In the Image of the Machine

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On November 15, 2010, some three million men, women, and children stood on the plain of ʿArafāt, the ancient site of Ḥajj, the annual pilgrimage which began some four thousand years ago when Prophet Ibrāhīm, upon him peace, proclaimed it as a directive from God: *And proclaim Ḥajj for all mankind so that they come to you on foot and mounted on lean camels from every distant point to witness the benefits in store for them, and pronounce the name of Allah during the appointed days over the cattle that He has provided them. So eat of it and feed the distressed and the needy* (Q 22:27-8).

   None of them used camels; rather, they travelled on planes, buses, cars, and some of them arrived via a newly opened monorail—a $1.7bn project, linking the sanctified city of Makka with the sacred sites of Minā, ʿArafāt, and Muzdalifa, which has become a showpiece for the large-scale technological transformation of the Muslim world. Beyond ʿArafāt, the entire landscape of contemporary Arabia, where Islam first appeared some fourteen and a half centuries ago, has changed so drastically during the last thirty years that even those who have had first-hand experience of the arrival of supersonic jets, modern highways, cellular phones, and numerous other devices in their country feel alienated by the sudden technological rush in a land where most people travelled on camels in lonely deserts under the open, star-studded skies and lived in direct contact with nature. This technological dislocation is not limited to contemporary Saudi Arabia; it is the most characteristic feature of the Gulf States, where the race to construct the tallest buildings on Earth reminds one of the Prophetic saying which describes the signs of the End of Time: "You shall see the naked, the barefoot, and the shepherds build higher and higher."[1]

   Yet, it is neither the mode of transport nor the inevitable destruction of

1. Bukhārī, *Ṣaḥīḥ*, Kitāb al-īmān and Kitāb al-fitan; Muslim, *Ṣaḥīḥ*, Kitāb al-īmān.

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the ancient landscape that accompanies new technologies, but the new *mode of being* which comes into existence through reconfiguration of the inner life of a person that is of far reaching consequence for all religions of the world. Modern technology reshapes outwardly and transforms inwardly—the former is obvious; the latter is seldom recognized.

Technologies emerge within cultures, out of certain inherent needs of a particular mode of living. These modes of living are, in turn, products of slow processes rooted in religious beliefs, social customs, and cultural practices of a people. In the past, technologies of one region travelled to other regions of the world in slow, organic manner, and in the process of their re-enactment in a different clime, went through subtle changes in accordance with the needs of the new culture. That slow process of technological osmosis has now become mere memory; the pace at which technologies now travel all over the world leaves no room for any adjustment, absorption or slow integration.

Invention and spread of new technologies is now a global process. What is invented in one place and out of the inner necessities of a given culture instantaneously finds markets all over the world. This rapid spread of technologies is clearly one of the most important factors in the appearance of a monocultural lifestyle and global markets for products which, in the final analysis, are often specific to the Western civilization. All technologies contain, within their complex process of emergence, an entire philosophy of human relationships with other human beings as well as with the rest of the cosmos. In the spread of modern technologies, that very relationship is being reconfigured, yet very few people recognize it.

Modern technologies are made possible by modern science which originated in the seventeenth century and which opened new vistas for humanity to use—or exploit, as some would say—nature in ways and at a scale which was unthinkable before this radical change in scientific knowledge and its use. Tools and techniques developed by the application of modern science have not only given us telescopes and supersonic jets, they have also extended the reach of Western civilization—the home of modern science—to all regions of earth, setting a dynamic process of "conquest", both of nature and the world, at a scale and of an order never before witnessed in human history.

Technological innovations based on discoveries of modern science allowed European armies to reach distant lands of the world. Although their conquests were not entirely due to superior technology, as is often believed, yet better arms and more efficient communication were certainly important factors in the European conquest of a large part of the world during the course of the eighteenth and the nineteenth centuries. Colonization subjugated the colonized people and lands to brutal oppression and destroyed their traditions, as some would argue, or brought them enlightenment and progress, as others would claim, but there are no two opinions about the fact that this process ushered

the colonized world into modernity with all its comforts and discomforts. One important consequence of this encounter was the beginning of a large-scale technological transformation of lands and cultures of the colonized world. It was a forced entry into modernity which not only brought the colonized world various fruits of the Scientific and Industrial Revolutions, but also rapidly disrupted the centuries'-old process of slow and organic unfolding of their civilizations.

For the Muslim world, this encounter has been like a rude awakening from three centuries of siesta. From its first contact with European colonizers until now, the Muslim world has remained a passive receiver of modern technologies. This passive reception can be divided into three temporal periods: the first beginning with the arrival of the European trade missions in the Muslim heartland during the late sixteenth century and ending with the colonization of almost the entire Muslim world; the second marked by the reconfiguration of Muslim societies at the hands of their colonial masters and ending with the emergence of some fifty-seven independent Muslim states around the middle of the twentieth century; and the third began with the independence of these countries and continues to this day.

Initially Muslims were reluctant to accept modern technologies. This attitude was largely shaped by sheer inertia. Polemical and quasi-racist interpretations of this attitude toward modern science and technology have attributed it to the supposed mental backwardness of the Arabs,[2] or even to some inherent flaw in Islam itself which allegedly did not allow Muslims to produce a Scientific Revolution of the kind that occurred in Europe.[3] Whatever the reasons may have been, the historical data certainly shows a marked disinterestedness in modern science and its products. This reluctance to engage with modern science was at the theoretical as well as the practical

2. See, for instance, the Renan-al-Afghani exchange on Islam and science in Nikki R. Keddie, *An Islamic Response to Imperialism, Political and Religious Writings of Sayyid Jamal ad-Din al-Afghani* (Berkeley: University of California Press, 1968) and Nikki R. Keddie, *Sayyid Jamal ad-Din al-Afghani: A Political Biography* (Berkeley: University of California, 1972).

3. See, for instance, Ignaz Goldziher, "Stellung der alten islamischen Orthodoxie zu den antiken Wissenschaften," Abhandl. Der Preuss. Akad. D. Wiss. (Philos.-hist. Kl.) Vol. 8, pp. 3-46; translated into English as "The Attitude of Orthodox Islam Toward the 'Ancient Sciences'" in Merlin L. Swartz (ed.), *Studies on Islam* (New York: Oxford University Press, 1981), pp. 185-215. Also see Toby Huff, *The Rise of Early Modern Science: Islam, China and the West* (Cambridge: University of Cambridge, 1993) and for an analysis of Huff's position, see Muzaffar Iqbal, *Islam and Science* (Ashgate: Aldershot, 2002), pp. 140-146.

levels. Even scientific instruments such as the newly invented telescope were initially of no interest to Muslims who lived in the vast and powerful Mughal, Ṣafavid, and the Ottoman empires at the time of their invention and use.

This attitude toward modern science and technology changed with the colonization of most of the Muslim world during the eighteenth and the nineteenth centuries. The colonizers brought with them scientific instruments and scientific institutions,[4] and, in time, a new breed of Muslim leaders appeared on the scene who postulated that Muslims had been colonized because they had fallen behind Europe in natural sciences and in the production of new technologies. They urged their co-religionists to acquire modern science in order to recover from their belittling state. To these religious, political, social, and intellectual leaders, the acquisition of modern science and technology appeared as a magic cure, but they also realized that Muslims could not acquire modern science without first acquiring Western education. Thus, they began their endeavors by establishing schools, colleges, and, ultimately, universities, where modern Western education was offered to a populace that initially showed little interest in it. These efforts to enroll Muslim children in schools that offered Western-style education were resisted by some religious scholars for a variety of reasons and the loyalty to Islam and soundness of faith of many leading proponents of Western education were contested. But most of these self-styled "re-formers" of the nineteenth century had the backing of the colonizers and their agenda of change became the dominant force during the latter period of colonization.

In due course of time, these proponents of modern science and technology attempted to give a religious hue to their efforts in order to gain a certain degree of legitimacy. They called modern science "*ʿilm*", a technical Islamic term meaning "knowledge". Once science had been equated with "ʿilm", they could easily use the Qurʾānic and Prophetic teachings to urge their coreligionists to acquire it, because acquisition of knowledge is considered a religious obligation for every believer. The warp in this argument (that in these Qurʾānic and Prophetic teachings, knowledge is not what modern science offers) was seldom contested even by their opponents, most of whom had, in the course of time, become equally impressed by modern technology and were all too eager to believe that all the new discoveries of modern science were, in fact, already present in the Qurʾān. This transformation happened

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4. For instance, Napoleon arrived in Egypt with an army of scientists and scholars; the British were to establish a number of scientific institutions in India; France brought its scientific societies and teaching institutions to the Muslim West (the *Maghrib*). For more details, see Zaheer Baber, *The Science of Empire: Scientific Knowledge, Civlization, and Colonial Rule in India* (Albany: State University of New York Press, Albany, 1996).

in the first decades of the twentieth century and bloomed in the second half of the same century to such an extent that a fully-differentiated new genre of Qurʾānic exegesis came into existence: "*al-tafsir al-ʿilmi*" (scientific exegesis).[5] Another off-shoot of this process has been the publication of a very large amount of secondary works which attempt to prove the existence of microbes, laser beams, supersonic jets, and atomic bombs in the Qurʾān.

Thus, from its initial reluctance to embrace modern technology, the Muslim world has been led to an uncritical, blind obsession with it. Those who made this possible had been themselves reshaped by Western-style education. They are now the ruling elites of the post-colonial Muslim world; they mostly consist of feudal lords-turned-politicians, kings and would-be kings, self-styled visionary military generals, and semi-literate warlords. This elite has millions of Muslims and a very large portion of the world's natural resources under its control. This powerful group is obsessed with the acquisition of modern technology, whether in the form of monorails or supersonic jets, or arms which yield billions of dollars for the Western world.

These heirs of the nineteenth-century "re-formers" have used their political power, which is often illegitimate, and funneled state resources to effect a sea-change in Muslim attitudes towards Western education in general and Western science and its products in particular during the last fifty years. As a result, the national science policies of most Muslim countries as well as their economic policies, structures of education, and intellectual make-up of the most influential strata of society have all contributed to a rapid Westernization of these societies. Yet, ironically, these efforts have produced no science worth its name. What they have achieved, however, is an unprecedented acceleration of the technological transformation of these societies—a process that has now gained terrific momentum.

The appearance of supersonic jets, satellite phones, vast network of freeways, uncontrollable urbanization, and the emergence of megacities where movement from one side of the city to the other side literally consumes half a day, all within one generation are indicators of perhaps the single most important change in the entire Muslim history. This social engineering which has transformed the entire order of economic, cultural, and social life of the Muslim world has not only destroyed traditional patterns of life in these societies, it has also given birth to numerous cultural, social, and

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5. For a detailed discussion of the rise of Scientific Exegesis, see Muzaffar Iqbal, "The Scientific Exegesis" in *Islam and Science, op. cit*. For a more recent survey, see Marwa Elshakry, "The Exegesis of Science in Twentieth-Century Arabic Interpretations of the Qurʾān" in Jitse M. van der Meer and Scott Mandelbrote (eds.), *Nature and Scripture in the Abrahamic Religions: Up to 1700* (Leiden, Boston: Brill, 2008), 2: 491-524.

environmental problems which are multiplying at a dangerous rate. At the social level, the collapse of traditional societies, especially in countries where modern technology has made rapid inroads, is apparent everywhere: a hospital in Jeddah, solely dedicated to the treatment of drug addicts—an addiction which was unheard of until 1980s; the unusually high divorce rate in Malaysia after two decades of rapid modernization; the transformation of the entire Gulf region into a vast luxury resort, complete with casinos, bars, and dysfunctional families, are merely a few outward signs of the impact of the rapid technological transformation now engulfing the entire Muslim world. One can easily expand this list to include other regions: an early morning walk through the streets of Samarqand or Bukhara, or a bus ride through the countryside of Uzbekistan, which once produced some of the greatest scholars and scientists of Islam, is enough to understand the impact of modernity and its technological invasion that has hollowed out centuries-old tradition. And yet, it is neither the sight of drunk men and women on the streets of Tashkent nor the stinking hog farms which fill the Uzbek countryside that tell the true story of this encounter between technologies produced by Western civilization and their rapid invasion of Islamic civilization that was neither ready for them nor able to withstand their impact. The true nature and scale of this transformation, which manifests at so many levels, can only be understood through a much deeper exploration; the cultural schizophrenia that an outside observer of the Muslim world first encounters is merely one sign of this deep malady.

At the socio-cultural level, modern technology has facilitated the emergence of overpopulated and polluted mega-cities in many regions of the Muslim world—places where there were not even medium-size cities a generation ago. This incongruous development has brought numerous economic and cultural problems. Then there is the buildup of modern weapons in certain countries where most of the population remains in a perpetual state of poverty. In addition, there is a sea-change in the entire system of agriculture almost all over the Muslim world. All of these technologically assisted processes have produced drastic changes in habits, customs, and ways of living at a very large scale. This technological invasion of the Muslim world has obliterated that enchanting "Islamic space" which once filled these ancient places of worship, homes, shrines, and *madāris*. Yet, all of these are merely the outward signs of this invasion which has even penetrated the most sacred Mosque of Islam, al-Masjid al-Ḥarām, where one cannot not sit without being impacted by the constant chatter on cellular phones through which thousands of men and women literally relay back their observations and experiences to their friends and relatives at the very time of making their rounds of the ancient House of God, the Kaʻba—a time when they are supposed to be immersed in the most private spiritual experience of their life.

II

Perhaps the most important aspect of the intrusion of modern science and technology into the very fabric of human existence is visible in recent developments in biogenetics and reproductive technologies. After all, we can now have a child come into this world from the womb of a mother where the would-be baby was implanted as an embryo created from the ova of a donor (paid to produce a number of ova following the use of hyper-ovulation medication) and sperm obtained from a sperm bank. The mother of the baby may only be providing gestational services to a couple who could not have children for medical reasons. Who would be considered the child's real parents? What rights would the donor have over the child? What if one day the donor of the sperm claimed his rights over the child? What would this child inherit? From whom? What if the couple, who had paid for the services of the surrogate mother and all other expenses, divorced after the child was born— who would have legal rights over the child? What if both of them wanted to keep the child? What if neither wanted the child anymore? What if the sperm donor suddenly changed his mind and decided that the use of his sperm was not in full compliance with the conditions he had set at the time of donation? Of course, all religious traditions have been forced to deal with such issues, but, as far as Islam is concerned, these issues are not merely moral and ethical issues; they are fundamental legal issues which affect one's life in this world as well as in the Hereafter.

Certain Muslim countries, such as Egypt, Iran, and Saudi Arabia, and certain independent Muslim scholars have taken initiatives to find solutions to such new problems; this has given birth to a small body of literature pertaining to "Islamic perspectives" on an entire range of issues arising out of advanced scientific and technological research in areas of birth, reproductive technologies, and other biomedical fields. This development is interesting because, on the one hand, these issues are irrelevant to a large majority of Muslims and, on the other hand, a very small segment of Muslims is participating in advanced biomedical research and is aware of the need for clear Islamic perspectives on these issues. Thus in seminars and conferences on such issues, one often hears statements like the following: "It is high time for Muslims to come up with a solution for this…" These well-meaning statements display the same psychological dilemma that had informed the Islam and science discourse during the nineteenth and twentieth centuries. This is a new facet of the old "catching up syndrome" that had driven the nineteenth century "re-formers".

This desire to produce "Islamic perspectives" on contemporary biomedical research is largely not concerned with the historical process that has generated these issues in the Western world; it only wishes to be present at

the forefront of debates to prove that Islam does not lag behind; the desire to have a position regardless of the relevance of the issues to the actual ground realities of the Muslim world is in itself a symptom of a deep-rooted inferiority complex. A new culture of conferences and seminars has, therefore, come into existence in which Muslim scholars attempt to catch up with the Western dilemmas of modern biomedical research. Regardless of the basic aspects of the situation, an "Islamic discourse" on these issues has been manufactured. Since there are very few qualified scholars who can express opinions on matters requiring religiously sound legal rulings—because as far as Islam is concerned these are not merely moral and ethical opinions—the process has required cooperation between religious scholars and scientists, since neither of them alone has the requisite expertise. This process has ignored the centuries-old tradition that dictates that a jurist (muftī) who issues a fatwa needs to understand the entire range of issues in their complexity before passing a fatwa. The cooperation between a scientist, whose own intellectual makeup is generally devoid of religious education and training, and a muftī, who understands nothing about the complexity of modern science, can at best be a marriage of convenience and since most "religious scholars" are mesmerized by modern science, there has been a rain of blanket fatwas. Circumventing well-established methodologies and betraying their own tradition, those who provide this muftī service often do not understand the enterprise of modern science and, therefore, even if they are told the particular details of specific procedures involved in a certain kind of biomedical research, their approval or disapproval lacks a fuller understanding of the issues. Factors such as who funds scientific research and why, and a whole wide range of economic, social, and political aspects of this research, as well as the complexities arising out of the involvement of multinational drug companies and governmental funding agencies, the issues of patents and rights, and numerous other related issues which are not external to the legal ruling being asked of a muftī, seldom come into the purview of the religious scholar or the scientists involved in this extra-judicial practice.

III

In all these sub-processes of a civilization attempting to come to terms with modernity, what often remains hidden to an outside observer is the social engineering of the Muslim world through technology, aggressive marketing, political maneuvering, and sheer brute force. Each new machine that arrives in a foreign culture brings with it its own values, its own dictates, its own incessant demands as Werner Heisenberg (1901-1976), the celebrated physicist—whose 1927 uncertainty (or indeterminacy) principle had turned the laws of physics into statements about relative, not absolute, certainties—had recognized in 1958: "One has to remember that every tool carries with it the spirit by which it has been created," he wrote,

> …In those parts of the world in which modern science has been developed, the primary interest has been directed for a long time toward practical activity, industry and engineering combined with a rational analysis of the outer and inner conditions for such activity. Such people will find it rather easy to cope with the new ideas since they have had time for a slow and gradual adjustment to the modern scientific methods of thinking. In other parts of the world these ideas would be confronted with the religious and philosophical foundations of native culture. Since it is true that the results of modern physics do touch such fundamental concepts as reality, space and time, the confrontation may lead to entirely new developments which cannot be foreseen. One characteristic feature of this meeting between modern science and the older methods of thinking will be its complete internationality. In this exchange of thoughts the one side, the old tradition, will be different in different parts of the world, but the other side will be the same everywhere and therefore the results of this exchange will be spread over all areas in which the discussions take place.[6]

For the Muslim world, it is not entirely a question of not "having had enough time for a slow and gradual adjustment"; its encounter with modern technology has produced a fission of a kind that threatens the very existence of this distinct civilization which is based on a religion which makes every act of daily life into an act of worship and which demands a congruent praxis for its very survival. The brevity of Heisenberg's remark should not be misleading, however, for he notes elsewhere in the same book that "such remarks should not be misunderstood as an underestimation of the damage that may be done or has been done to old cultural traditions by the impact of technical progress. But since this whole development has for a long time passed far beyond any control by human forces, we have to accept it as one of the most essential features of our time and must try to connect it as much as possible with the human values that have been the aim of the older cultural and religious traditions."[7]

At the socio-economic level, the impact of this technological transformation can be seen in the contemporary Muslim world in the form of rapid disappearance of local industries and inundation of cheap technological gadgets mass-produced in China on the basis of technologies developed in the West and exported to all parts of the world. The change in Muslim attitudes toward consumer goods produced through modern technology has opened huge new markets for all sorts of products which originally emerge in research laboratories in the Western world and which are then mass-produced

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6. Werner Heisenberg, *Physics and Philosophy: The Revolution in Modern Science* (New York: Prometheus Books, 1958, repr. 1999), pp. 27-28.

7. Ibid., pp. 202-3.

in China and exported to the Muslim world, where an insatiable hunger for these products has simultaneously destroyed centuries-old customs, crafts, and cultural expressions. The rapidly expanding market for cellular phones is merely one example of this technology-fix which has overtaken all strata of society in the Muslim world.

Another dimension of this obsession with modern technology is the infusion of billions of dollars by certain Muslim countries into the erection of new infrastructure for "scientific research". This has been done to overcome a perennial science deficit, but so far it has produced nothing worth the name of science. All that this venture has done so far is to produce numerous dysfunctional scientific laboratories in certain oil-rich countries where the latest scientific instruments sit idle for various reasons. Thus a nuclear magnetic resonance spectroscope that produces first-rate science in Saskatoon merely sits as a piece of furniture in Riyad—a piece of furniture which every guest must see and praise.

This attitude toward technology is to be found even in the most conservative circles. The most prevalent operative thought in these circles is an openly stated aversion to modern Western culture but and awe and admiration for its technology, and a hunger for importing it:

> The supreme example of this way of looking at things can be found in what happened in Saudi Arabia between the 1960s and early 90s, a period during which the most extensive transfer of Western technology to a Muslim country took place. The Saudis became very docile in the acceptance of Western technology, as if it were totally neutral despite their outwardly rigid interpretation of Islam. This attitude, although it is a subset of a larger problem, is in fact a new problem that is even more dangerous because it is based on an illusion of the worst kind, and that is that modern technology is culturally and ethically neutral. It is not. It is culturally bound. And it cannot be separated from a worldview that affects Man's understanding of himself, of the world around him, not to speak of God and the spiritual world.[8]

While the technological transformation of the Muslim world is moving at a terrific pace, a small group of Muslim scholars and thinkers has realized that, if this process continues, the emergent societies in the Muslim world will be nothing but a caricature of Western civilization, with nothing remaining of the vision of Islam as a way of life. This realization has found expression in a small body of literature dealing with fundamental issues related to the nature of modern science, its applications, and their impact on individual and

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8. Seyyed Hossein Nasr and Muzaffar Iqbal, *Islam, Science, Muslims and Technology: Seyyed Hossein Nasr in Conversation with Muzaffar Iqbal* (Sherwood Park, AB: Al-Qalam, 2007), pp. 112-13.

society. This literature is gaining wider reception as Muslims become aware of the transforming nature of modern science and technologies. As a result, it is now becoming abundantly clear to an ever-increasing number of Muslims that the malaise from which the Muslim world is suffering cannot be cured merely by importing technology from outside, which mostly happens in the form of consumer goods. On the contrary, the blind acceptance of technologically produced consumer goods into the lifestyles and patterns of living where they do not fit organically has aggravated the situation by creating numerous new problems. Given the nature of the sea-change in Muslim attitudes toward modern science and technology, it is promising that such a discordant strand made its appearance at the time when it did, for all social, cultural, economic, and political forces were moving the Muslim world in quite an opposite direction. This new discourse has not yet been able to produce any major change in the trends—it has not even been able to retard the process of technological transformation of Muslim societies—but it has managed to create an intellectual space for a different kind of discourse on the relationship between Islam, Muslims, and modern science and technology.

This new discourse on Islam, science, technology, and Muslims examines the relationship between Islam, science, and technology from a comprehensive perspective that views science and its application within the spiritual, cultural, and social realities of our times. It explores links between the current phase of transformation of the Muslim world and modern science and technology. This discourse unearths these links, making it clear to a small vanguard that the Muslim encounter with modern science and technology is in fact, part of the much larger encounter of the Muslim world with modern Western civilization. When viewed from this perspective, the process of technological transformation of the Muslim world becomes an even more pressing issue.

This discourse has inspired a generation of Muslims to find ways to negotiate their passage into modernity while remaining firmly rooted in the spiritual and intellectual universe of Islam. This awareness translates into efforts to discover a modus operandi through which the Muslim world can negotiate its passage into a globalized world dominated by technology-dependent lifestyles, without suffering an irreparable damage to its spiritual, intellectual, and cultural makeup. How this might occur is still not clear, but there is an ever-increasing number of Muslim thinkers who have realized that modern science and technology cannot be "Islamized" by invoking a few Qur'ānic verses, as the self-styled reformers of the previous century tried to do. This realization has fundamental implications, not only for the theoretical discourse on Islam, science, and technology, but also for the Muslim world in its search for a modus vivendi in a technologically driven world. A second important realization is that, at the practical level, it has become impossible for any civilization to remain unaffected by modern technology and the force

and extent of penetration of modern technology into other cultures will continue to increase. In spite of the loss that this infusion of technology has entailed, it is still possible for representatives of Islamic civilization to fortify their civilization against this onslaught by recourse to its own primary sources.

It is still too early to clearly outline a viable and practical mechanism through which the Muslim world can regain a certain degree of stability and re-root itself in its own veritable sources in order to negotiate its passage into modernity in a creative manner. The torrent which has uprooted it from its foundations through its encounter with modernity has not subsided; rather, it has become more volcanic. But, in spite of such unfavorable conditions, the beginning of a corrective process can already be seen, even though it is still limited to small and often isolated circles. All indicators of this change point to the reemergence of the centuries-old corrective process which has always been a characteristic feature of Islamic civilization. Whenever it encountered internal strife or foreign threats, it always responded by finding solutions in its own primary sources and reemerged even more vibrant and resilient. This happened at the time of the first *fitna*, which began with the assassination of ʿUthmān b. ʿAffān, the third Rightly Guided Caliph, a time when the internal strife was so overwhelming that the very existence of Islamic polity was in danger; it happened again in the form of its encounter with the Greek philosophical tradition, which threatened its intellectual foundations, and it happened once again after the destruction of Baghdad in 1258 at the hands of the Mongols, when the political foundation of Islamic state was badly shaken, and finally it is happening now through the penetration of modern Western civilization into the very fabric of Islamic life and civilization.

Veritable signs of this corrective process can be found in the growing revival of the Islamic tradition of learning in different parts of the world. This has produced a vanguard of committed scholars who are resuscitating Islamic tradition in its fullness not merely by producing new translations of the classical texts but also by establishing small circles where seekers come into direct contact with a living master and root themselves in the Islamic tradition of learning.[9] A new awareness is on the horizon, even though a practical way out of the current dilemma is not yet in sight. A major gain, however, is the widely spreading understanding of the ways in which modern technology affects cultures and produces changes in lifestyles and values. This realization is important to curtail the damage caused by a blind acceptance

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9. This process of emergence of new centers of learning and revival has taken somewhat similar form in different parts of the world. Generally speaking, it is often the presence of a sufi-master or a religious scholar that initiates the process of arrival of seekers in a given place. A small group then emerges and the process of transmission of knowledge begins.

of modern technologies, but Muslim masses have not yet comprehended the true impact of spiritual, psychological, social, and cultural damage caused by their heavy reliance on technological gadgets imported from the West, nor of the impact of such devices on the centuries-old social and cultural patterns. It will, therefore, take a long and persistent effort by those who understand the multi-layered impact of modern technological products on human psyche, social values, and cultures to demonstrate this to general populace. This will mean acting against market forces. In practical terms, this will involve, among other things, training and nurturing of a large number of young men and women who are aware of the impact of modern technologies on the Islamic way of living; this process will, in turn, increase mass awareness of the rapid and irreparable damage and destruction of the environment being caused by modern technologies and lifestyles based upon them. This may lead to the emergence of small model communities where traditional patterns of life can be practiced, demonstrating in real terms that it is still possible to live in the contemporary world without a near-total dependence on harmful modern technologies. In addition, it must be recognized that repair of the severed ties with Islamic intellectual tradition is a sine qua non for any meaningful change to take place in the Muslim world. Without these ties re-established at the most fundamental level, nothing can be achieved. It is this re-established nexus that will help to negotiate the transition of the Muslim world from its current chaotic and schizophrenic state into stable, dynamic, and vibrant societies able to withstand the impact of modernity.

This does not mean a nostalgic or imaginative recall of the so-called golden era of Islamic civilization; rather, it means a wholehearted and complete reorientation of Muslim life and Islamic civilization toward their own true and representative sources from which solutions can be derived for current problems. By moving away from the colonized mindset with a conscious centripetal movement toward the twin sources of Islam—the Qurʾān and the Sunna—contemporary Muslim societies can regain a certain degree of control over direction and speed of their rapid technological transformation. Given the enormous impact of modern technology already apparent, this may seem an impossible task, yet this is the only option; all other paths lead a total destruction of Islamic civilization. This should not be understood as any idealized call back to nature, to an imagined past, or yet another slogan for escape into some nebulous realm of Islamic traditionalism. This should also not be construed as an attempt to shun modern science and its products en mass and seek refuge in some esoteric truth. It is precisely the opposite. It is an effort to seek out, understand, and interiorize the exact nature of modern science and technology and their impact on the human spirit and human habitat from a truly Islamic perspective, with full realization of the operative reality of Islam's metaphysical truths in real terms. It is a process of anchoring

minds and hearts of a sizeable number of Muslim intellectuals, thinkers, scientists and scholars in the font of Islamic tradition and drawing wisdom from this font to find solutions for the contemporary problems with full vigor, force, persistence, and clarity. It is, in a certain sense, a process of return, but it is not a retreat.

At the practical level, for instance in the domain of architecture, a new generation of architects has to be trained to carry out large-scale restoration work in various traditional lands of Islam where ancient cities have come under tremendous pressure because of modern technologies and where traditional ways of life are being abandoned. This realization has yet to become widespread, but there is evidence of many beginnings. A school in Jordan is devoted to teaching traditional Islamic architecture, Fez was saved from losing its traditional city structure due to a timely intervention,[10] and similar projects are underway in other parts of the Muslim world. However inadequate and tentative, these small steps are the building blocks for the emergence of a broader strategy to deal with extremely crucial issues.[11]

The least that can be said about the current situation is that a century of reflection, false starts, wrong diagnoses, and the terrible price paid for pursuing wrong paths has produced enough clarity, at least for a small group in the vanguard, to clearly understand the malaise of the Muslim world's encounter with modern technology; this is not a small step, even though solutions are still to be found for numerous problems.

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10. See Titus Burckhardt, *Fez: City of Islam* (Cambridge: Islamic Texts Society, 1999).

11. For instance, the famous Egyptian architect Hasan Fathy rekindled interest in traditional Islamic architecture and a number of Muslim architects and city planners began to realize the significance of *baft*, the texture of the Islamic city; this led to the emergence of model villages on traditional patterns. See 'Hasan Fathy, *Architect for the Poor* (Chicago: University Of Chicago Press, 1973, repr. 2000). Nader Ardalan and Laleh Bakhtiar wrote *The Sense of Unity*, which analyzed the urban design of Isfahan and other places on the basis of the idea of Divine unity, the integration of various functions of a city, and the cosmological and theological significance of urban design. This has raised consciousness of the need to preserve traditional features of these cities. For details, see Nader Ardalan and Laleh Bakhtiar, *The Sense of Unity* (Chicago: Kazi Publications; 2nd edition, 2000).