

QUANTUM LEAP: Black America's High-Tech Challenge

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SUMMARY

Dependence on technical products and services is crucial to the working of modern society. As we rush toward a technical revolution, awareness of issues and active participation by the broader community in the decision-making process is imperative. Blacks have had a long history of scientific achievement back into our African antiquity, but in recent years, despite a few extraordinary examples, we continue to be under-represented in the mainstream of technology. A combination of technology and humanism is advocated as more blacks enter technical careers.

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INTRODUCTION

Technical dependence and interdependence is typical of almost every aspect of life in the modern world. We live surrounded by objects and systems that are taken for granted but which profoundly affect our behavior. When we start the car, press the elevator button, buy food at a supermarket, or read a book by the table lamp, we give no thought to the complexity of the devices that make these things possible and we demand they work consistently. During this century we have become increasingly dependent upon the products of technology. They have changed our lives, even at the most basic level: The availability of transportation has made us less physically fit than our ancestors; this writer and many other people are alive because of the marvels of medical technology; our work day is structured around the constraints and demands of the mass-production system; we can neither feed, nor clothe, nor keep ourselves warm and healthy without some form of modern technology.

Throughout these unfolding cultural developmental processes, scientific and technological progress has never been equally distributed. New discoveries have always been applied selectively, with some group, class, or race, using knowledge of the external world to control not only it but their fellow humans as well. As C. S. Lewis observed, "Man's power over nature is really the power of some men over others with nature as their instrument."

Now dramatic new scientific discoveries have begun to reshape our lives. We have found them useful, yet we also recognize a need to monitor their uses and our dependence.

TECHNOLOGICAL DEPENDENCE

Let's take a closer look at our technical dependency. There has been quite a bit of hype about the coming technical revolution. Take a close look around. It is not emerging, it is already here. For example, consider how on a cold New York evening on November 9, 1965, a series of events was triggered which, within twelve minutes tossed the richest, most highly industrialized, and most densely populated area of the Western World into utter chaos. Over thirty million people packed into a 80,000 square mile area were affected for periods of from three minutes to thirteen hours. As a result of the New York blackout some died, for others life drastically changed. Electronic machinery is the lifeblood of our society and the residents of New York received proof beyond all doubt that our advanced culture is deeply in debt to, and dependent upon, technology.

A more recent example of our dependence on technology and potential problems was depicted in the American Association for the Advancement of Science's popular magazine Science 83. The AAAS article demonstrated how a nuclear blast over Nebraska would bathe the country in an intense electromagnetic pulse and cut off power and communications, paralyzing not only the population but also any attempt at a high technology defense.

For the first time a select group of people now have the power to manipulate, not only the external world, but also the internal world of life itself. With the discovery of DNA and its workings, scientists have unlocked the very secrets of life. It is now only a matter of a brief time before biologists may be able to irreversibly change the evolutionary patterns of billions of years with the creation of new plants, new animals, and new forms of human and post-human beings.

Other more humane developments, occurred in Dayton, Ohio at Wright State University where 22 year old paraplegic, Nan Davis, rode a specially built bicycle and actually stood up and walked under her own power with the assistance of microcomputer technology.

Just as computers can be applied to medical problems, so they are being applied in space exploration, electronic funds transfer by banks, commercial sales, telecommunications, home security, personal financial planning, and educational applications. For less than \$500 you can put at your disposal the same basic computing power as a mainframe (very large) computer did in the early 1960's. The cost of logic devices is falling at a rate of 25 percent per year and the cost of computer memory at a rate of 40 percent annually. Computational speed has increased by a factor of 200 in 25 years and the energy consumption and size have decreased by a factor of 10,000, all for the comparable power of a 1960's mainframe. The impact of cheap computers is widespread and they are actually transforming our lives and our entire society.

Robots and computers will become increasingly intelligent. Artificial intelligence is a rapidly growing field with miraculous advances to its credit. Systems have already been developed which can simulate a psychiatrist's dialogue with a patient, recognize and pick up various shaped objects, and, yes, even write computer programs.

Telecommunications, especially satellite communications, is big business. The Space Shuttle delivered its first commercial satellite payload in November 1982, at \$18 million gross earnings. The European Space Agency and a group of Texas investors are also gambling that their competition in this new "space truck" enterprise will pay off handsomely. We have just peeked at the industrial development potential in outer space. The Space Shuttle is the key to a viable future space program.

For example, the shuttle technology will allow the construction of large solar collecting satellites in space. It is theorized that one of these massive SUNSATs could collect sunlight 24 hours per day and transmit energy via microwaves back to the Earth, supplying two cities the size of Baltimore with electrical power.

Particle beams, weather control, EMP nuclear devices, and killer satellites are just a few of the not so ludicrous accusations of the armament debate, now fueled by space technology. It is a sad commentary on our society when technology is used to implement more sophisticated and efficient methods of killing when its fantastic potential could solve many of the problems over which nations are fighting. Does the problem lie in the technology or its uses? Does the problem lie with the technology or its implementors? The reality is that the new Information and Technological Revolutions, which Toffler calls the "Third Wave" may spark conflict. There may be wars. There certainly will be change. We are definitely in some sort of transition phase. Are blacks a part of it,

or are we still trying to gather up the table scraps from the remains of a dying industrial society?

Many people (black and white) think we have no business "fooling around" with science and technology. The Black Community's historical attitude of shying away from technology has served only to complement racist social and economic barriers to create our pitifully low 0.93% representation among American engineers. I believe blacks need to be involved in every human endeavor. And, you know, this is not new to us. We have a scientific tradition.

As children are considering the brilliant mind of Einstein, they must also consider the modern achievements of black physicists such as Dr. Walter E. Massey, Director of the Argonne National Laboratory, holder of degrees from Morehouse College and Washington University, director of a staff of 5,000 scientists, engineers, and technicians, and manager of Argonne's \$233 million annual budget. They must know of brilliant black women such as Dr. Patricia Cowings who is teaching astronauts to control their heart rates and blood pressure, without medication. Arnaldo Tamayo Mendez, the first black astronaut, as well as Guy Bluford, Ron McNair, Fred Gregory and Charles Bolden, current space shuttle astronauts, must become common names in black households.

The period of black American slavery and shortly after its legal (but hardly actual) abolition produced a barrage of inventive genius. The achievements of Benjamin Banneker in science, mathematics, astronomy, surveying, and weather prediction have been used as an example of what blacks could have accomplished if given the opportunity. Granville T. Woods obtained over 100 patents during his life. The black Canadian, Elijah McCoy, son of fugitive slaves became a successful inventor and patented the automatic lubricator for heavy-duty machinery. The "Real McCoy" slogan has been traced to his machines. Of all the black scientists and inventors, most people (black

and white) are knowledgeable of George Washington Carver who revolutionized the economy of the South by liberating it from an excessive dependence on a single crop — cotton. Much of American industrial success is due to the creative genius of this man.

The period after American chattel slavery was abolished seemed to produce scores of black women and men who exemplified the potential of Dr. Carver. Many are doomed to remain anonymous because of a lack of documentation of their efforts and others from the North and South commandeering their inventions and ideas. Black achievements have been downplayed, relabeled, or stolen outright by the writers of history. History has been just that: His - Story, the story of the European male!

However, thanks to the scholarly and diligent efforts of historians such as John G. Jackson, Chancellor Williams, and J. A. Rogers, the world is being forced to face up to the grandeur of our past. They convincingly show that the first men and women to walk the face of the Earth were black; that blacks had advanced civilizations in Kush (Ethiopia), Babylon, Egypt, Chaldea (Mesopotamia), Phoenicia, Sumeria, Gambia, and Morocco; that blacks created seats of learning at Thebes, Memphis, Alexandria, and Timbuktu; that Africans further spread knowledge in Greece, Spain (by the Moors), India, China, Northern Europe, and even among the Native Americans such as the Mayans. Latin-American scholars such as C. C. Marquez are basically undivided in expressing the African influence in America before Columbus, Amerigo Vespucci, or Lief Erikson. Africans figure frequently in the most remote traditions and sculpture of Mexico. Our Muslim brothers have always asserted that we were the "Original People" and civilizers of the world. Historians are now beginning to support this claim. Contrary to anything you have or have not been taught, we do have a black scientific tradition.

BLACK AMERICA'S DANGEROUS SIDELINES

Blacks have had a painfully misguided recent history of shying away from science and technology. For example, the U. S. Space Program has been our traditional hate target. We have attacked NASA on monetary grounds in spite of the fact that it requires less than one penny of each federal dollar to maintain some very positive benefits to new industries, medical advances (such as genetic research that could cure cancer and sickle cell disease), improved weather forecasting, communications, and spinoffs that provide the conveniences of daily life. We quietly ignore the massive 1.6 trillion dollar military expenditures (30 percent of the federal budget) over a five year period, and combine a dependency on the fickleness of government social programs and some self-serving politicians and ministers' blinders to persuade our community that we have no business "up there." In large numbers, blacks passively stepped onto the sidelines of technological and economic progress.

Well, as we have seen through the perverse actions of an uncaring political system, the social programs come and go based upon the particular administration in power, the level of historical guilt that America feels at a particular point in time, and the degree to which America's majority is itself economically threatened. Make no mistake about it, the social programs are struggling for life while technological exploitation continues to thrive and (with a few exceptions) we were kept largely out of that mainstream development. The sad fact remains that we helped exclude ourselves by our aversion to science. We have participated in a new kind of slavery -- that of a chained mind.

Black Americans have colluded, and are still colluding, with those who benefit most from our losses from, what Loyola's Jeffrey Mallow calls, "Science Anxiety." When we feel that technology is somehow our enemy we play into the hands of our true enemies and place limits on the minds and capabilities of gifted young blacks. When we stand on the sidelines and criticize humanity's most crowning technical achievements as in contrast to our best interests, as a waste of money, and as contrary to religious teachings, we not only show how thoroughly we have been duped but how near-sighted and narrow-minded are our goals as a people. As W. E. B. DuBois would see it, we teach our children a silent message of "our place" versus "their place" and put limits on their minds and futures.

This new slavery could not have come at a worse time. As the rest of the world proceeds down a one-way, never-look-back journey to high technology and future economic rainbows, because of our reluctance to see the broader issues, we once again bring up the rear. As our children squander their quarters on video games, other children are learning to use, program and sell computer technology from home. As others go away to summer computer camps, and the latest craze — astronaut camps, our kids are betting their careers on how well they can dribble a basketball. Children pick up signals from adult behavior and, too often, black society's signals have been negative and misdirected.

When our children's counterparts are staffing manufacturing facilities in space, building lunar mining camps, developing new wonder drugs in orbital space stations, expanding their control over the world while enhancing their minds, how will we apologize for our short-sightedness? How will we explain that we purposely or unconsciously held them back, restricted their options, and further enslaved future generations? What

rationalizations will we use to justify the mentality of a people in the midst of high technology, who avoided it and refused to compete?

Blacks, indeed all people, must play a significant role in ensuring the appropriate uses of technology. Remember, history shows that if technology is to adversely affect anyone, it will be the poor, the powerless, and those of color. To counteract this, the broader community must understand basic scientific principles. This does not mean that everyone needs to become engineers or scientists, rather, it means that a conceptual understanding of the various technologies and playing important roles, not only in their development, but also in lobbying for their humane applications, will be crucial survival factors.

Technology must be democratized. We can no longer rely on the guardians of technology to look out for the best interests of the public. We have too many technically competent barbarians to allow that. We have all met these characters before and their numbers seem to be increasing. These are the engineers and scientists who have stepped to the sidelines of society and have become totally out of touch with human needs. These are the people who shelve their responsibility for manufacturing nuclear weapons, who see nothing wrong with spraying potato fields with laboratory-produced genetic viruses, who leave the safety of nuclear power plants to ill-informed and biased politicians, who believe that society's broader issues are no concern of theirs. These are also the young computer "Hackers" who somehow, in feeling more comfortable with machines than people, find it humorous that they are able to break into the databanks of the Los Alamos nuclear facility, or NASA, or the Sloan Kettering Cancer Institute's patient records, or TRW's credit records of millions of American citizens. Do not be misled by their "white-collar" crimes. They are as criminal as the street thug and could have caused drastically more damage. It is clear that their technical education, as well as

their home life, must have lacked a humanizing and civilizing thrust; and, we had better not leave our futures in their hands.

Nor should we leave our fate in the hands of the profiteers who, while exploiting technology, leave the interests of the masses by the wayside. After all, oil companies probably have little interest in providing cheap solar energy as long as they can make a handsome profit from heating oil. Why should bio-engineers be concerned about the needs of sick black people when the real money lies in improving the nutrition of pet food? What leads us to believe that the Space Shuttle will be used only for peaceful purposes? Face it, every other technological advance has been Westernized, Socialized, Communized, and dogmatized to find more efficient ways for the power structures to kill each other off and, if necessary, take the rest of us with them.

Therefore, high technology demands an unrelenting, educated, enlightened public to serve as its watchdog. Our people must become conceptually aware of each new technology's potential uses and abuses, but also aware of societal differences, human nature, cultural value systems, and different communication modes. As our world becomes more interdependent, it becomes obvious that shelving America's tradition of arrogance in favor of understanding other cultures will be one of the nation's greatest challenges. The society of the future will require humanists. Literacy in foreign languages will become an important aspect of technical literacy. Trivial nationalistic slogans and a nation of technically competent barbarians buys us nothing but conflict. A balanced education must provide us with a nation of technically and socially balanced thinkers and communicators if peace and respect is ever to be realized.

CONCLUSION

As a final plea to those whose condition and conditioning creates the greatest challenge, we must shout — Black America wake up and break the chains which bind your mind! Unthaw that iceage of mental potential. Our challenge is one of survival. The distance we must travel for parity is extremely long and America's roads for blacks has never been, nor will they be, smooth and wide; but travel them, we must. We have to quickly move from a factory orientation (many of us must sprint from a farm orientation) to a sophisticated high technology orientation or face a new form of slavery. Like the subatomic particles (quanta or bundles of energy) which are forced to seek higher levels of nuclear orbit, we must make huge jumps to new levels of equilibrium relative to our size and economic position, realizing new potentials along the way. Black Americans, black Africans, black Caribbeans, British, Hispanics, Aborigines, and black what-have-you must make a quantum leap in the training and utilization of our minds; and we must do it now!

For the first time in our history in America, blacks can do more than merely survive. Indeed, the new Information Economy will run on something of which blacks have in abundance — mind power. We may influence decisions, help move humanity ahead technically, and even prosper economically. All this is within reach if we read the signals and act now by concluding that we can no longer remain on the sidelines of education, the sidelines of technology, or the sidelines of society. For black people abstention is not a viable option.

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