Many of us are gradually becoming aware of the fact that an enormous number of Americans live in abject poverty. While estimates of their number vary, it is certain that millions of people in this country live in chronic need, perhaps as many as one out of every four of five citizens. Children, the sick, and the aged constitute a large part of this number; but also included among them are approximately four million unemployed Americans on whom millions of additional citizens once depended for their support. Many of these people are victims of automation and the computer revolution. John Snyder, President of U.S. Industries, has estimated that automation is a major factor in displacing 40,000 workers per week. The Department of Labor, which is more conservative, estimates the rate of displacement through automation at 4,000 per week.

But poverty is not the only threat to those who have been displaced by automation. Even if the unemployed are provided an adequate standard of living, millions will still be threatened by psychological problems which have their roots in two conditions of the contemporary American scene. First, most unemployed people hold values based on the Protestant ethic—values which are ill-suited to a world in which there is not enough work to go around. And second, there is the machine itself, particularly the computer, which is presented to the worker as being faster, more accurate, more reliable, and in short, better than he is. In this essay I would like to focus not on the physical plight of these people but on the psychological problems they face.

Underlying many of the psychological problems which the unemployed face in trying to adjust to their condition is the fact that the prevailing value system in this society places great stress on the virtue of work. Although many observers have commented on this, one of the best known was Max Weber who called it the Protestant ethic. The central notion in the Protestant ethic is the idea that labor is noble whereas idleness is immoral. The fact that Weber, a German, chose an American, Benjamin Franklin, as the exemplar of the Protestant ethic emphasizes the degree to which this country is uniquely identified with it.

The aphorisms of Franklin are rich in their reference to the moral value of a man’s labor. Franklin, at one point in his career, set out to distill the essence of moral perfection into 13 virtues, one of which was industry. “Lose no time,” he advises. “Be always employed in something useful; cut off all unnecessary action.”

In Poor Richard’s Almanac, Franklin makes these additional observations on work and idleness:

“At the working man’s house hunger looks in, but dares not enter.”
“Plough deep, while sluggards sleep, and you shall have corn to sell and keep.”
“Trouble springs from idleness.”
No twentieth century American is entirely free of his cultural ties to Benjamin Franklin or the Protestant ethic. Despite occasional jokes to the contrary, most of us feel uneasy when we are away from the daily working routine too long. Indeed, as our jobs become more abstract and it becomes more difficult to point to concrete products resulting from our most intensive labors, many of us are plagued with doubts. Are we in fact needed? Are we paying our way? Or are we perpetrating a gigantic hoax on a world too confused to recognize what it does, in fact, need?

Our uneasiness is rooted in the fact that work is the principal avenue by which Protestant man fulfills his potential as a unique and creative human being. Although our daily life is filled with numerous activities, work and sleep consume the largest part of our days; and in no other sphere is the potential for self-realization so great as work. To question my work is to threaten my value as an individual; to deprive me of work is to take from me the opportunity to give meaning to my life—the opportunity to achieve and to be recognized by my fellow human beings. The important point to note here is this: a man's labor does more than supply the necessities of life; in this culture, it also feeds hidden and only dimly understood psychic needs as well. Though a man may have more money than he requires to satisfy his own needs and those of his family, he still feels impelled to work. Work is an autonomous activity: it is good in and of itself, having a value surpassing the immediate ends it serves. “God gives all things to industry,” says Poor Richard. To not work, on the other hand, is bad. “Be ashamed to catch yourself idle,” as Poor Dick says.

Though it may be otherwise on some far off Pacific Island, in this culture the average man who does not work feels guilty and useless, and this, unfortunately, is true even though he is unable to work through no fault of his own—because he is too sick or too old or too young or too poorly trained.

While the unemployment statistics do not tell the whole story, they suggest that there is a great deal of psychological, as well as physical, misery in this country. The plight of such “special” manpower groups as the young, the old, and the minorities is particularly tragic. Unemployment rates for teenagers are three times the national average and have risen almost 70% in the past five years. Older workers—those over 45 years old—are similarly disadvantaged, finding it difficult to find a new job once they lose their existing one. They account for a disproportionate percentage of the long-term unemployed, and many older workers “retire” prematurely to avoid the psychological stress of hunting for non-existent jobs.

Minority groups are hardest hit. Unemployment rates for non-whites are in almost all cases twice the rate for whites—regardless of educational level, age, sex or skill. This means that non-white unemployment rates for teenagers amount to about one potential worker out of three; and in some areas, only one youth out of two has found a job.

One could go on citing such statistics as these endlessly, but that is really unnecessary. These data point up the central fact that millions of people are caught in a fearful conflict. They are unable to find jobs in a culture where the prevailing ethic is “work or be damned.”

These statistics appear to have had very little impact on the drive to replace men with machines. Indeed, the moral imperatives which guide the computer revolution seem to take for granted that man will somehow bungle through if the machine is properly tended. Writing in Harper's in 1951, two Canadian physicists, E. W. Leaver and J. J. Brown, suggest that widespread automation will bring an era of peace and creative human development. Their basic principles, which will presumably bring about this new era of peace and prosperity, are notable for their emphasis on the machine, rather than on man himself, as the source of human salvation.

1. Machines should replace men wherever possible.
2. Men should not be used for routine operations if machines can do the work.
3. Automaticity of machines should be encouraged.
4. Automaticity of men should be discouraged.
5. Men must be ancillary to machines.
To a generation which has grappled with such earth-shaking problems as the control of nuclear weapons, the belief that machines should replace men or that men should be ancillary to machines may seem trivial. But in point of fact, it may be as revolutionary a change in the beliefs of man about himself as the shift which occurred with the widespread acceptance of the heliocentric rather than geocentric view of the universe.

Before the general acceptance of the heliocentric view of the solar system, most people saw a special significance in the fact that the sun and stars apparently circled the earth; it seemed to imply that man, who was obviously first on earth, must therefore enjoy a special relationship to the entire universe. But even then, men could still look around them and find in their own handiwork something special, something which set them apart from other living things. Veblen, in fact, considered a sense of workmanship chief among the instinctive dispositions of man. The new doubts which the machine has cast on the capabilities of man are sufficient to shake his faith in himself to the very roots.

In the past, as machines extended human capabilities, they freed men from much of the drudgery that characterizes more primitive societies. Even today in many underdeveloped societies, virtually every member must devote all of his waking hours to the finding and preparation of food. There is not enough excess capacity in these societies to free more than a few individuals for other kinds of activities. Under such conditions, machines make good economic sense. While the rationale behind the quest for newer and better machines is still largely economic, we seldom ask what we are "freeing" men from and what we are "freeing" them for.

Underlying the relatively high value which we place on the machine is the notion that men really aren't very efficient mechanisms. Machines can do many things better than men, and some would assert that machines can do most things better than men. We are told that they are faster; that they are more accurate; that they are more dependable; and there are those who believe that computers rather than men should really make many decisions.

It would be well to note that it makes very little difference, for the purpose of this discussion, whether the machine is or is not superior to man. In many ways the issue is academic. What really matters is the extent to which the average person is convinced that the machine will replace him because it is better than he is. With the enormous prestige of science standing behind us, I submit that we have unwittingly convinced the average man (who may not in any case hold himself in very high esteem) that he is in fact not really worth very much. This, I fear, is a most serious mistake, first because of the impact it will ultimately have on our culture, and second, because it is not true!

Clearly the proposition that men should be replaced by machines because they are better than he is inconsistent with the Protestant ethic. If a man must work to feel worthy and needed and we persist in eliminating him, then the result must inevitably be a profound and possibly disastrous change in the fabric of our culture. While no one can predict precisely the social consequences of this state of affairs, most social scientists to whom I have talked are not optimistic.

To the sociologist, the disparity between the prevailing Protestant ethic and the realities of modern life as experienced by many unemployed people leads to an alienation between the individual and his reference group. Emile Durkheim in his comprehensive study of suicide used the term "anomie" to describe the condition in which an individual is constantly forced to compromise his established values when they conflict with the existing reality—a condition which inevitably results in a feeling of separation and rootlessness.

From the viewpoint of the psychologist, most problems are rooted in conflict and frustration. When the society places inconsistent demands on the individual, insisting, for example, that he both work and accept the fact that jobs are not available, he struggles to resolve the inconsistency. In the absence of more effective response alternatives, the individual can be expected to invoke certain well established psychological mechanisms in order to adjust to continuing conflict and frustration. Aggression, regression, fixation, and in the face of prolonged
frustration, apathy, withdrawal and resignation, are mechanisms used to some extent by normal individuals. But when tension persists despite all efforts to remove it, and the individual resorts to inappropriate psychological mechanisms as a "way of life," the consequences are potentially very serious for his mental health.

The clash between the Protestant ethic and automation threatens to place literally tens of millions of Americans into what is essentially an irresolvable conflict situation. In the absence of socially acceptable alternatives, the most likely result of this is the relatively permanent adoption of one or more inappropriate psychological mechanisms. This is basically an unhealthy state of affairs.

Many advocates of the machine-over-man position declare that we will automatically adopt healthy alternatives—that we are entering a new era where the workman will turn to culture and the arts, thereby resolving the conflict in a socially acceptable and useful way. This seems unlikely.

According to statistics published by the Department of Labor, the following educational levels can be expected to prevail in the 1960's:

For youths, if current trends continue, approximately 30 per cent of those entering the labor market (7½ million young people) will not complete high school. Approximately 2½ million of these will not even enter high school.

For non-white workers, the situation is even worse. As of March 1962, one out of every three non-white workers had not completed an elementary education, and only one in five had completed high school.

These educationally deprived groups, who will be the hard-core unemployed of tomorrow, do not appear to be particularly promising candidates to lead America in a new cultural renaissance—nor do the masses of older employed Americans who suddenly find themselves displaced by machines.

In Oklahoma City, in 1960, an intensive effort was made to help displaced workers after the closing of the Armour plant. One hundred and seventy people were tested, but only 60 showed promise for retraining. As a matter of fact, out of a total of 431 workers invited to be interviewed, only 143 men and 27 women completed both tests and interviews.

In another recently published study, the Labor Department compared the characteristics of all unemployed workers with those of 30,650 trainees enrolled in Federally financed retraining programs. Older workers are poorly represented in such programs. Only 5.7 per cent of trainees are over 45 years of age, and yet, 28 per cent of the unemployed fall into this age group. From the report, it is not clear why these people are so poorly represented, but one suspects that they are simply not prepared to build new lives for themselves through retraining. Whenever they are called upon to change their ways dramatically, older people must overcome a lifetime of learning and powerful habits built up through years of conditioning. The report notes that many older people are undereducated and unskilled and have little to offer the economy. It is reasonable to suppose that many of these people are undereducated because even in youth they were not highly motivated to learn, and that many of them simply have no wish to learn now. On the other hand, prodded by the Protestant ethic, they do have the desire to play a useful role in this society. It seems completely naive to believe, as some apparently do, that this need can be satisfied by social activities which demand a radical reorientation of their existing modes of behavior.

The new society will provide the potential for additional leisure, but a large proportion of the population is unfortunately ill-prepared for leisure. They are ill-prepared, first, because leisure is antithetical to the Protestant ethic, and second, because the enjoyment of leisure requires preparation for it. Relaxation may come naturally to us as children. But the ability withers under the regimentation of a civilized society, as evidenced by the emotional and psychological preparation required by most men who have worked all their lives and who are suddenly faced with the full-time leisure of retirement.

Will the unemployed voluntarily turn to education in search of a solution to their conflicts?
While I am not aware of any research directed at answering this specific question, a recent study by the National Opinion Research Center provides some interesting information about the kinds of people currently participating in adult education programs. Although one out of five adults follows some plan for leisure-time education, the “typical” participant is apparently not one of the “other Americans.” Indeed, the “typical” participant is described by the authors as a man or woman who has completed high school, has an above-average income, a full-time white-collar job, and is a white married Protestant living in a city or suburb.

What very few people seem to fully understand is this: large numbers of unemployed people lack the most elementary academic skills, such as the ability to read well. In view of the fact that millions are insufficiently trained to find work, or even warrant retraining, and that many more are past their prime, fixed in their ways, and poorly adapted to change of any kind, it seems unlikely that they will turn to cultural interests.

Nor do these remarks apply solely to the laborer. It would be foolish to believe that the computer revolution will stop with the man in the denim shirt. On the contrary, white-collar automation is at least as great a threat as blue-collar automation. Today, white-collar workers being replaced are those who are engaged in basically routine tasks, but if the past is any guide to the future, the “clip level” will gradually rise to encompass literally millions of additional white-collar workers. In the crudest terms, computers are installed because they make economic sense, and they make the most economic sense where they eliminate high-cost manpower. Managers aren't installing computers for the fun of it; they are installing them because they save money, largely by doing tasks which would otherwise be performed by humans. To review each of the areas in which this is true would be both tedious and unnecessary. Airlines, banks, brokerage houses, manufacturing firms—virtually all sectors of the American economy—are discovering the simple fact that computers cut labor costs.

Whether white-collar workers will turn, en masse, to the classics, art, music, or even do-it-yourself projects, is not easy to foresee. But even if millions do turn to cultural pursuits, it is safe to predict that millions will not. What of them? Like their friends in denim shirts, they too are products of a Protestant ethic.

To summarize, millions of unemployed Americans, and millions more who may soon be displaced by automation, are psychologically threatened from two directions at once. First, there is the threat created by the fact that they hold a value system—the Protestant ethic—which is contradictory and ill-suited to the world in which they find themselves. And second, there is the threat presented by the machine itself—the computer—which makes the individual feel insignificant and inferior by comparison.

What are we to do about the psychological problems I have described?

I have shown that the continuing process of automation challenges one of the most fundamental factors in the psychological makeup of the American individual. While we are probably unwilling and even unable to stop automation, it is within our power to change the nature

*Although I am convinced that what matters here is not whether machines are really superior to men but what people believe to be true, I cannot leave this topic without making one or two comments. Many authorities appear to feel that machines will some day simulate all of the important properties of human intelligence. As a psychologist, I am frankly a skeptic.

In a recent article published in Datamation, Paul Armer deplores the fact that we keep redefining intelligence so that it is always just out of the reach of the machine. The fact of the matter is “intelligence” and “thinking” have always been concepts just out of the reach of scientific psychology, as well. We don't really know how to define them in an entirely satisfactory way. Indeed, that is the problem. I'm sure that if these terms are ever defined in a way which encompasses the full richness of the phenomenon to which they generally refer, then it will be possible to simulate them.

But, to be satisfactory, the definition will have to include some extremely frustrating aspects of human behavior. For example, any really adequate definition of thinking will have to recognize the fact that perceptions are selective and shaped by past experience; that the mind wanders down strange and wonderful unprogrammed paths; and that the most creative thoughts are sometimes elicited by the most illogical and bizarre associations. In short, the very features of man which make him slow and unreliable may be his most valuable properties.
of automation by making it more sensitive to human variables. To the extent that our analyses of the benefits of automation ignore human costs, they are incomplete. There are costs associated with retraining, with the support of the unemployed, with social dislocation, and with the psychological misery of the displaced worker. In general, when the benefits of automation are calculated, these costs are ignored. Taxation may spread such costs over a broad base, but they are still enormous—and they will continue to grow as automation expands. It is important that computer scientists become sensitive to these human and social costs so that systems analyses include all of the relevant variables.

Second, although the task will take decades, we must begin to change the Protestant ethic. Changing the Protestant ethic will involve a dramatic reorientation of our society. Most important, we will have to learn to live with the fact that the day is not far off when computers and improved machines will make it impossible for ever-increasing numbers of Americans to fulfill their potential through work. Many of our children can expect to spend a large part of their lives in leisure. To this end, public education should modify its curricula to prepare our children and grandchildren not only for work but for the more profitable use of free time as well. Unlike many who see in every subject which is not blessed by Admiral Rickover a direct threat to the American way of life, I believe we should begin to emphasize in our schools the constructive use of leisure by encouraging our young people to participate in the full range of life’s activities, including art, music, drama and similar fields which today are seen by many to be frills. Also, the society should recognize and reward excellence in these fringe areas as much as it does in more traditional fields. While I do not believe we should turn our backs on science, we should not allow it to consume us either.

Third, we must re-examine the economic base of our society. Up to the present time, we have forced man to work if he wished to receive an income. If we can no longer provide work in the traditional sense for everybody, we must reconsider how the unemployed are to be provided with resources and what volume of resources they should receive. Already, some writers have suggested that every individual will have to be given an absolute right to an income adequate to live his life in dignity.8

Fourth, there is the requirement that we educate every citizen to the limit of his abilities. To the extent that people are needed at all in the emerging, new society, they must be educated. Most of those who are not educated will be cast ruthlessly aside. Furthermore, education is a profitable way to consume time which might otherwise be spent in antisocial or socially maladaptive ways. Therefore, the right to an education is an essential guarantee—not only for the protection of the individual but for the protection of society as well.

Finally, we need more information about the problems of the unemployed. We are in need of better psychological data about the displaced worker, his attitudes toward society, the way he spends his time, and his fears for the future. We must try to determine the extent to which the conflicts I have postulated lead to an alienation of the individual from society and how we can prevent this from happening. We need to know more about how to prepare people to accept change, particularly older workers. We must refine our tools for predicting future trends so as to properly prepare our young people for the world they will someday face.

Carl Jung5 once remarked that in science "the individual man and, indeed, all individual events whatsoever suffer a leveling down and a process of blurring distorts the picture of reality into a conceptual average." In the scientist’s search for lawfulness, he abstracts away complexity and reduces the individual to a statistic. So it is with all of the statistics which I have cited. The individual is lost. But if we look beyond the abstraction to men, as living, breathing individuals, there is much to be concerned about in this affluent society of ours.

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