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Wisdom, Technology, and the Good Life

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Wisdom lies in extraction of good from new and old. Wisdom alone produces a society of wise men unable to leave their caves. Technology alone produces a society ruled by cold, despotic facts. A proper combination of wisdom and technology can produce the good life. That requires recognition of our ambivalence toward technology, a move away from our superspecialization of technologists and nontechnologists and toward a clearer understanding of technology as a most important servant of man.

I suspect that, with technology, as with so many aspects of life, wisdom consists in the extraction of good from the new and the old.

Though man, if he would be wise, must extract good from new and old ideologies, sociopolitics, philosophies, and similar elements of public affairs, we are here concerned with the growing effects of technology on not only our public affairs but on our lives and the lives of our children.

If the state of the mind-reading art permitted me to tune in your minds, when you read "extraction of good," I am certain I would hear, "Ha! Easier said than done!" And you would be so right.

But choosing from our burgeoning technological produce counter is a ceaseless imperative; daily we choose, through acquiescence, through decisions in the marketplace, and through representatives in government.

This is not the place to set parameters for particular choices, as man continues his reach for the good life, but it may serve as a place to consider the milieu in which choices will be made.

The formulation can be stated as $W + T = GL$, where W is wisdom and the application of mercy, compassion, fairness and justice, the values of man, the warp and woof of his law. T is technology and the search for physical knowledge, called science, the mother of technology, and GL is the good life, everyman's definition of which would include at least economic, political and religious freedom, health, a measure of comfort, safety, and leisure, work to be done, and a chance to pursue happiness and salvation.

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Wisdom alone produces a society of wise men unable to leave their caves. Technology alone produces a society ruled by and concerned only with cold, hard, despotic facts.

If we can combine wisdom and technology, we can achieve a synergism, in which the whole, the good life, becomes greater than either of its parts. For that happy combination, a catalyst is needed, and the only catalyst we have is man.

Indeed, if wisdom be considered as encompassing all things of the spirit and technology as including all things material, then wisdom and technology are all there is for man as he reaches for the good life.

But the milieu of man's effort to extract the good from new and old technology includes, it seems to me, at least these major elements: an ambivalence toward technology; an overrigid specialization of technologists and nontechnologists; and a fairly widespread nonunderstanding of just what technology is.

Ambivalence

Nontechnologists, and even some technologists, in considering science and technology, have tended to vacillate between an idolatrous awe and an unreasoning fear. On the one hand, the chariot of science has ranged far and wide, seeming to change the world, so it must be enthroned as God; and, because it can free man of all worldly cares, it must be able to make of him a god. On the other, the technological juggernaut spawned by science appears uncontrollable, threatening to override the environment and the social responsibilities that attach to all man's activities.

There is a kind of subrosa recognition that technology is, and always has been, a main element in solving the problem of an increasing population on a finite planet. At the same time, there is the worry that man may well become, in nontechnologist Thoreau's phrase, "The tool of his tools."

One cause of ambivalence toward technology is a failure to distinguish it from law and wisdom — a failure to distinguish between things seen and things felt — between realities in the hand and realities in the heart. A current example is the frustration expressed in the oft-repeated question, "If we can put a man on the moon, why can't we solve the problems of the ghetto, or of discrimination, or of injustice?"

Ambivalence is not limited to nontechnologists. The great physicist Einstein saw the atomic age and our unchanged thinking as leading to "unparalleled catastrophe." At the same time, the renowned geochemist Brown saw the atomic age as promising a world that would "pale the golden age of Pericles into nothingness."

More recently, the decidedly nontechnical actor Robert Redford was quoted as recognizing that, "It is insane to assume that we can go forward without development," but as also believing that "Technology has in many cases gone out of control, or out of balance with the natural cycle of things."

One answer to our ambivalence may well be to recognize and accept it, as Redford apparently does, for there is validity on each side. Both the admiring and the fearful are right. Our age is one of both promise and peril.

That perspective allows us to see that, like other ages before this one, all is not promise and all is not peril. Perspective is needed in viewing our overspecialization and our nonunderstanding of what technology is.

Superspecialization

The corollary of the philosopher's "We can't love what we don't know" is that we tend to love what we know very well. It is easy also to identify with that from which we gain our livelihood. Each of us is a bundle of loyalties rarely reviewed and dimly understood. Hence scientists, by which I intend to include engineers and all technologists, and lawyers, by which I mean to include political scientists, philosophers, theologians, and other nontechnical professionals, have become specialists with a capital "S."

Specialization itself, if evil at all, is a necessary evil. Certainly it is not an unmixed evil. On the contrary, none of us wants our mother's open heart surgery done by the old time "family doctor" generalist. And much harm has been done to both science and law by uninformed and misinformed generalists who know not what they wrought. The specialization of which I speak is that which is blind to all other facets of life — what I would call "superspecialization."

Causes abound for the rigid compartmentalization under which science and law both suffer. Overwhelmed by the knowledge explosion, man has been impelled to wall it off in segments. Not only is there a wall between science and law, but numerous internecine walls segregate a plethora of specialties within each. Whole lifetimes are spent by scientific and legal specialists in just trying to keep abreast of developments in their own limited specialties. But there must be more to a professional life than just a chance to run all day in one's own bushel basket.

Superspecialization has perhaps its most deleterious effect in the area of decision making, on which depends our national security, our economy, our environment, and much of our daily lives. Whether in business or government, the philosophically illiterate technologist makes decisions within a narrow, restricted frame of reference. The same is true of the technologically illiterate lawyer. The failure to see and accommodate the whole picture — the failure to consider the effect of the decision on related subject areas — produces inconsistency, confusion, repeated reversals of earlier decisions, and a lack of clear direction for the institution led by the decision maker, all contributing negatively to our public affairs.

Of course, no one modern man can be scientist, lawyer, philosopher, artist, inventor, architect, and theologian. For good or ill, there is not now, and unlikely ever to be, another Thomas Jefferson. No one man can today expect to excel as did Jefferson in science, architecture, law, literature, philosophy, government, and education. It takes nothing from the genius of Jefferson to note that there was in his day less to know in all those fields, and that his was a very different society, providing only to his particular class the leisure needed for learning from birth to death. Remember too, that Jefferson was not required to pay a dime of income tax. Unlike the average American today, he did not work the first five months of each year just to earn enough to pay the Federal Government!

But because the scientist cannot be Jefferson doesn't mean he must know nothing of law and lawyers — nothing of their history, of their role in society, of their values and their shortcomings, of their successes and their failures, and of their dialectic methodology. Because the lawyer cannot be Jefferson doesn't mean he must know nothing of the

same aspects of science and scientists, and of their empiric methodology.

Perhaps one useful step, in at least meliorating the superspecialization aspect of the milieu, is open to academe, a requirement that undergraduate engineering majors earn a few credits in law or political science, and that pre-law students earn credits in a scientific discipline, could, I think, make the greatest contribution toward a world with increased chances at the good life for more people. Adult education survey courses, specifically designed to educate scientists about lawyers, and vice-versa, would be another contribution.

Many specialist-decision makers do not know they are in a narrow framework, and they don't know they don't know. The careful ones do go out and get what they think are opposing viewpoints. But without exposure to distinctly different life areas, even the careful acquire a picture devoid of essential input.

With a broadened exposure in their undergraduate, formative years, our decision makers of the future may insure a broadened framework for more reliable and effective decision making, and with it a better world. The same would be true of today's decision makers, if they can be persuaded to learn beyond their specialties.

Cross-education of technological and liberal arts specialists may also provide our future citizens with a perspective sufficient to overcome our widespread lack of understanding of what technology is.

Nonunderstanding

I read with dismay a recent Gallup poll in which 58% of our teenagers said they expected that in ten years the world would be a worse place in which to live. No one, apparently, had ever shown them that, by every available measure, life has grown better materially for more people every year, with only occasional fall-backs, since man crawled out of the caves. Could the gloomsday answer of our young people have stemmed from a subliminal realization that technology, however awesome, however bettering materially, simply cannot satisfy the hunger in the human soul?

Could the distaste of our youth for their future rest on a failure to see, or be shown, that technology has helped people live longer and healthier years, giving them leisure to do more than merely scratch in the earth all their lives for food?

Could our young expect a worse world because we have not in recent years been applying wisdom to technology, because we have not tried to extract the good from the new and old, because we have not applied the values of the centuries, because we have not brought to bear the parameters of justice, mercy, freedom, compassion and fairness — the stuff of the law — to the evaluation of each major technological choice?

Could the normal enthusiasm of youth for the future as challenge have been replaced by a desultory despair because, as the late Etienne Gilson indicated, our loose-thinking rationalism — from which we cannot grasp truth — has led us to conclude that there is no truth?

Whatever the cause, the fact that well over half of our teenagers (if the poll is reliable) expect a deteriorating world appears to reflect a monumental nonunderstanding of technology, not only on their part, but on the part of their elders.

It might help if we pointed out to our teenagers that "technology" is just another word for "tools;" that there is no essential difference between the stick used by the caveman to reach the high fruit and the rocket used by modern man to reach the moon; that the difference in degree is very great, but that is all it is, a difference in degree.

It might help to point out that technology is neutral, neither good nor bad except as man uses it for good or ill. A furnace in the hands of a Carnegie makes steel. In the hands of a Hitler it consumes corpses. With wisdom applied, atomic energy saves lives. Absent wisdom, it can destroy the world.

It might help to recognize that, unlike societies and ideologies which can be started and ended, as Daniel Boorstin has pointed out, technology can have a life of its own and can be irreversible. No one demanded, says Boorstin, the invention of the telephone, the automobile, the radio, television, or frozen foods. To which it might be added that no one now demands their elimination.

Among our priorities might be a recognition that technology is a type of continuing chain-reaction, with a half-life equalling infinity, with a system of "begats" longer than that in the Bible. Electricity begat transistors, which begat computers, which begat miniaturization, which begat a walk on the moon. The number of imaginable series of technological "begats" is infinite, depending on where one takes hold of the seamless web of technological development and on the particular thread one chooses to unravel.

It would be well, therefore, to admit that there is something inexorable about technological development. Some, if not most, technical breakthroughs have developed and grown in spite of the limited horizons of most men. A bishop responded to a statement that man might someday fly with, "Sir, you blaspheme. Flight is for angels." The speaker was Bishop Milton Wright, father of Orville and Wil-

bur. The *New York Times* editorially excoriated Professor Langley for wasting money on attempts to fly which were forever doomed by gravity — five days before the historic flight at Kitty Hawk! Bell's telephone was a "toy" and Fulton's steamboat was his "folly."

Technology grows, as history shows, not only in the face of myopia and "stand-patism," but even in the face of active hostility. At the opposite side of our ambivalence scale from the enthronement of science as savior, and evidencing our nonunderstanding of technology, is today's indiscriminate enmity toward all things technical.

We pay a man to fly at 600 miles per hour at 35,000 feet, in pressurized comfort, to reach a college, where he lectures for an hour on the evils of all technology!

The irrationality of blind attacks by the nonunderstanding on all technology is also illustrated by some of our most vocal technophobes, who also profess concern about inflation, environment, food distribution, recession, housing, and hunger — when all those problems depend for their solution in great part on increased production and technological capabilities! Those folks don't seem to realize that we could have 10,000 social programs and still die as a free and prosperous nation if we abandon all technological research and development. Folks who attack all technology appear unaware of the recent warning of the American Association for the Advancement of Science that our technological leadership is threatened, that our level of innovation is declining, and that our labor productivity has virtually ceased to grow.

But a rampage of modern Luddites is no more likely to solve anything now than it did in 1811. Much of modern Luddism postulates a return to the bucolic life. The idea of returning to the forest, like that of returning to the womb, may be comforting, but it founders on certain irrefutable facts. Nothing is keeping anybody from pursuing the pastoral life, but the people have already voted, with their feet, for the cities.

To say that technical development is inevitable is not, however, to preach despair. The recognition of reality, on the contrary, is the first essential of wisdom. Nor does that recognition equate to advocacy for unbridled technology. Again, au contraire, it argues for identification of technology as the servant of man. It suggests that when a servant begins to act as master, the solution is to remind him who is boss — not to take the servant out and shoot him.

The answer to the inevitability of technological advance is neither supine acceptance nor a futile rage of destruction — the answer is control and direction. The answer is the application of wisdom — and, perhaps, the reinsertion of metaphysical questions into the equation. Questions like, after all, if there be no God, no immortal souls, and no natural law, are those objecting to unbridled technology reduced to reliance on the weak reed of inconvenience? — and often on the inconveniencing of only a few? Is it difficult, for example, to argue convincingly that the environment should be preserved for man, if man be merely himself a piece of protoplasm — a mere 98¢ worth of chemicals like those to which he is objecting? Is the argument that man deserves the good life while he is here, and just because he is here, losing to countervailing arguments on the economy and "progress?" — perhaps because it lacks an answer to the question, "Why?" If man be not a soul enroute, can the nature of his environment on a single planet matter in the slightest to the cosmos? This is not the place to answer those and like questions, but to suggest their thoughtful consideration as part of the wisdom-applying process.

While we are accepting as givens our ambivalence toward technology, the need to open doors in the wall between superspecialized technologists and nontechnologists, and the ill-understood inevitability of technological growth, we must not lose sight of what we are about. If we are to apply wisdom, i.e., to extract the good, it seems imperative that we identify at least some "goods."

Last week I flew from Washington to Chicago in 1¾ hours, at 35,000 feet, above the clouds, with radar to steer around the storms in ascending and descending. The cost was $61. In 1935, the same flight took 4 hours, at 6,000 feet, in the storms, without radar. The cost was $68 in 1935 dollars! The two pilots on that flight in 1935 produced 3,000 passenger miles. In 1978 they produced 180,000. Most importantly, only the rich flew in 1935, while in 1978 everybody flies.

A telephone call from New York to San Francisco in 1921 cost about $36 and it took about ten minutes to get a connection. Today the cost is about $2 — about 5 cents in 1921 dollars — and the connection is almost instantaneous.

A set of computations on a computer in 1952 cost $1.26. Today those same computations cost 7/10 of one cent! The 1952 computer filled a large room and cost about $1 million. Today that same computer can be held in your hand and costs $20.

Three million American farmers feed 225,000,000 Americans and ship the remaining products all over the world, while 39 million farmers are unable to feed 200,000,000 Soviets and 29 million farmers struggle to feed 190 million South Americans. In 1940 one American farm worker produced enough food for 11

people. In 1977 he produced enough for 56 people.

The list is endless, even without entering medicine, mining, biology, astronautics, and many other fields. But these are enough to make the point. There *is* good to be extracted from technology, new and old.

In our immediate future lies much from which we can, if we are wise, extract the good. Solar energy will supply some heat to homes, but even before that, it may well be converted directly into electricity through use of amorphous silicon or gallium arsenide. There will be means to tap the earth's heat from 6 miles underground. Computer-like machines will read, speak, and respond to the spoken word. Fiber optics breakthroughs will make even the marvels of our present electronic communications system obsolete. And, just recently, we learned that fusion is feasible, promising nuclear-generated electricity without the nuclear waste disposal problem.

The reduction of cost, and consequent availability to more people, of air transportation, telephone calls, and computers, the ability of American farmers to feed much of the world, and the listed advances almost ready to leave the laboratory, are all dependent on technology, and on a free society neither afraid of nor hostile to technology.

The growth of technology, like all growth, is encouraged wherever it finds a hospitable environment. If we are to have in this country new technology from which we and our children can extract the good, there must be the warm sunshine of incentive to invent and invest, the cool rain of freedom to experiment and to profit if successful, and the fertile soil of welcome. There must be a solid and widespread recognition that we can and will solve both our social and technological problems — that we will solve both or neither!

Conclusion

It will take a sustained, concerted, dedicated effort by our leaders in academe, in the laboratory, in the bar, in government, and elsewhere, but I pray for a modification of the process in which science and law are separately presented, separately packaged, separately studied and separately practiced. Somehow, we must begin to pierce the complexity curtain between science and law — a curtain grown taller and more dense each day over the last half century. For the good life will be impossible when science and law are total strangers.

With our ambivalence toward technology accepted and discounted, with our understanding of the word "technology" as merely a synonym for "tools" clarified, we should be able to avoid the two extremes of idolatry and hostility vis-a-vis all technological developments in the service of man.

We should be able to apply the values of man reflected in his law. And, in doing so, extract the good from the new and the old.

Perhaps what is needed is a unifying vision — a dream — a grand design — a goal bigger than any of us, and bigger than any of our groupings we call nations. A goal against which all science, all technology, and all law, might be measured. Could that vision be the achievement of the good life, not just for ourselves, but for all men and women on earth — a good life free of the fear of cancer and similar killers, and free from discrimination because of religion or race? It would take great technological developments, controlled by massive and continuous applications of wisdom, but, if we really want to, I think we could achieve by the year 2079, through entirely honorable and peaceful means, a life both good and free for every living human being.

"Quo Vadis?" We can go where we want to go. We have only to decide where that is.