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TECHNOLOGY OPENS OUT AN EXCITING PATH TO THE HUMANS
To Become Co-creators in the Universe

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Abstract

The blessings that the advance of technology has brought to humanity are incalculable. It has made life safe, comfortable, intelligent, with possibility for worldwide relationships. But there was a price to be paid. The Industrial Revolution to which the technical innovations gave birth was hard upon the workers. Increased production to respond to the rising expectations of globalised world has led to overuse of natural resources, deforestation, habitat destruction, soil erosion, and damaged to environment. In a technology-led society there is a danger that human beings get massified, impersonality increases in relationships, families are torn apart, decision-making shifts from elected leaders to "experts." That is why it has become important that a technology-led society must have a sense of direction. That is where religion can help. Technology must serve the purpose for which humanity and the rest of the universe came into existence. This paper intends to invite people to throw open all doors to the new discoveries of science and technology, invite fresh thinking, promote inter-disciplinary sharing, and

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encourage further collaboration between the representatives of science-technology and religion. It is thus that technology opens out an exciting path to the humans to become co-creators in the universe.

Keywords: Blessings of Technology, Common Good, Environment, Human Dignity, Means of Communication, Industrial Revolution, Technology and Religion, War

1. Introduction

The blessings that the advance of technology has brought to humanity are incalculable. It has made life safe, comfortable, intelligent, with possibility for worldwide relationships: better food and medicines, better houses, better education, better means of travel, better means of communication. It has greatly reduced infant mortality and added to the life span of human beings. With the knowledge of microbes and the discovery of antibiotics, cases of fevers, dysentery, malaria, gastrointestinal diseases, respiratory diseases, and skin infections have fallen right round the globe. And again with the improvement of sanitation, hygiene, clean water, vaccination, other public health measures, human longevity has been further enhanced. We know that many of the ancients died young, not excluding the royalty. Alexander the Great died at the age of 32. Even until our own times life-expectancy remained low. Many persons of great talent died young: Blaise Pascal 39, Erasmus 69, Montaigne 59, Mozart 35, Franz Schubert 31, Robert Burns 37, Pablo Picasso 39.[1] Technology has raised our living standards, and life-expectancy. In developed countries the average lifespan is about 79, in Japan 84.[2]

There was a price to be paid. The Industrial Revolution to which the technical innovations gave birth was hard upon the workers. During the early years when Britain was industrializing, the condition of the workers was miserable. Charles Dickens' readers are familiar with the painful situation. And even today, when we hear of 'economic miracles' or industrial wonders we may ask ourselves who is paying the price. Eric Fish writing in *China's Millennials* describes the conditions in that country's industrial complexes as the nation was growing to become "Factory of the World." Shenzhen, China's first economic zone, drew millions of people from their farms. Living conditions were abominable. Fish speaks of leaking pipes and narrow

[1]Niall Ferguson, *Civilization*, London: Penguin, 2012, xxiii-xxiv.
[2]Jared Diamond, *The World Until Yesterday*, New York: Viking, 2012, 231.

passages,[3] improvised beds, overcrowded rooms,[4] rooms that were like concrete shell, 8-bunk beds, broken windows, crisscrossing clotheslines.[5] The workers complained of loneliness, isolation, poor postal system, health problems, dangerous working conditions, inadequate food, delayed payment. The situation in other developing countries, even in India, could be worse, people living in dingy towns with overflowing sewages.

2. Taking Responsibility is Adulthood

Humanity feels at last it has come of age. It is exuberant about the giant leaps it has made in recent years in the fields of *science, technology,* economics, psychology, sociology, anthropology and other fields of knowledge... even in the area of human self-understanding. It sees unlimited possibilities before it and is eager to bring *fresh thinking* into every of human discipline and venture. A mounting sense of self-confidence is evident in the younger generation even in our country. They are eager to dissociate themselves from the traditions they have inherited, question everything under the sun, and make place for the new. While such an attitude is understandable in adolescents, adults should show their maturity in thought and action, manifesting a *sense of responsibility* in their judgements and contributing towards the construction of a sure future for society.

In this paper speaking of technology, I place it in close relationship with science. Hannah Arendt contends that modern science is technological by the very fact it orders nature.

Science begins with wonder. Confucius says, "A common man marvels at the uncommon things. A wise man *marvels at the commonplace*."[6] Wonder leads a person who is alert to investigation, discovery, and practical use of things discovered. Alertness is important, intellectual curiosity is important, eagerness to apply it to life is important.

Technology is not a threat to religion, nor is religion an obstacle to technological advance. Representatives of religion admit that the development of the printing press, radio, TV has advanced the cause of religion. But they are accused of being the first opponents of new scientific discoveries. A careful study of history will reveal a truer reality. The first opponents to new ideas are persons and groups that

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[3]Eric Fish, *China's Millennials*, Lanham: Rowman & Littlefield, 2015, 84.
[4]Eric Fish, *China's Millennials*, 88.
[5]Eric Fish, *China's Millennials*, 71.
[6]Niall Ferguson, *Civilization*, 43.

have a *vested interest in the old ideas,* including other scientists, professors, writers, over-conservative clergymen; businessmen who see their markets threatened, politicians who fear their constituency reduced, ideologues who resent a dissenting voice, society as a whole that is reluctant to jump in for a new idea.

So, new discoveries have been held hostage for decades by the inertia of the old guards or the hostility of vested interests. This paper intends to invite people to throw open all doors to the new discoveries of science and technology, invite fresh thinking, *promote inter-disciplinary sharing*, and encourage further collaboration between the representatives of science, technology and religion. Let creativity grow in society. Allow human beings to prove themselves children of a Creator God.

What people in technical research long for most is to be able to interact with other knowledgeable persons who confirm their perceptions, challenge them to new thinking, or correct and complete their findings in such a way that they can probe their way forward. Experts in religious matters like theologians have only much to gain by interacting with creative thinkers in the field of science and technology; for, *technology* and *religion* are allies and partners, not, competitors or adversaries.

3. Technology's Contribution to the Expansion of Knowledge, When Linked with Speedier Communication

We referred to the contribution of science and technology to the betterment of health and the wellbeing of the human body. But its contribution to the *expansion of the mind* cannot easily be summarized here. From the first stage of his existence, *Homo Sapiens* has been exploring the intimate nature of things and trying to bring his newly acquired knowledge to practical use: that is technology. We shall never know who put fire to human use for the first time, or developed the wheel, or domesticated the first animals. Nor shall we know who first put his inner yearnings and vague spiritual perceptions into cave drawings. But a thirst for knowledge and its effective use clung to human hearts from the beginning. We read in the Genesis that Cain "made all kinds of tools out of bronze and iron" (Gen 4:22).

In our days, all attention is turning to China as though the future belongs to them. The past also belonged to them. We read of canals, irrigation ditches, wells, fertilizers, iron tools, wheat, rice and luxury goods in that country in the Han period.[7] With the taming of oxen,

[7]Ian Morris, *War: What is it Good for?* London: Profile Books, 2014, 72.

horses and camels for transport, and the building of carts and ships, Chinese goods travelled far. Their ideas and skills went further. The caravans on the Silk Road that linked China to the Mediterranean carried goods, money, products like gun powder; printing techniques, navigational instruments and other arts and skills. They transported doctors and medicines, parchments and papyrus with the wisdom of the nations, devotions and myths; they *disseminated philosophical thought* and stimulating worldviews. As these things travelled Westwards, there came Eastwards Greek speculation, Roman Law, and Christian religious teachings. During the western colonial expansion their ships carried entrepreneurs and explorers, along with glasses, clocks, maps, and telescopes; they also carried *world-transforming convictions* and heart-transforming missionary teachings.[8]

Unfortunately international trade carried also *microbes*, decimating the European population during Black Death. They crossed the oceans during the colonial period and carried away hosts of American Indians who had no immunity to European ailments. Good things are often accompanied by things not so good.

India's external contacts too contributed to the expansion of human thought. Indus Valley-Harappa (2500 BC) civilization with cities that had developed baths, chutes, sanitary arrangements, citadels, communal granaries, drainage system, and dockyards, had close relationships with Mesopotamia and Egypt. Ideas spread. So did skills. So did religious beliefs. Did *Buddhism* influence *Stoicism*, for example? Did it make an impact on Christian monastic traditions and self-discipline in later times? Curiously, Stoicism was born in Cilicia, not far from *Paul's Tarsus*. The criss-crossing of human thought is amazing.

The Indus Valley civilization was a universe in itself. It extended to twice the size of the old kingdom of Egypt and four times that of Akkad and Sumer. It developed pictographic characters like Egypt and Sumer. Indian pottery and cotton goods were greatly valued.[9] India supplied Xerxes with horses and chariots to fight the Greeks. Greeks who were greatly advanced in handicrafts, mining, essentials of engineering, and the construction of gymnasia and stadia, were *not uninfluenced by Indian technology*,[10] for Indians frequently visited Ionia the land of Thales where Greek civilization was born. The Indian

[8]William Schweiker, *Religious Ethics*, Oxford: Blackwell Publishing, 2008, 453.
[9]D.P. Singhal, *India and World Civilization*, New Delhi: Rupa, 2014, 4-5.
[10]D.P. Singhal, *India and World Civilization*, 19-20.

word for the Greeks, 'Yavanas', takes origin from India's contacts with the Ionians. Ionian goods were popular in India. Pythagoras must have met Indians at his Ionian home.[11] Asian impact on Crete, Grecian islands, and through them on the entire western world becomes more discernible when one studies the various schools of thought in successive ages.

Trade began between the Mediterranean and South India about 200 BC. Pliny wrote "In no year does India drain less than 550 million sesterces (enough to feed a million a year) out of our empire."[12] With the expansion of trade came the Armenians and Jews, and the boat that carried Apostle Thomas to the western shores of India, opening doors to enormous intellectual and spiritual possibilities in later times.

4. Other Contributions of Asia to Technological Advance

Chinese technical initiatives have already been mentioned. They made the "first iron suspension bridge, spinning wheel, gun powder, fireworks, chemical insecticide, fishing reel, matches, the magnetic compass, playing cards, toothbrush, and wheelbarrow." Zheng He's ship was 400 feet long, five times the size of *Santa Maria* of Columbus.[13] He's sea voyage was like the Apollo moon mission in his own times.[14]

Nor was India far behind. D.P. Singal says, "Ancient India measured the land, divided the year, mapped out the heavens, traced the course of the sun and the planets, analyzed the constitution of matter, studied the nature of birds, beasts, plants and seeds."[15] Aryabhatta had already proposed the rotation of the earth.[16] Nor can we forget Varahamihira. Bhaskara was only one of the many reputed Indian mathematicians. Indian decimal calculations with the use of '0' reached Europe only in the twelfth century.[17] While the West called them Arabic numerals, the Arabs called them Indian numbers. Nor can we underestimate the medical skills of Caraka or the surgical abilities of Surusruta.[18] Ayurveda has remained popular and is finding wide welcome in the West in our own days.

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[11]D.P. Singhal, *India and World Civilization*, 31.
[12]Ian Morris, *War: What is it Good for?* 74.
[13]Niall Ferguson, *Civilization*, 28.
[14]Niall Ferguson, *Civilization*, 32.
[15]D.P. Singhal, *India and World Civilization*, 173.
[16]D.P. Singhal, *India and World Civilization*, 164.
[17]D.P. Singhal, *India and World Civilization*, 190.
[18]D.P. Singhal, *India and World Civilization*, 201.

Very few will be aware that the Baths of Caracalla were built by Syrians, and that Hadrian rebuilt the Pantheon on the style of buildings he saw in the East.[19]

5. The Digital Revolution

Today technological progress has gone beyond the use of caravans and boats, writing skills and printing techniques, the Spinning Wheel and rolling stock, and even beyond jet planes and space vehicles. The digital revolution that has transformed the world beyond recognition could not have been imagined even 50 years ago. More than one-third of the world population are already Internet users. There are group blogs, corporate blogs, commercial blogs and institutional blogs. You can inform, educate, encourage, and bring communities together. The *collective consciousness* this has created in society has profoundly transformed politics, business, education, and religious thinking. Individuals and groups find it easy to establish a public presence at very little cost, each promoting their own causes with spectacular success; for example, the Arab Spring used Facebook and Twitter to stir Egypt, Tunisia and other nations. In the same way entrepreneurs capture markets and Evangelists draw people to the Gospel. Unfortunately terrorists too keep in touch with each other using the same means.

The Facebook for social networking was started by the Harvard students in 2004 and it gained 200 million users in 8 months. In 2008 Google reported over one trillion websites. Cyberspace today is flooded with information, images, videos, and sounds. Such web relationships have brought to postmodern youth a heightened *consciousness of togetherness* and of human solidarity. They are open to the mystical and spiritual, though deeply immersed in a modern scientific worldview. The world of co-thinking and relationships that Teilhard Chardin foresaw *(noosphere)*, seems to be emerging in ways totally unforeseen.

6. Technology's Contribution to War-Making

Unfortunately there is a negative side to every good thing. Arnold Toynbee says that when two cultures / civilizations meet what pass on to each other are skills of exploitative trade and *instruments of war*. Evidence shows that as soon as the primitive man learned to put stones to agricultural purposes, he used them also to break the skulls of his fellow human beings. In 1991 hikers discovered in the Italian

[19]Oswald Spengler, *The Decline of the West*, Oxford University Press, 1991, 112.

Alps a deep-frozen corpse dating around 3300 BC. Tests in 2001, 2008, 2012 showed that he had died of violence.

The *discovery of metal* revolutionized human conflict in West Asia, with the use of bronze spears, helmets, arrows, and shields. Many such weapons are found in Sumer.[20] Iron swords were the AK-47 of an angry young man, or a vindictive leader, or a venturesome chief in those days. The *Illiad* speaks of a ten-year siege of Troy around 1200 BC. The *Odyssey, Mahabharata* and *Ramayana* too are war-loaded epics.

The domestication of horses in the steppes gave the nomadic races (Huns, Mongols, Turks) tremendous advantage over settled nations. China opted for the Great Wall in self-defence; but West Asia and Europe remained vulnerable until the development of the guns.[21]

Indian military sturdiness reached a high point with the introduction of the *elephant* to the war-front. They formed the strength of Porus against Alexander. The winning Macedonian hero did not want to risk another encounter with elephant-fortified armies, and returned home. India's military muscle put a limit to the world-conqueror's ambitions. It is said that Chandragupta gave 500 elephants to Seleucus in exchange for today's Pakistan and Eastern Persia, which won him the battle at Ipsus.[22]

After the early advantage of horses, chariots, cavalry and elephants, the development of *guns* settled the future in favour of the West. The modern West itself was born from its struggle against Arab pressure from the Iberian peninsula and the Austro-Hungarian frontier. One step ahead in military technology decided the future. Guns first, and machine guns next established the superiority of the West.[23] By 1914 Europe controlled 84% land surface and 100% of the sea.[24]

Hobbes and Rousseau debated whether the primitive man was more inclined to violence or kindliness. Rousseau, and more recently Margaret Mead, stood for the latter view. When we look at recent history, we realize that while anger is natural in human beings, ideology can intensify it and technology can give it an edge. Anger can be whipped up in such a way that human sensitivity is killed and people are motivated to be less than human to each other. *Technology*

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[20]Ian Morris, *War: What is it Good for?* 89-90.
[21]Ian Morris, *War: What is it Good for?* 96.
[22]Ian Morris, *War: What is it Good for?* 108.
[23]Alvin Toffler, *The Third Wave*, New York, Bantam Books, 1980, 102.
[24]Ian Morris, *War: What is it Good for?* 168.

turns dangerous in their hands. Technology remains a positive force in the hands of people who have a positive outlook, and negative in the hands of those who have a negative attitude. In the latter case it is not the mind that expands, but the evil instinct in human beings that finds a more effective tool for destruction.

Once humans lose their humanness, they are capable of perpetrating any inhumanity. On September 11, 2001, there died in the World Trade Centre 2996 Americans in one hour. Over 20,000 British soldiers were killed in a day on July 1, 1916 at the battle of Somme; 100,000 Japanese were killed on or after August 6, 1945 in Hiroshima.[25] To persons who have lost their human sensibility, these are mere numbers, idle curiosity. But the *ethics of responsibility* invites everyone to prevent technology from developing in this direction.

The development of long-range weapons and *push-button technology* (bombs, artillery, missiles) has brought a new war psychology into existence. One can eliminate any number of invisible opponents without any qualms of conscience; one has only to obey orders. Achilles and Hector faced each other. Arjuna directly confronted his family members on the other side, and grew faint-hearted. Today's warrior does not have to struggle with any such inhibitions; he does not realize to what extent he is being inhuman when he is wiping out entire populations. Can technology be allowed to kill human sensitivity, especially today with doors opening to chemical weapons, cyber wars, conflicts in space, nuclear onslaught with the consequence of radiation and incurable diseases?[26] With "Pax Technologica" *humanity can commit collective suicide*.

7. Technology at the Service of Death

Of course, an openness to technology is a necessity in modern times even for mere survival; but it is not everything. A technology-led society must also have a *sense of direction*. That is where *religion* can help. Technological advance must serve the purpose for which humanity and the rest of the universe came into existence. It is a neutral instrument and has often been misused. The Nazis who killed six million Jews approached their task most scientifically. They intended to recycle the body-parts of the persons whom they were putting to death. Nazi technocrats put their best energies into experimenting with human organs and racial features to breed a

[25]Jared Diamond, *The World Until Yesterday*, New York: Viking, 2012, 127.
[26]Ian Morris, *War: What is it Good for?*, 377.

better specimen of human beings. But this manner of playing with technical possibilities advanced the cause neither of technology nor of humanity.

Similarly, the suicide bombers who wipe out human lives in our times to manifest their religious fervour do not promote the cause religion. Nor do those who engage themselves in the production of weapons of mass destruction in the name of their national interests, civilization, religious convictions, ethnic self-assertion, even of democracy and human rights, contribute to human growth. If religion has promoted or justified some aberrations or provided some false trails in the past, we do not seek to justify it. But we should not forget that some of the representatives of science, technology and modernity too have done similar things. We want to avoid precisely these mistakes on either side. Such freak performances must be prevented and balance brought to human thinking.

The World War II losses of men, women and children are estimated beyond 50 million. Further millions have been destroyed in regional wars, ideological conflicts, civil strife, urban violence, and local clashes... each for a 'good cause': to promote one or other of the causes proposed by modernity. All these involved the irrational sacrifice of the greater good of humanity for a lesser interest. Max Horkheimer and Theodor W. Adorno feared the "transformation of scientific and technical reason into unreason." That is what happens when irrationally led technology places itself at the service of an ideology that has gone reckless: nationalism, regionalism, racialism, socialism, communism, or fanatic religious fervour.

To take another contemporary example, great human talents and energies are placed at the service of the '*anti-life movement*'. And it seems to gather strength over the years, whether it be against the unborn child, ailing grandfather, defenceless members of another ethnic group, religious community or political group. When we fail to retain a holistic vision of reality, great human values stand under threat and great spiritual truths are compromised. In these areas of uncertainty, it may not be Science and Technology that can help, but Religion. Just as an atom is more than its particles and energy fields, a molecule more than its component atoms, a living cell more than sub-cellular particles and micro molecules, so too the human person, the human race and creation itself, are more than their constitutive parts. It is important that a sense of responsibility for wider realities be awakened in our society for its own *ultimate good.*

8. Technology Damaging the Environment

Enlightenment thinkers and pioneers in the field of Industrialization considered that conquering and taming nature was the mission of the human race. The consequence has been disastrous. Increased production to respond to the rising expectations of a materialistic society, *extravagant consumption*, and overuse of natural resources have led to "global warming, aquifer overuse, deforestation, habitat destruction, soil erosion, species endangerment and extinction, water pollution, acid precipitation, and nuclear waste."[27] And the devastation continues. Every year we destroy 44 million acres of forest, 100 million acres of farmland, 24 billion tons of topsoil, create 15 million acres of new desert around the world.[28]

Nor have human beings been spared. Rachel Carson's *Silent Spring* laments the high DDT levels in human blood.[29] Pregnant mothers have accumulated *artificial chemicals in their body* which they pass on to their children while breastfeeding them.[30] The quality of human sperms is declining. The consequence is that there is a general lowering of the image of the human person in human self-understanding itself.

It is true that disasters often occur when politicians do not listen to scientists. But greater disasters take place when neither politicians, nor scientists, nor economists *listen to persons with intuition*, thought, depth, commitment, and a sense of responsibility; and when a religious vision is deliberately excluded. Even people who do not believe in religious concepts like 'conscience' ought to be open to 'deep common sense' that elicits a measure of responsibility for the common good from everyone.[31]

9. New Ethos of Impersonality and Regimentation in an Advanced Technological Society

Tacitus once said "Formerly we suffered from crimes. Now we suffer from laws." In the same way we may say, formerly we suffered from underdevelopment, now we suffer from technology. In a technologically advanced society people have become less masters of themselves than they are willing to admit. Whether they wish it or

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[27]William Schweiker, *Religious Ethics*, Oxford: Blackwell Publishing, 2008, 469.

[28]James Martin, *The Meaning of the 21st Century*, London: Eden Project Books, 2007, 5.

[29]James Martin, *The Meaning of the 21st Century*, 181.

[30]James Martin, *The Meaning of the 21st Century*, 173.

[31]James Martin, *The Meaning of the 21st Century*, 26.

not, technology has come to influence their patterns of thought, conduct, authority and community, meaning and identity. It overwhelms their moral categories with new problems and situations,[32] and leaves them with inadequate answers. If only one is conscious of it, one adopts healing measures.

Oswald Spengler believed that the energy of the rural man was directed inward, while that of the city-man was directed outward, making him superficial. For Spengler city people are merely a mob, satisfied like the Roman slaves with *panis et circenses* (bread and circus)... today we would say 'consumer goods and entertainment.' In his view, these people do not constitute to a folk, they are not a people with dignity.[33] While Spengler may be exaggerating the issue, there may be some sense in what he says.

In a society where technology commands the situation, human beings are massified; there is a steady growth of *impersonality in relationships*. Shifting from the field to the factory, families in technological societies have been torn apart; children are put to schools, parents to old age homes. Since the producers are not the consumers, relationships become mere transactions, superficial and contractual.[34] Even marital relationships and those within religious institutions are influenced by this psyche. Thomas Carlyle in his *Past and Present* put it this way, "We have profoundly forgotten that cash-payment is not the sole relation of human beings... Deep, far deeper than supply-and-demand, are the laws, obligations, sacred as man's life itself."[35] Today's insistence is on standardization, homogenization, specialization. Punctuality becomes vital; clocks and watches multiply; working days, holidays, breaks...everything is meticulously worked out.[36] There is a *massification of human groups*: children in schools, workers in factories,[37] and soldiers in the army.

Decision-making has shifted from owners to "executives and experts." Specialists control affairs, coordinate activities and decide issues. This system can make an impact on all social organizations including those dedicated to charity and religion. Even political leaders (and religious leaders at times!) consider themselves as *managers rather than as inspirers*, motivators and prophetic guides.

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[32]William Schweiker, *Religious Ethics*, 459.
[33]Oswald Spengler, *The Decline of the West*, 25-28.
[34]Alvin Toffler, *The Third Wave*, 58.
[35]Niall Ferguson, *Civilization*, 206.
[36]Alvin Toffler, *The Third Wave*, 67-68.
[37]Alvin Toffler, *The Third Wave*, 79.

What matters is efficiency. Thus technicians hold power in the social, cultural, political, and economic fields. Specialists keep the reins of affairs in their hands.[38] Even critics, rebels, revolutionaries, and those who fight the "System", end up by reproducing it when they come to power; it is just a change of dynasties. Impersonality and unfairness continues.[39] Ultimately technology has come to control the collective thinking of society. One's self-image itself is continuously shaped by newspapers, magazines, radio, and TV.[40] What one reads is the truth.

10. Other Dangers When Technology is Put to Wrong Use or When a Sense of Responsibility Grows Weak

We referred to *exploitative trade* as one of the skills that easily passes on from one culture to another. That is how the development of the technology of transport (roads, vehicles, ships, aircrafts) got quickly associated with negative activities like slave trade; more recently with smuggling, drug-trafficking, *human-trafficking*, weapons exchange; and most of all with veiled and extra-smart ways of exploiting workers and weaker communities.

Let us look at a chapter in Roman history. With Pompey's suppression of pirates and bandits in 67 BC, trade boomed; roads and harbours were constructed; movements of goods increased.[41] But at the same time *slave trade* also gathered strength. Taxes rose to exploitative levels. Then came, of course, arcades, baths, and banquets (wines, spices) for the elite;[42] but the condition of the poor and of the newly conquered rapidly deteriorated. In a globalized world today, possibly, this is what is happening: trafficking in harmful items and exploitation of the weak. If physical violence is dreadful enough, *structural violence* on the weaker sections can be worse in the long term. We need to question the type of technology that places itself at the service of violence against others in whatever form.

There are no easy answers. But if a *sense of responsibility* is fully awakened, tentative answers arise at every level, at every stage in contextually relevant ways. Some of the problems that I list below cannot be put to technology itself, but one is able to see that the very blessings that technology has brought turn blights when they are ill-used or taken to excess, because a sense of responsibility is absent.

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[38]Alvin Toffler, *The Third Wave*, 78-82.
[39]Alvin Toffler, *The Third Wave*, 83.
[40]Alvin Toffler, *The Third Wave*, 172.
[41]Ian Morris, *War: What is it Good for?* 41.
[42]Ian Morris, *War: What is it Good for?* 49.

While our ancestors struggled against starvation, the children of the technological age run the risk of overeating, suffering from overweight, diabetes, hypertension, stroke, heart attacks, and cancers.[43] While the poor commit suicide after a bad harvest, there is a rising generation in modern society that commits suicide amidst abundance when they fail to see a *meaning in life*. Cases of suicide are increasing in technologically advanced countries like Japan, Korea, Singapore; or contexts like army cantonments and campuses. In this connection, some have argued that child labour is less harmful than becoming self-absorbed cocoons, in the sense that the former situation provides a meaning in life. While we do not go that far, we do agree that providing 'meaning' to adolescents is the most urgently needed service today.

Let us look at how technological advance has affected married life. Life together in a permanent bond has always been a challenge; but when the technological age threw partners apart, and when earning a fast buck and going for cheap entertainment began replacing marital relationships, disasters were bound to come. There is an increase in *divorces, remarriages*, child-free marital life, single parent children, contract marriages and serial marriages.[44] Eric Fish says that co-living is becoming common in China because the boy cannot afford the 'bride price' (unlike the situation in India where the girl cannot afford the 'dowry') and divorces cost too much. Further, technology-induced gender imbalance leads to property crimes and violence.[45]

While apartness troubles the married couples, *social isolation* harasses the elderly.[46] They long for the warm, communal, stable, organic spiritual atmosphere that the pre-technological age provided. While they keep busy with mass media, newspapers, radio, movies, TV, they know that the information they receive are merely *mass-manufactured 'facts'*.[47]

Fortunately, there are not only people who protest before these problems, but who search for correctives and suggest alternatives. There is a *call for the de-massification of society* and of the media.[48] Regional and local news agencies and papers are on the increase. Journals of special interests and for special groups, like sportsmen or

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[43]Jared Diamond, *The World Until Yesterday*, 31.
[44]Alvin Toffler, *The Third Wave*, 229-231.
[45]Eric Fish, *China's Millennials*, 130-131.
[46]Jared Diamond, *The World Until Yesterday*, 235.
[47]Alvin Toffler, *The Third Wave*, 51.
[48]Alvin Toffler, *The Third Wave*, 183.

social workers, keep multiplying.[49] The future media will be more personalized and interactive.

These thinkers reject the idea of becoming slaves of technology instead of allies. They ask that jobs be made more humane, with the possibility of working from home, avoiding pollution, *sparing environment,* producing things for personal and local use. Some suggest combining the use of new utensils like tools, materials, methods, with the use of the old. They press for attention to the world's poor, and urge more equitable sharing of resources of the outer space and the oceans.[50]

11. Technology at the Service of the Common Good

Technology serves a purpose when it is at the service of humanity and the destiny of the cosmos. There is no use being energetic, efficient and rich, if it only means being trivial, pointless and depressed. There is growing recognition that wealth does not depend merely on natural resources and accumulated cash, but on human alertness and intelligent decisions. While perceptive intelligence is open to all human possibilities, responsible intelligence must be open to human needs and a *healthy orientation of things*. Can today's money-making zeal be brought to human concerns and social good, so that communities may be happy, and individuals grow sensitive and profound?

It is said that the future belongs to Knowledge Technology. Richard Dawkins sought to programme computers along Darwinic rules and make it self-evolve.[51] Will we succeed to make self-improving computers and end up by producing hand-products far more intelligent than ourselves, which in turn becomes our masters? There are already machines that can identify human emotions. With the possibility of grafting and modifying organs, our body is already being made of non-biological parts which can ensure greater efficiency. 'There may be an artificial nose tomorrow, a chip that can detect a wide variety of odours. The earliest brain structures were devoted to the sense of smell. It may provide a route to an *artificial nervous system* and artificial intelligence.'[52] The coupling of human brainpower to the explosive evolution of computer power can have unbelievable consequences.

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[49]Alvin Toffler, *The Third Wave*, 175.

[50]Alvin Toffler, *The Third Wave*, 167-169.

[51]James Martin, *The Meaning of the 21st Century*, 230.

[52]John Naisbitt & Patricia Aburdene, *Megatrends 2000*, New York: Avon Books, 1990, 258.

Our brain has a hundred billion neurons, as many as the stars in our galaxy. Each neuron is connected to a thousand others. But studying their functioning alone will not explain the mysteries of human motivation, which is little known even to oneself. Scientific breakthroughs must lead to *deeper thought on the purposefulness* of the technology they develop. It is evident that machine intelligence, however much it progresses, will be in the direction of exceptional precision, maximum efficiency, unlimited productivity, and not be in that of discernment, *intelligent choice*, responsible decision[53] and prophetic vision. Our choice must be towards favouring the convergence of the interests of the whole human race and furthering healthy stirrings in the cosmic processes. Why not introduce competition also into the area of being principled, conscientious, responsible, and sensitive?[54]

12. A Great Sense of Responsibility Needed in Biological Experiments

Genetic manipulation of crops and farm animals is expanding rapidly, e.g. for placing fertilizers and insect resisters in seeds. Experimenters are trying to grow fish and beef faster, put protein in potatoes and rice, keep endangered species from extinction. Efforts are being made to modify salmon genes to influence their migration patterns. About such biological experiments, not only are the clergy worried, but also 'animal rights' activists and environmentalists. We need to think how such experimentations will affect the environment. Possible good can clash with possible dangers. Collective thinking will help.

Many countries have passed laws to control the use of genetically modified genes, and against patenting transgenic animals. Jeremy Rifkin says a *genetic accident* could be more disastrous than a nuclear mishap. Not all agree. Some call Rifkin a biological fundamentalist; they argue that the taming of animals and evolution of crossbreeds had always been going on. But today when we are making quantum leaps in the same direction we need to be careful. Responsibility in such areas has become a necessary part of spiritual life.[55]

It is a great help that crops and fertilizers can be made pest-resistant, frost-resistant, virus resistant, disease resistant. Plants can be made to grow in arid areas and on polluted soils.[56] Rifkin has no

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[53]James Martin, *The Meaning of the 21st Century*, 330.
[54]James Martin, *The Meaning of the 21st Century*, 319.
[55]John Naisbitt & Patricia Aburdene, *Megatrends 2000*, 259-263.
[56]John Naisbitt & Patricia Aburdene, *Megatrends 2000*, 266.

objection to experimenting with plants, his protest is against doing the same with animals; because, researchers speak of *embryo transfers* for animals, of cloning. They argue that mass-produced hormones found in cows can boost milk production,[57] that fish can be made to grow faster. They are also trying to introduce the genes of one species into another (transgenesis): mice, rabbits, sheep, pigs, chickens. "Shall we be producing monsters?" ask some.[58] 'Animal rights' fighters protest against surrendering the animal kingdom to multinationals. Experimenters claim that they will be able to build small machines that can produce anything atom by atom, say, steak from hay![59]

13. Technology that Threatens Human Dignity

Such genetic modifications are also being brought to human beings, e.g., to make them resistant to cancer, heart attack, mental disorders. Some people ask how these experiments differ from Hitler's Aryan genetics and eugenics programme. Is bone-marrow transplantation legitimate? Ongoing discussions seem to be necessary in many areas of experimentation. Unfortunately, neither the lawmakers nor the patent officers understand biotechnology,[60] and technicians do not over-worry about ethical concerns.

However, these are times when we have to admit that science and technology do not offer all the answers.[61] The ethical question should look at the various dimensions of the issue: economic, environmental, human. Several hospitals employ ethic officers and committees to make suggestions. There are schools that teach moral values and offer character formation, and medical institutions that insist on medical ethics. A shiver goes through one's spine when someone asks whether it is ethical to keep a person alive only to make it possible to transplant his organs to others, or whether it is right to allow the birth of a child only for the same purpose. Here is where one grows anxious about the threat to the dignity of the human person.

Meanwhile surrogate mothers keep increasing; experimenters are proposing to neurologically combine organic and artificial nerve systems to fabricate a silicon brain. There are people who argue for the legitimacy of these experiments pointing out that we are already merging with machines and with each other: false teeth, wooden legs,

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[57]John Naisbitt & Patricia Aburdene, *Megatrends 2000*, 269-270.
[58]John Naisbitt & Patricia Aburdene, *Megatrends 2000*, 272-273.
[59]John Naisbitt & Patricia Aburdene, *Megatrends 2000*, 283.
[60]John Naisbitt & Patricia Aburdene, *Megatrends 2000*, 276-278.
[61]John Naisbitt & Patricia Aburdene, *Megatrends 2000*, 284-289.

cardiac pacemaker, transplanted kidneys, bank of human organs. They would like to go ahead and plant a few cells into our veins to re-programme them to fight cancer. These, of course, differ considerably from proposals to eliminate defective children or undesired offspring, or clone superior human beings.[62] People speak of the creation of *'virtual' minds* that will think and speak like humans, and of implantable chips that will have memory power. They claim that sensory or reasoning functions are on the horizon; they refer to artificial chromosomes. However, the question remains: will these initiatives *destroy human nature* itself?[63]

Nanotechnology seeks to *merge mind and machine* — create a brain that will not show signs of decline and that has a delete key. At one stage the difference between subject and object disappears. Norbert Wiener argues that the essence of a man may be stored in genetic material or in brain in bodiless form. Man becomes a disembodied message or a new form in the cyberspace. Our next evolutionary step should be to "download the brain into the computer and thus liberate it from the weakness of the human flesh" says Jastro. Thus, the immortal soul becomes a spirit floating in the web![64] Human hubris knows no limits. Competence in one area taken too far can blind them to a holistic vision.

Ray Kurzweil proposes setting up machine-based minds that will be able to share information as easily as we swap files between computers. Some call the proposal ridiculous.[65] And yet neuroscientists are speaking of brain-to-brain interfacing and telepathy over the internet. They claim that mind-reading is proximate.[66] They foresee the possibility of our biological minds growing into a superorganism, with no barrier between age, sex, race; of *artificial intelligence* replacing animal intelligence.[67] These are all areas where further discernment is greatly desired, both at the personal and collective levels.

14. Technology is Human Participation in the Divine Work of Creation

Time has come for humanity to *sit back and 'think'* for a while, as Socrates invited his disciples to do, as Buddha did. They were living

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[62]Alvin Toffler, *The Third Wave*, 162.
[63]William Schweiker, *Religious Ethics*, 464.
[64]William Schweiker, *Religious Ethics*, 529.
[65]Ian Morris, *War: What is it Good for?* 380.
[66]Ian Morris, *War: What is it Good for?* 381.
[67]Ian Morris, *War: What is it Good for?* 383.

in changing times, as we do today. Jesus withdrew into the mountains to reflect after a great flurry of activities. He asked his disciples to come apart and be restored. Taslima Nasrin said "I do not believe in prayers, I believe in work." Like her, many people today look only to science and technology as practical instruments for problem-solving. However, all human effort towards progress with the exclusion of religion would be like Sisyphus rolling up the rock over a slippery slope.

Believers look at technology as human participation in the divine work of creation and bringing the fruits of the redemptive work of Christ to all created realities: healing and restoring a broken world, and *leading creation to its destiny*. Technology affirms the Christian trust in God's creation as a standing reserve of hidden energies and unlimited potentialities to be tapped with a sense of sacred purpose.[68] Teilhard de Chardin refers to it as Christogenesis. Thus the human being becomes true to a Creator God to whose image he/she has been made.

15. Technology Should Contribute to Human Growth along with Other Disciplines

Even those who do not believe in religion admit the need for a spell of multidisciplinary thinking today, of interdisciplinary collaboration, and a *holistic approach* to social wellbeing.[69] Thinking groups are asking for a break from the Faustian model of 'world conquest' with technology. They call for paying attention to the moral, aesthetical, social, and environmental consequences of all human initiatives[70] and developing a wider and deeper outlook. They strongly believe that religion cannot be marginalized any more than the foundational principles of science.

We have seen how religions and philosophies spread through the development of technology and communications. Stoicism that was born in Cilicia stirred the mind of people in every corner of the Roman Empire, deeply inspiring Emperor Marcus Aurelius himself and indirectly influencing Christianity. It visualized a universal society, brotherhood and equality of human beings, world-state, natural law based on reason and the instinct of man in harmony with nature.[71] Even today, *waves of thought* surge forward in all directions

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[68]William Schweiker, *Religious Ethics*, 461.
[69]Alvin Toffler, *The Third Wave*, 319.
[70]Alvin Toffler, *The Third Wave*, 312.
[71]D.P. Singhal, *India and World Civilization*, 74.

and converge again giving birth to fresh streams of creative thinking. The web of relationships that the digital revolution has brought into existence has given to postmodern youth a heightened *consciousness of togetherness* and of human solidarity. The world of co-thinking and relationships that spiritual leaders longed for is here.

16. Technology and Religion can Play Complementary Roles, Assist and Correct Each Other

Insightful people have already begun to recognize that technology and religion have their respective roles to play for the advancement of humanity. That is what makes us work towards broadening the common ground between technical research and religious reflection. This common space must grow for mutual assistance and mutual correction. For, both science and religions are involved in a critical reflection on reality, on human experience, on its interpretation and practical application... leaving room also for creative imagination. Science explains facts, religion interprets and gives meaning. It is precisely *religion that motivates* people towards the effective use of technology and provides reasons why; it is religion again that suggests prudence, moderation and balance, in behalf of the common good, giving again reasons why.

Religion today pleads with technology that has so enriched life, not to demean it. It is technology without a sense of direction that becomes the author of holocausts, concentration camps, gulag archipelagos, gas chambers, cultural revolutions, killing fields, and genocides. *Irresponsible forms of technological progress* continues to damage nature, empower men to hurt each other more, cause shortage of water, gives rise to AIDS, encourages growing investment in armaments; while poverty, hunger, disease and illiteracy continue to hold human beings in new forms of slavery.

Irresponsible intrusion of technology into human planning has led to the production of weapons of mass destruction, euthanasia, bombs, industrial pollution, diminished ozone layer, wastage of non-renewable resources, accumulation of garbage, genetically altered offspring, genetic manipulations endangering human dignity, and the passing on of drug effects to future generations. Wars that are fought with more and more technologically perfect instruments bring no glory to the technical expert. The producer of the first atom bomb and the inventor of AK 47 carried their deep regrets to their grave.

Referring to euthanasia, someone has remarked it is a *Caiphas formula* which pronounces that it is good for us “that one should die

than many others" (Jn 11:50). But, then irresponsible technology steps in. "It is said that euthanasia is profitable if it is well-organized. It is a good business, just as all forms of recycling old and worn out goods: urban refuse, automobiles, used computer parts and human bodies."[72]

I do not wish to argue that representatives of religion have never acted irresponsibly. Ardent believers must combine intelligence, openness to new thinking and to various disciplines, and a sense of responsibility for humanity's future... all these with religious zeal. This paper is an invitation for collaboration among the representatives of science, technology, religion and other disciplines and for *inter-disciplinary sharing.*

17. The Whole of Creation is Groaning with Eager Expectation for its Liberation

There are new hopes. Intellectuals are finding religious and scientific discourses complementary. Religious leaders and scientists are beginning to speak a similar language and reach out to each other. Troubles arise only when anyone oversteps the boundaries of his discipline with scant respect for other perspectives.

Religious believers and scientists must invite each other to a sense of common responsibility. They must encourage each other in their activities; for we want to go beyond the present state of knowledge and the present levels of human achievement. Religion and science should march forward hand in hand towards the final goal of realizing the ultimate destiny of humanity and the whole of the Creation, which is groaning with eager expectation for its liberation (Rom 8:19). It is a matter of great joy and pride that technology can open out an exciting path to the humans to become co-creators in the universe.

[72]Oddone Camerana, *L'Osservatore Romano*, 11-02-2009.