

HALF-TRUTHS CAN MAKE US
SLAVES

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Mr. BLACKBURN. Mr. Speaker, during the early part of June, many members of the administration journeyed to college campuses across the Nation to act as commencement speakers.

In my own State of Georgia, Assistant Secretary of Commerce for Science and Technology Myron Tribus addressed the graduating class of the Georgia Institute of Technology. The Assistant Secretary discussed the half-truths which are now readily accepted as truth by some of the more well-educated of our populace; and he stressed the need for all citizens to do their homework before actively taking sides on a particular issue.

For the information of my colleagues, I am inserting Assistant Secretary Tribus' address into the RECORD.

THE HALF-TRUTHS CAN MAKE US SLAVES

(Address by Assistant Secretary of Commerce for Science and Technology Myron Tribus, Prepared for Delivery at the Georgia Institute of Technology, Atlanta, Ga., June 13, 1970)

Men and women of the class of 1970: I stand before you suddenly filled with the awful knowledge that all that stands between you and your diplomas—is this speech. This should be a day of celebration for you and your families. Out of respect for your desire to "get on with it," I shall make these remarks as brief as I properly can.

Your joy, and mine is tempered by the realization that on this day you are to be graduated into a time of stress. I assure you it is not entirely a novel experience. Yours is not the first generation to be assailed by doubts and misgivings—nor, I fear, will it be the last. How sure can you be, as you take up the responsibility for supporting and running this society that 25 years after your graduation day you will be able to say to the next generation, as yet unborn, that you, at last, did what we and our ancestors failed to do? How confident can you now be that by then you will pass on to them an America free of problems and strife, in a world crowned with peace and plenty? How sure are you now that you can really do it?

In a very real sense, over the next few decades, the American experiment faces its greatest challenge since the Civil War. The fate not only of this nation and this people but that of the whole human species may well hang in the balance. That is the issue I want to talk to you about today.

Our challenge, yours and mine, is to prove to ourselves and to our species that we can develop the means and the will to meet the problems of our environment, our cities, our social inequities. We must show ourselves and the world that we are on the right road, that this American experiment really leads somewhere.

At this point the wisest observer must grant that the outcome is in doubt. But *this* observer is an optimist. And I am an optimist because I know that we have the resources to meet these problems. I see emerging signs that we may be ready to apply our resources in a constructive manner. Before you give up on this experiment, think about the problems other nations face. It is easier to wrestle with America's problems than to try to cope

wies those of any other nation of the world with more than 50 million people.

To understand fully our problems and our opportunities requires a firm historical perspective. I spoke of the American experiment. Remember that it is precisely that—an experiment in self-government; in self-control. On the time scale that applies to nations and to civilizations this country has just taken the first steps on a journey of a thousand miles. We have just begun the overt search for the philosophies and the social and political machinery which will operate a vast, urban, technological society with a maximum of freedom for individual action and initiative. Despite the unrest it causes, surely we are better off for knowing what our problems are and for wanting to solve them. Surely we are better off for arguing not *whether* to solve them but differing only on *how*. Unless the historical facts are understood, we are likely to miss the whole point of our dilemma and waste our substance on the immaterial and the irrelevant.

Viewed as a finished product, America is a flagrant example of deceptive packaging, poor quality control, or worse. Viewed as a beginning, it is the best that man has ever done. Properly continued, skillfully modified, vigorously pursued, this start could lead to the establishment of a system for handling the new phenomenon of an urban technological society without sacrificing individual freedom. If we cannot find the path to the society we must be judged irrelevant—an interesting but not viable aberration in the historical development of social organization. The alternative to success is the beehive society.

This country and this world are irretrievably urban and technological. The facts of life, expressed in population explosive terms make it so. And while many of our problems arise from that fact, so do all possible solutions. Without the high technology we have developed and shared with the world, there would be no hope. Without the automobile, the electric power generating plants, the furnaces and the smokestacks, and all the other blights of modern civilization there would be far less air pollution. But without the technology which made them possible, population pressures alone would turn mankind into vast mindless vermin scouring the face of a dying planet vainly searching for scraps of sustenance. Such an ending would release new excesses in man's inhumanity to man on a scale unprecedented.

It remains, perversely enough, that our salvation lies in the same powers that gave us our problems. We have a system which does certain wonderful things. As engineers we can appreciate the fact that the system needs modification, needs to be redesigned in certain respects. But we cannot hope to cope with the problems we have already or to try to build any kind of livable society for the future without the vast political, economic, and technical apparatus we have already constructed.

Are our atmosphere and water supplies polluted? Only in the technical capabilities of American industry and Government do we find the magnitude of talents and resources necessary to clean them up. Is the economy of the center cities depleted and distorted? Only the combined economic power of the U.S. business community and the Government can possibly exert enough leverage to make progress. Are there adjustments needed in the distribution of the fruits of our rich economy? Only that economy, intact, as a whole, has the power to remedy those inequities.

What I'm saying here is simply "adjustment si, revolution no." This is not an apocalyptic message. Western thought stops short of saying that revolution is never necessary. But I cannot help but believe that in this period of history, in the United States,

the revolutionaries must be judged irrelevant on their own terms. They seek to destroy the only apparatus which has the power to put right the injustices which they, rightly in some cases and wrongly in others, perceive. McLuhan has said that once an activity ceases to be essential to existence it becomes an art form. Perhaps this is what has happened with revolution in this country in this day.

The real question, then, is can we make progress within the system? Is the system as unyielding and as hopeless as the prophets of despair would claim? I cannot help but think not. Who would have believed just a couple of years ago that we would have an administration publicly committed to disengaging this country from the Vietnam war? Most of the actions that the Nixon administration is taking in withdrawing American troops from Vietnam would have satisfied the dearest hopes of the veriest dove in the early Vietnam debates. This aspect of the Administration's policy is the direct result of the public debate, stated in rational and peaceful terms, which has occurred on this momentous issue. We saw in the last election President Nixon's "Silent Majority" and Senator McCarthy's "Children's Crusade" make their voices heard on a national scale. We see now new coalitions of University administrators and students in direct political action. The involvement of the young in the political process, if it means communications between generations *that have done their homework*, will strengthen the American system.

There's an important phrase there—"have done their homework." If the communications are to be meaningful, both sides must not be swayed by slogans. The charge that the system is totally unresponsive does not stand scrutiny. In the last few years the establishment has moved to eliminate cyclamates, DDT, phosphates in detergents, lead in gasoline. All of these moves were very expensive to some people. But the system has responded. The response came *after* public support became manifest. There are some who would have had earlier response, but we are all blessed with 20-20 hindsight. And we fail to credit the system for the successes it had in the things that never happened, the unsafe drugs and products that never got to the market.

I raise these examples to make clear that the "establishment" in this country is not isolated, aloof, all powerful, and destructive of the wishes of any minority. Today's minority, today's dissenters, in an era of change may well become tomorrow's administration. But if America is to survive its trial, they must get there via debate and persuasion—persuasion through logic and morality, not the brick and the stick. Minority opinions can have great impact on the national direction and will.

Of course change always comes too quickly for some and too slowly for others. The gap between these two factions is always narrowed by communication, always widened by violence—whether it be physical violence or the psychological violence of namecalling. The tragedy at Kent State was preceded by intemperate and uncompromising statements and actions by persons on both sides of the controversy. When violence is unleashed someone is bound to get hurt.

Violence and namecalling are terribly inadequate substitutes for thinking, and thinking is man's prime survival weapon. Other creatures are stronger, are swifter, breed even more rapidly. But man can reason. When he does not reason, he gives up his only adaptive advantage and threatens his survival. It is still true that those whom the gods would destroy they first make mad.

So we must reason together and communicate with each other not just for peace

of mind or for domestic tranquillity but for our very survival.

Can we engineer a future in which the ideals American philosophy so nobly states are at last reality? Surely not by destroying. But by changing, adjusting, building, yes, most certainly. We have at our disposal the largest, best balanced, and most versatile scientific, technical, and economic resource the world has ever seen. I think the events I have cited show definitely that we can be the masters of that system rather than its servants. Remember that our system is a free market economy. To survive it must remain also a free market in ideas. We are a *noisy, unquiet*, creative people. Our directions and our actions are hammered out in conference, in public debate, in the press—in short in the freest idea market in the world. Our greatest hazard is any force which tends to distort or suppress that free market.

The expression of an idea in violent terms or in terms of actual violence demeans the value and the permanent impact of that idea on the National consciousness. The Vietnam Moratorium of last Fall was peaceful and therefore drastically changed public opinion of the protesters' motives and of the worth of their cause, virtually overnight. I have not the slightest doubt that a violent demonstration would have had precisely the opposite effect on public opinion and on our Nation's troubled course in Southeast Asia.

Next to actual and rhetorical violence perhaps the most destructive distortion in the free market of ideas is the half-truth. From Biblical times we have known that the truth would make us free. But we must go all the way, for the half-truth can make us slaves. In a state like Hitler's Germany, where my generation saw how subtle half-truths were deliberately used to manipulate public opinion, there was a clear cut situation. Ours is more subtle and more vexing because the half-truths are often, perhaps most often, not deliberate.

Largely our half-truths originate with good men who are simply unable to handle the complexity of information they get to make judgments and decisions. And just as often one of his fellow experts will contradict him using another half-truth.

Let's look at some interesting half-truths. I am sure you all have heard about the lack of space in American colleges. Our higher educational system, it is said, simply cannot absorb all the qualified applicants. Penn State, for example, expects to turn away 10,000 qualified applicants this year. On the other hand, a survey by the New England Board of Higher Education reports 11,700 vacancies going begging at 123 colleges in that area.

One shortage of capacity then, is a half-truth, only part of the story. The actual situation is a complex of the geographical distribution of facilities, the level of tuition and other costs at various institutions, and the American predilection for name and status in picking a school, among other factors.

But you see that the bald statement "We haven't enough facilities for higher education" is a half-truth which could send us scurrying on a building boom which which would be at best a very incomplete response to the real problem: We need our construction resources elsewhere. Our colleges are already desperately overextended financially.

The men of science and technology are not immune to the half-truth. Recently two noted scientists began a rather noisy campaign to have permissible limits on radiation dosages cut to one-tenth of their present values. I cannot help but be shocked by the flagrant use of half-truths in their attack on the existing standards. The whole issue revolves around the fact that while a large dose of anything can indeed harm you, there are lower levels which the body does easily

tolerate. You can get sick on an overdose of vinegar.

The moral values here are certainly sound. If we could surely prevent one case of leukemia through these actions, the actions would be justified. But there is no good evidence that the postulated relationship between body damage at high and low doses of radiation does indeed exist.

Another classic example of completing half-truths is the current investigation of the herbicide 2-4-5-T. It has been banned from many uses because there is suspicion that it may cause genetic damage. There is no conclusive experimental evidence yet that it actually does so. The issue is clouded because early tests used contaminated material. The case is particularly interesting because it is undoubtedly true that some of the chemical's troubles, or at the very least its public image, stem from the fact that it is used as a defoliant in Viet Nam. In other words, its emotional connotations may be the most serious burden the chemical carries, in the absence of conclusive scientific evidence against it.

It is precisely here in these undefined areas, where insufficient data exist, that we face a grave danger—the danger that we will lurch from one extreme action to another down the road to oblivion. We have enough demons to exorcise from our way of life without making up some more. Here, as in the political and social field, the overstated case and the oversimplified solution are grave dangers. They waste our substance and energy on actions which at best are ineffectual and at worst make the situation worse.

As I say, so many of these half-truths are not really deliberate deception. One of our main problems is that the time scale of the decisions we must make and the actions we must take is extremely short and the volume of information we must take into account is staggering. Yet we must make more sure than ever that our decisions are sound. We are trying to undo a myriad of troubles which stem from unwise choices of men who went before—in many cases of men who still are with us and still participating in the decision making process.

Herein lies another challenge. We need to consider a new public risk taking—there are no safe paths left for us.

Can we, a nation of over 200 million people, learn to make wise decisions under ever accelerating emergencies within the limits of the powers given to men? Or is the final factor in our extinction as a species to be that we built a sociology, an economy, and a technology which, in sum, was too complex for human intelligence to handle?

Again I am an optimist. Again we must look to hopeful signs, rather than on-the-shelf remedies. One major thing our American experiment seems to need is real-time on-line data handling. (That's modern lingo to say we now need to know many things in a hurry.) Our computer technology, the most advanced in the world, enables us to handle a much greater volume of data on a specific problem than ever before. Systems analysis promises to enable us to keep track of more factors in making decisions. Computer simulation is beginning to let us evaluate possible solutions in days rather than years. And if it turns out that the solution being modelled makes the problem worse, all we have to do is discard the idea, not live with the pollution or other mess than a real trial would have left us. I know we can devise the means to harness this revolutionary tool, the computer, in the service of man and can keep it from being our master.

So overall I must be optimistic that we can make our experiment work because of several factors. I see the emergence, just the beginning, of a decision-making technology commensurate with the vast amount of information we must handle and the complex decisions we must make. I see possibilities

that new methods, still being worked on, can absorb these sophisticated techniques and use them to advantage. I see good evidence that our system can recognize and react to the opinions and desires of minorities and I must believe that in a free idea market, good ideas tend to drive out bad. I see evidence that the young people are becoming aware of the possibilities built into our free idea market. I see that many of them realize that they can make their voices heard through established procedures, whether that means demonstrations or conventional political activity, for they are both established in the American dynamic.

All of these things are hopeful signs to me. The complacency of the fifties and the unrest of the sixties is about to give way to genuine creative action in the seventies. We are about to break through the barrier between rhetoric and creative progress. We have been through periods of apathy, non-violent demonstration, and wanton destruction. We see that the first precludes progress, the second creates progress, and the last destroys progress. We are just learning how to make our fellow citizens concerned in a creative way. I fervently hope that we are learning to arouse emotions strong enough that we think and perhaps even act without arousing emotions so strong that we lose the capacity to reason.

Has the age of the social and political revival meeting ended? Reports of last month's peace rally in Washington all noted a certain lack of fervor in the crowd. That very astute reporter Richard Starnes speculated that "there is growing disenchantment among the young with the hackneyed oratory of revolution." I think, and I certainly hope, that this is true. Because we need the young to help us operate this wonder machine which we have created but can't quite work. We need their fresh insights.

Those who have stood apart too long across the so-called generation gap have much to say to each other. Those who have gone before can tell you of battles for human rights and dignity already fought and won. You can tell of what has been missed; and about the battles we can yet fight together. From our experience—both in success and failure—we can provide a fair road map to show you how to get from where we have gotten you to where you want to go.

In this two way discourse, I urge you not to regard what you have recently learned as a new discovery for the human race. I assure you that you did not *discover* sex and love. Strange as it may seem, your parents were there before you.

But we must none of us see the world in half-truths. All of the young people who protest are not unwashed bolsheviks acting out aggressions against their parents; all businessmen are not totally mechanical, profit-oriented exploiters. It is also time to allow for the fact that not all who would revolt really know what they are doing and that those in charge may be in the same boat. We shall get nowhere until we all accept the humility appropriate to those who know they have a great deal yet to learn.

We must look at our society together, clearly and realistically as we can, not in parts and in half-truths, not separately. My generation sees a massive and flexible system to produce physical necessities and luxuries—the summit, so far, of man's historic struggle to free himself from physical toil in order to shift his energies to higher considerations; you see the humanity left by the wayside of progress and the dehumanizing force of efficiency. As Louis Banks of *Fortune* magazine so beautifully put it, "We saw the gross national product, they saw the gross national byproduct—of mindless urbanization, environmental pollution, and the whole wasteland of public dereliction."

Many of you here today have a great opportunity because you are engineers. As en-

gineers, you will work at the interface where technology is applied to public problems. You can bring the visions of your generation directly to bear on the conditions and directions of the world. You can bring human values into the operation of the system and turn its vast potentialities to benefit mankind.

But we cannot work on half-truths and we cannot work without communication. It is now up to your generation to see that there is communication between the human values and the technological process. And it is up to you to keep open the channels to the past; to use what is usable, to cast out what is untrue and what is unkind.

The modern poet Pound once wrote to another poet, across a gulf of time far longer than that which separates you and me:

"I make a pact with you, Walt Whitman—

I have detested you long enough.

I come to you as a grown child

Who has had a pig-headed father;

I am old enough now to make friends.

It was you that broke the new wood,

Now is a time for carving.

We have one sap and one root—

Let there be commerce between us."

Let this be your mission. If we are to survive, we must have a continuity with the past. If we are to survive, we must have the new values and directions which youth can give us. Without that synthesis, the beginning we have made will die, and with it what a president in an even more troubled time called "the last, best hope of mankind."

The generations before you have fashioned a wondrous tool to serve the good of man. They have not perfected it and have not always used it well. It passes now to you. We truly admit that we have not always lived up to the values we loudly proclaimed. Now it's your turn. Can you—will you do better? I hope so, for the future is yours.