolete generation of laborers, for there can be no honest labor for them and no dignity in toil. Any human being who seeks to labor in competition with the machine is doomed to slavery and to the conditions of slavery. There is no human ditchdigger who can live on a scale low enough to let him compete with the steamshovel, and there is no human bookkeeper, or mathematician, who can compete with a computing machine.

There is no human printer who can compete with a tape-fed printing press. And there is no human metal cutter who can compete with computing-machine controlled machine tools. The keyword is "compete." We can no longer afford to measure the value of a human being in the market place.<sup>14</sup>

In 1955, when the A.F.L. and the C.I.O. consummated their marriage of convenience, President Meany promised that the newly-weds would become parents of an expanding family; they would "organize the unorganized." But with the sole exception of Hoffa's teamsters—who are, at best, considered naughty stepchildren—the family has not proliferated. The auto workers have lost 300,000 members since 1953—and this in spite of the fact that the industry has achieved a glittering production record in 1963. The steel workers have diminished by 250,000. There are half a million fewer mine workers, and 760,000 fewer railroad workers.<sup>15</sup>

In spite of all the efforts made by labor unions to spread the work and to delay the dismissal of workers, it takes considerably fewer of us to produce considerably more. Whether we regard feather-bedding an evil or a necessity—it does not prevent the spread of unemployment. At best it delays the inevitable disaster for a few; at worst it retards important improvements.

The ranks of labor are diminished by the fired, but even more significantly they are starved at the source by the vast numbers of "the unhired." Among the ever increasing number of the unhired, labor unions must find new blood and new strength, and a new lease on life. Labor must forget the organization

methods of the past, when "marginal workers" were considered a poor investment. Many old-time union men say "they bring not back in dues what it costs to organize them," and are thereby guilty not only of greater callousness than that for which they blame management, but of irresponsible short-sightedness. Unions who do this sort of cost accounting while they invest their estimated union wealth of \$1.5 billion in blue-chip securities and profitable real estate, are doomed to die of their own corruption and decay.

Labor and management must learn to invest in human beings. If labor unions would "organize" youngsters who graduate (or drop out) of an antiquated school system, their membership rolls would swell (and without any crippling diminishment of their coffers) and their vigor would be restored. They would once again have a vital role to play in the society. They would once again breathe the fresh air of the future instead of suffocating in bank vaults clipping their coupons.

Organized Labor should offer to educate every boy and girl who wants an education for the Age of Cyberculture. It is to be hoped that colleges will, in time, adjust their curricula to the needs of the future. With a few exceptions our institutions of "higher" learning are custodial, rather than educational, and perpetuate training their unfortunate students for obsolescence. Education must not be equated to training for obsolescent jobs. Since our present feeble attempts at "re-education" are not educational at all and do nothing at all to prepare human being to live in leisure and abundance, they could not, and do not, have the slightest effect upon our present unemployment problem. Such "re-training" efforts are like aspirin; it can disguise a headache for a while, but it cannot cure cancer, or even a headache.

We throw a feather into the Grand Canyon and we are surprised that there is no echo! The education that must be provided to get an echo from the age of cyberculture must make it possible for human beings to learn how to live human lives and to create an ethical system that will permit human beings to do whatever they do gladly and for the sake of the thing itself; and not reluctantly and only "in order to" make a living.

A good curriculum might well start with questions about Greek civilization and Roman decay. Whatever the specific subject, its aim must be to open the eyes of our twentieth-century blind children to the eternal miracle of life.

One labor leader, enlightened about the vital need to educate human beings, says: "America will be a much better place when everybody works four hours a day and attends some kind of classes four hours." He made a start—small, but of tremendous significance. His local has financed scholarships for children of members. More important, it is seeking out latent talent among its members (in the hope of developing the union's future leaders) for the "Futurian Society." The best-educated among the members conduct courses for other members. And at the local's Long Island estate, seminars are held in such "impractical" subjects as literature and art and philosophy.<sup>16</sup>

Since the education of several millions of youngsters involves far more than a one-week seminar, much more is required than a Long Island estate and the funds a local can afford. Unions are not *that* rich. But humanity is. Such a vast education program must be financed by government subsidy, in part. This can be justified—even to the satisfaction of the victims of the Puritan Ethos—as a perfectly reasonable investment which, partially at least, pays for itself out of savings in unemployment compensation, relief, and the costs of custodial care for those who would surely commit crimes if they cannot find a positive purpose in life.

Another source of financing should be supplied by the very machines who have replaced human laborers. At least one manufacturer of automatic machines is a pioneer in this approach. He "taxes" every machine he sells by putting away a certain sum which contributes to the support of a foundation to make various studies of several facets of the problems created by the very existence of automatic machines. "If machines perform our labor, then machines will also have to pay our taxes."<sup>17</sup> This may be a socially acceptable way of saying that the abundance produced by machines must be available to human beings, lest it rots away and destroys humanity with its fetid decay.

Union funds, special taxes paid by manufacturers, a contribution made by the entire population in the form of government funds are three sources to finance the preparation of youth for the Age of Cyberculture. Of course, it would be foolish to prepare millions of young people for a world which, simultaneously, we try to postpone. When we no longer need to be concerned about new floods in the labor market, there is no longer any reason to attempt any delays in complete automation. We are then free to encourage technological inventiveness and to complete the process as quickly as possible, not only in the industrialized nations but—under the sponsorship and tutelage of the United Nations—of the underdeveloped countries.

Such an acceleration of automation would insure full employment for the existing labor force, not only in feather-bedding and bus-work, but by the full occupation of highly trained personnel. It is the only method of achieving full employment *and* full occupation. We have neither one nor the other now.

How many scientists and engineers are still employed, but under-occupied? How many pass their days in idleness at their well-designed desks and in their well-equipped laboratories? How many repeat endlessly insignificant experiments, and waste all their ingenuity in inventing more innocuous re-search (not research) projects?<sup>18</sup>

## II. *Experiment in Attrition*

It is highly probable that, without the influx of youngsters into the existing labor force, normal aging and retirement—a process called by modern economists and labor experts "attrition"—will diminish the labor force over the next two decades at approximately the same rate as machines replace human drudgery. In the pioneering agreement, the "Long-Range Sharing Plan," the union and the Kaiser Steel Company pointed the way for a company and its employers to share the fruits of automation. Whatever can be saved by greater productivity and efficiently is divided: one third to the workers, two thirds to the company (which must share its two-third's portion with the government).

Any laborer whose job is eliminated by a machine continues to draw his pay for one year. During this time he is placed into a labor pool which acts as a reserve to fill in for absentees.<sup>19</sup>

It is too early to draw general conclusions from the Kaiser experiment, but the officials of the steel workers' union are reasonably pleased and the company considers the pool an asset. This plan does not provide a complete answer to the problems of automation, and it does not stop the process of replacing human drudgery with machine slaves. It does provide a cushion for a few individuals.

### III. *Hope For the Future*

If one steel plant can create a labor pool, if one manufacturer can tax his machines and use the money to encourage study, if one union local can provide a place for learning and reflection for its members with such remarkable results, we have good reason to be hopeful for a bright future.

If we set ourselves as a long-range goal a good cybercultural society, we can solve the intermediate problems and devise appropriate measures to overcome the immediate difficulties that are attributable to the phase of transition rather than the advances in technology. The immediate consequences of diverting the young and unskilled from the labor pool and into a constructive program of education for the age of cyberculture would be dramatic. It would, first of all and for all times, wipe out the demoralizing condition of hopeless unemployment.

We know that in this rich country there is considerable and stubborn poverty. Why does it exist when granaries are bursting with surplus food, when farmers are paid for consenting to let their fields lie fallow, and when stores are filled with every sort of consumer product so that customers must be enticed to want what they do not need? We know that poverty, in this country, is poverty in spite of abundance—poverty caused by inadequate means of distribution, by the ethos, not the real existence, of scarcity, i.e., by unemployment. To wipe out unemployment and the ethos of scarcity is to wipe out poverty.

This is not true of poverty everywhere on earth as yet. There is still real poverty in this world, and there are still poor nations, although even the poorest nation in the age of cyberculture is not intrinsically and forever doomed to poverty or the charity of others. That is why we call the poor nations quite appropriately underdeveloped nations. The most enlightened domestic policy we might pursue cannot solve world-wide problems, and the most intelligent and ingenious international agreements cannot forever eliminate the danger of nuclear war. We must do much more. We must not have underdeveloped nations. The age of cyberculture must be universal.

### IV. *World-Wide Cyberculture*

If we eliminate unemployment in this country immediately and proceed to create automation at the fastest possible rate, we shall almost simultaneously free an enormous number of highly trained and skilled people—the employed but under-occupied—who could, under the sponsorship of the United Nations, assist and advise the underdeveloped nations to build modern automated industries.

At the present time, most of the newly formed nations of Africa seem to be diligently creating nineteenth-century conditions of the worst sort. It is not surprising, since most of their leaders were educated in Europe or the United States two or three decades ago so that they were imbued with the ideas of nineteenth-century Europe and America.

They dream of leading their countrymen out of the jungle, and they are bringing them straight to the horror of nineteenth-century city slums. It is preposterous to lead human beings out of insect-infested green jungles and turn them into obsolescent masses of unskilled and unwanted laborers in rat-infested city jungles.

Surely among all the remarkable intellects that have asserted themselves in the new nations of the world there must be some who can understand not only John Locke and Voltaire and Marx, but also Russell's mathematics and logic and philosophy, and Wiener's cybernetics. Surely there must be some among them with the imagination *not* to imitate nineteenth-cen-

tury American-European industrialism, but to create twenty-first-century cyberculture. Such a person, if he also has power in his country and influence among his people, can conserve the most admirable values of his native culture and create, at the same time, good living conditions for his people. He could bring to his country the best our European-American civilization has to offer without dooming them also to the worst.

If the ethos of the society that sees virtue in laboring "in order to" gain something—bread or status, or self-respect—changes to an ethos of abundance, it will be virtuous for human beings to live human lives in leisure and abundance. And no-one can be sure what undreamed-of heights humanity can reach when human talent is no longer wasted in the basic struggle to survive.

It is surely the only sensible and practical choice to prefer leisure and abundance to idleness and waste. The choice must be made—and it must be made now. We cannot ignore the powerful new phenomena human intelligence has created. We cannot abdicate our responsibility to choose how they shall be used. For in our very abdication of choice, we would choose the worst alternative: to drift blindly toward disaster.

If we want to conserve our traditional values—the right of the individual to life, liberty, and the pursuit of happiness—we must choose wisely and act boldly.

Our history was made by human beings with bold vision and good sense, with deep moral convictions and human compassion for human frailty, with respect for the dignity of human beings and love for mankind, with the imagination to dream and the courage to act. Such men and women cross oceans, transform continents, and build the City of Man!

That is our heritage.

## Appendix

### A Program for Transition—Immediately Attainable Goal

Keeping long-range goals clearly in mind, we must make many choices and decisions about

measures to relieve the problems caused by transition. Cybernation affects the unskilled earlier than the skilled, it makes certain skills obsolete sooner than others. This causes untenable conditions of abject poverty and a sense of personal failure in the midst of great affluence and achievement. It takes time to erase the prejudices and superstitions accumulated for centuries.

The following suggestions to make the transition period as constructive as possible and to prevent suffering is a goal that is attainable. None of the measures proposed will have an adverse effect upon the long-range goal of creating a cybercultural society where human beings can live human lives. And, to some extent, all measures will contribute to achieving a cybercultural society as soon as possible and in a humane manner that is of benefit to the individual.

#### I. Government Action

1. An *agency for cyberculture* should be set up. The agency must have *sufficient funds and power* to study the over-all ramifications of new phenomena, to study specific recommendations made outside the agency, *to initiate large-scale experiments*, and *to carry out programs* the agency wishes to adopt *without undue delays* imposed by the Congress or other governmental and non-governmental bodies. The Agency should have representative of all branches of government, of organized labor, of industrial management, of academic life, and—most important—of the unorganized consumers. Representatives of the unorganized consumers, i.e., the vast majority of citizens, should be knowledgeable people who are completely distinterested, but intensely committed to the goal of a good cybercultural society with the courage to try the untried and the reverence for permanent values that must be conserved. A test laboratory should be set up immediately (Long Island would be most suitable).
2. *Public works*: there is an almost inexhaustible need for an extensive program of public works, such as road building, construction of dams, irrigation, conversion of

sea water, construction of hospitals, schools, parks, recreation and holiday facilities, beautification of cities, slum clearance, low-cost (but comfortable and beautiful) housing (about one million units per year is perfectly attainable), a reasonable power system to provide abundant and low-cost power for industry and homes in the most remote sections of the country. In addition to an extensive public-works program, subsidies to individuals should be provided, on a generous scale and in generous amounts, to artists, writers and other intellectuals, and to artisans and craftsmen. This will encourage the most valuable members of a society and make it possible for them to devote all their energies to their human tasks; creating a great civilization with a blossoming of art, science, and philosophy, as well as a great revival handicrafts. Pride in artistic and intellectual achievement and pride in fine craftsmanship would benefit not only the individuals subsidized but the community at large.

3. *Constitutional guarantee of Living Certificate.* All means of distributing funds to those who cannot find jobs should be coordinated. This would make it possible for the most severely (financially) handicapped to move from congested and expensive areas. Most of all, it would help to restore a sense of dignity and worth to the unemployed and make it possible for them to learn the use of leisure.
4. *Generous Re-location Allowances.* Financial assistance for relocation would make it possible for families to move to an area where (1) *jobs* might be available, (2) *educational facilities* might be accessible, and (3) *climatic and housing* conditions might be advantageous. Although reasonable precautions to prevent undue abuse may be required allowances *should not be restricted* to job opportunities.
5. *Large-scale education program* to assist the chronically (often for generations) *under-educated*, to *develop the potential of the gifted* by enabling and motivating them to continue their schooling for as long as they can benefit thereby. Education facil-

ities should be extended and made practical for *adults* up to any age when there can be a reasonable expectation of achievement. (Achievement to be defined in terms of a personal sense of dignity rather than material success).

7. *Rehabilitation of neglected and deteriorating areas:* urban and remote on a generous scale and with the conscious intent to *restore natural beauty and create and/or restore urban beauty*.
8. *Transportation:* construction of *rapid-transit systems*, both urban and inter-urban, with particular regard for the comfort and convenience of passengers and the beauty of the community.
9. Study of the *best use of the licensing power of government*, and exercise of the best use of such power, to carry out the transition to a cybercultural society as rapidly as possible.
10. *Use of the taxation power of government to expedite* and ease the transition from human labor to automatic machine systems, apportioning costs of the transition period fairly, motivating industry to cybernate and finance the generous application of the principle of constitutional Living Certificates.
11. In the process of *conversion* from a defense-oriented to a peace-time economy, all *obsolete military installations and materiel* should be transferred to the *community for the best civilian use*. Transfer should be guided; trained personnel (from the military) could participate in the conversion to civilian use.
12. A *large-scale education and public relations program* to *explain the cybercultural revolution* should be devised and carried out with the cooperation of non-governmental organizations.

## II. Organized Labor

1. The labor movement should play a significant role in the transition period by recognizing that their *responsibility extends to the unemployed*, as well as to the (as yet) employed.

2. *Organizing the unorganized* including young people leaving school and unable to find employment.
3. *Vast educational programs to prepare union members (and others) for leisure.* Such programs should be *non-utilitarian* and designed primarily to stimulate people to think through the familiar patterns of the past and distinguish between obsolete conventions and permanent values. A realistic program designed to make "free" time a time of leisure and accomplishment rather than idleness would include education for hobbies and, simultaneously, foster an awareness that the ethos of scarcity is not necessarily virtuous.
4. *Investing the vast welfare and pension funds* of unions in enterprises of social value and thus exerting enormous influence upon the shape of our economy and our value system.
5. *Cooperating in all programs to expedite the transition* to a cybercultural society and simultaneously extending the sphere of influence of organized labor to those whose laboring has been taken over by machine systems.

### III. Individual Action

1. In every kind of *community, professional, special-interest or other types of organizations, the individual can spread his insights about the cybercultural revolution.* Discussion with friends, with large groups can serve to alert others to the fact that changes are taking place, that changes are not necessarily to be feared, and that we do have choices to make to determine the kind of world that is to evolve from the changes. For although we can not eliminate the fact of change, *we can determine the direction into which change propels us.*
2. The thoughtful individual must *seek as much information as possible, sift information carefully, and articulate what he has learned.*
3. *The education of the population in a free society is the concern and responsibility of all citizens.* Education can spread by individual and group action.
4. *Interest and concern for the action of government, industry, and labor, is the duty of the individual.* No government program is too complex, no corporation too rich, nor labor union too powerful for most careful scrutiny by the individual. No injustice is too minute, no human suffering too remote, no person's fate too unimportant to affect profoundly the structure of the society. If the most insignificant right of the least important among us is endangered ever so slightly every right of every one of us is in danger. Only the individual can guard the rights of the individual. And the individual can and must demand that all action be carried out for the benefit of individuals in the society. It is still true that *a nation has the government and institutions it deserves.*
5. Individuals, singly or through their organizations, must *demand generous educational facilities and sources of information.* The media of public information should be re-organized to *serve the public interest.* *Freedom from commercials on the air and from page after page of advertising obscuring information in printed material should and can be demanded by individuals* (which does not exclude the use of government licensing power to protect the interest of the individual.)
6. Individuals should make conscious efforts to *examine their own values, discard their prejudices, and accept new ideas.* "The unexamined life is not worth living," said Socrates. This clearly makes it the responsibility of every citizen to examine his own life and to assist others (though not force it upon them, because that would be ineffective) to examine their lives.

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