

EDITORIAL

Technological Infusion! Medical Diffusion. Personal Confusion?*

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If art and word, beauty and truth respectively, constitute the two axes of ancient Greek civilisation, we could say that the backbone of contemporary life is *technology*; a term which, while technically formed by the Greek words *techni* (art) and *logos* (reason and word), in essence does not seem to be very closely related to either aesthetics or, even more so, to the truth. For while art comes forth naturally, technology is artificially imposed; although the word is more abstract and delicate, technology is dominated by the coarseness of practicality. Truth and beauty make way for convenience and application. The creation of a single and unique product is being replaced by mass production of identical ones.

The influence of technology and its contribution to modern life is immense. Every detail and minute of our life confirms its overwhelming dominance. Technology has not only taken control over what we do, but it is also lurking to possess authority over who we are. In the form of machinery, it abolished the natural way of living; as space technology, it took us away from the earth and launched us to space; as artificial intelligence, it erased the monopolistic sense and indispensability of our idiomatic human capabilities. In the form of medical technology, it permeated even our skin and affected our physical intimacy; finally, as biotechnology and genetic engineering, it penetrated our genes and violated the uniqueness of our biological identity.

Especially in medicine and life sciences, the relationship between man and technology is not limited to mere contact and mutual interaction; it is rather

a relationship of inter-dwelling, and assimilation. In addition, the recourse to medical technology occurs at times of illness, moments of special sensitivity, and insecurity. Technology in medicine does not constitute a luxury, but serves the need for survival. However, one wonders: is the deformation of our identity and person the price we pay for our health?

The ethical problems and dilemmas caused by the thoughtless overuse of technology become so many and complex that we do not want to even consider them, because we are unable to make predictions and evaluations in time, let alone suggest solutions.

The happiness of man could be represented by an equation. On one side of the equation is man's absolute state of being, namely the balance and harmony of his inner world; on the other side lies man's interaction with events, people, and the truth. It seems that technology promotes health and improves the conditions of our lives; thus it contributes to the left side of the equation. The question is, however, in what way it affects the right one.

Technological Infusion!

The infusion of technology into medicine has limited mortality and increased the average life span; it opened the way to new surgical operations which are much more significant and complicated, yet more effective and less dangerous; it created safer and more accurate non-invasive diagnostic techniques, offered better post-operational recovery and a chance for a healthy life to millions of critically ill people.

Technology gave a completely new role and function

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to hospitals, by transforming them from shelters of relief and comfort to poor patients to places of thorough diagnosis and pharmaceutical and operative treatment. Moreover, the idea and operation of the intensive care units, the whole contemporary health care and welfare system, and medical research are the off-spring of fertilisation between the medical ovum and technological sperm.

Novel ideas, original methods and equipment come to light so rapidly that often as soon as they appear, they are already outdated. Numerous inventions open up new avenues and alter impressively the way through which medicine transforms research to application and practice.

For instance, telemedicine promises medical attendance and health care of people in rural areas through closed circuit television communication by large medical centres. Systems of multiphasic screening may essentially promote preventive medicine, so that only those in need of high technology diagnostic or therapeutic intervention may be admitted to hospitals. The development of automation and advanced information systems will soon give doctors easy access to the patient's condition and status, not only while in hospital, but at home as well. It is estimated that the idea of transferring knowledge instead of patients will dominate as the main medical trend during the next decade.¹

From a medical point of view, we are impressed by the achievement. Technology has made the impossible feasible and the improbable real. However, from a technological point of view, we are startled by the untapped possibilities. The applications of medical technology are far behind its capabilities. This is why we believe the big explosion is yet to come.

Medical Diffusion

Technology did not only influence health as a pursued result; at the same time, it provoked intense vibrations to the medical perception and attitude. It gave a new thrust to medicine as a science, research and clinical practice; it influenced decisively and transformed the physician's mentality, the nature of his vocation and medicine's relation to society as a whole.

The exposure of physicians to the new technological approach, on one hand, and the involvement of an increasing number of engineers in medical research, on the other, modified the classic, synthetic and conservative way of thinking into a more analytical one.

The physician today feels much more self-confident. He knows the power and effectiveness of the means

he has at his disposal. The scope of his choices has greatly expanded. He can do much, but not on his own. At the same time, he has also gradually turned into something of a mechanic or technician. The frantic rhythms of development and constant need for adaptation to new knowledge and equipment, however, have made the physician think less and depend more. Medicine runs the risk of becoming more medicine of knowledge and learning than of intelligence and thinking; of what the books and "others" say, rather than of what the physician himself feels or senses.

The involvement of the patient in the diagnostic procedure has been limited. Even his sense that the doctor is actively participating in the process has been wounded. The unquestionable objectivity of laboratory tests has abolished the monopoly of the physician's personal assessment and diminished the gravity of the patient's opinion. Correct evaluation in medicine tends to become laboratorial rather than personal, because machines decide what is right and men merely approve it. However, it is personal communication which underlines the uniqueness of the person, whereas the uniformity of technical procedures undermines it.

Technology functions as a layer interposed between the patient and the doctor, and therefore it affects the nature of human interaction. Patients feel more like machines and objects than persons. This is why, although public interest in medical advancements has never been greater, people's confidence in medicine is declining. Human contact is being replaced by dependency on machines. As a result, the doctor feels more like a mediator and less responsible. If this is true for diagnostics, with the rapid development of robotics, it might soon apply to surgery.

Technological progress has changed not only the identity of medicine, but also its relation to society. The more esoteric medical advances become, the more difficult it is for society to assess the achievement, make the appropriate decisions and influence medical policies. The enormous number of existing committees displays the complexity of biomedical issues and the inability of present institutional infrastructure to meet them. This complexity has provided specialists and experts, or those who hire them, with increasing control over science and technology policy, while at the same time it has inhibited those concerned in participating in the decision making process.

Finally, money and complexity have started playing a decisive role in medicine. Rapid technological development is extremely difficult to keep up with and requires expensive equipment. Often, our health and life is evaluated solely by financial and legal criteria. Very expensive equipment, huge fees and outrageous

medical expenses, resulting from high technology, often give medicine a strong financial character. The patient's therapy and health do not depend on whether he can be treated, but rather on whether he can afford it. Technology is costly and so is health. Therefore, it tends to become an exclusive privilege of the well-off.

Medical care and research has turned from a private, self-funded enterprise into a massive, national or even international one, requiring high-cost equipment and skilled personnel, and financed mainly by public funds, industry, corporations and private health insurance companies. Thus, today we can speak about "corporatisation," "industrialisation" and "commercialisation" of health.

Personal Confusion?

Technological achievements appear in our time as miracles. Bio-robotics helps limping men walk; bio-electrical engineering promises people who are unable to even see darkness, or hear the rumble of silence, that soon they may be looking at the sparks of light and enjoying the melody of sounds; bio-fluid mechanics provides novel diagnostic and surgical techniques to the areas of cardiovascular renal and pulmonary medicine; medical technology has replaced anxiety about the unknown state of our health for a period of months with thorough knowledge of our condition within a few days.

At the same time, however, high-tech health coincides with a weakening of man's humane feelings and a devaluation of his spiritual qualities. Technological man has tremendous power, but not endurance; a multitude of desires, but not a will; he has great potential, but lacks inner strength. He has created high hopes, which are often out of proportion, compared to the achievements themselves as well as their importance and value.

We have passed from the state of man-person to the one of man-machine; to the *dehumanised man* who appears more as a combination of numerical figures and incomprehensible parameters, as a medical case, as a means to apply specific diagnostic or therapeutic procedures, as a financial bill. The average patient, who undergoes routine tests, views his health in terms of numerical values. Mechanical support may create an unhealthy dependence. Technical error is scarce, but the fear of its occurrence is more torturing. We trust man more, even if he is capable of less.

Moreover, this false dependence gradually leads to the mechanical perception of human identity and life. As artificial heart researcher Robert Jarvik puts it, life

is "an aggregate of a bunch of mechanical and chemical things; it's very ultimately definable."

Technology runs the risk, though, of overruling man, rather than serving him. Technological man tends to become *less humane* and *more human*; only human. The onset of sometimes unrealistic hopes and the unprecedented temptation to play God have overthrown Him, and withered our yearning for overcoming our present state of being and narrow thinking. We have created a human substitute of God and have lost the vision of divine man. Thus, technology enhances the model of finite man; the man who is *only human*, who is bound to his humanness, who survives but does not live; the man with his personhood weakened and his eternal, heavenly and divine dimension dormant.

Conclusion

Man, every man, can be represented by a numerical fraction. On the numerator is his soul, his spiritual self; on the denominator is his life, his physical biological dimension. The denominator has a minimum value; the one of determinism and survival. Technology is a parameter which basically influences life. Its contribution to physical man seems to be immeasurable. At the same time, though, its responsibility for man's spiritual disorientation is considerable. What appears to be a short-term success may end up a long-term failure. Technology restores health, but affects the delicacy of the soul. We appreciate technology, but we are afraid of it; it deserves our gratitude, but not our trust.

As science pushes the frontiers of medicine, it strains the limits of traditional morality. Human dignity and personal autonomy seem to be the high price for health improvement. Technological medicine tends to become inhumane in regard to social interaction, thus running the risk of weakening human relationships; and only human in regard to man's capabilities, thus narrowing the horizon of perspectives. In the above critique, one may detect a negative tone, which probably does not do justice to medical technology. The problem is certainly not technology itself, but the direction we have finally given it; it is not solved by what we do, but rather it deals with who we can become. Causes are never found in lifeless things, but lie in man. Unfortunately, the explosion of technology coincides with a deep crisis of values, societies, of man himself. We seem to be unable to carry the load of its achievements without any cost. If spiritual values operate as

a strong parameter in the numerator, technology may freely do its job in the denominator of the human fraction.

Undoubtedly, along with the problems that technology solves, it also creates new dilemmas. To the degree that they are insoluble, it provokes confusion; to the level that we can face them, it brings to the surface new information and better understanding of human identity. The merit of technology to health progress is immense, while its contribution to the awakening and birth of new sensitivities may be proven inestimable. The daily struggle for the secret of the beginning of life or the mystery of its end may lead to a deeper understanding of human nature – who we are – and to a more lucid picture and perspective of the human person – who we can become.

Technology and science may interfere with our lives. Man's soul, however, does not belong to them. The answer to the technological onslaught is not imposing prohibiting rules to its development and growth; instead, it is the balance, wholeness and integrity of man, not only as an individual, or a simple social unit, but rather as a person with divine countenance and eternal perspective. Technological man may become dangerous. The man who is only human is inadequate. Spiritual man is the one who can even turn technology from a ruler into a servant of his life. So far, technology has decisively influenced man; now it is time for

society to give way to man to create not an intelligent but a wise technology.

The idea and suggestion to limit or control technological development with laws, rules, regulations, resolutions and committees is not only inapplicable, but may also be misleading. Technology, development and progress do not need instructions; they need an instructor who can harmoniously combine the enthusiasm for new discoveries with old standards and ideals, who can balance health progress with economical factors, who can weigh research interest of medical scientists with humanistic and practical sensitivities of lay people.

Now it is time to give technology what it lacks; the components of its name, techni and logos. Technology, dissected into techni and logos, namely inspired by the beauty of humanness and the truth of eternal values, can transform medicine from "a science of body repair" to a true "art of human treatment" and recompose true man.

References

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