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Churchill on Science and Civilization

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Winston Churchill was the greatest statesman of the twentieth century—a powerful writer and orator, a leader of his nation, an influential actor on the world stage, and a stalwart of civilization. He was a man of action, and his actions were guided by a fiercely clear-eyed vision of human nature, of power and its moral meaning, and of the strength and good sense of his countrymen. Churchill's histories, speeches, and other writings offer penetrating insights into not only war and politics but a wide range of subjects—including the challenge of living well in a world transformed by modern science and technology. While he nowhere offers anything approaching a methodical examination of the practical or theoretical questions raised by science and technology, his writings in this area are valuable both for the answers he gives and for the glimpse they offer us of the great man's mind.

Science, Barbarism, and Soldierly Virtue

Churchill's understanding of the role of science and technology in human history and in the affairs of state flowed not only from his voracious reading and his long friendship with physicist Frederick Lindemann, but also from his own life lived vigorously in the arena. Before he was a prime minister faced with the daunting task of applying recent discoveries and inventions in military and political affairs of the highest consequence, he was eyewitness to a technological revolution that transformed the face of war.

Advances in science and technology, Churchill understood, are most dramatically evident in advances in war-making. Conversely, war provides the occasion for advances that can immensely improve the conditions of peacetime life: the horrific conditions of the First World War, Churchill observed, yielded vast improvements in sanitation and surgery. Still, the taking of human life, especially on a vast scale, is naturally more striking than the amelioration or even the saving of life. Every war involves a descent into barbarism, however civilized certain participating nations may suppose themselves.

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Churchill was shaken by the suffering that war causes, but he also thrilled at the call to battle as only men born warlike do. The romance inherent in braving death allured him from his youth. As a young man, he took part in so-called small wars, with an air of exotic sport, conducted against foes far inferior in firepower, technological know-how, and strategic and tactical ability. In his first book, *The Story of the Malakand Field Force* (1898), the young Churchill describes Pathan mullahs who invoked prophetic hoodoo to ignite martial enthusiasm in their followers, but who provided no solid guidance in how actually to defeat the infidel; the infidel, for his part, deployed the formidable arsenal of modern technique, notably machine-gun fire, to rout a fanatical but ineffectual enemy. In *The River War* (1899), Churchill's second book, the Dervish uprising in the Sudan was put down with comparative ease, thanks to the railway that the British built from Cairo south into the desert and that carried into the field ten thousand men and their supplies. "Fighting the Dervishes was primarily a matter of transport," Churchill wrote. "The Khalifa was conquered on the railway." The nations with the technological capacity to conquer nature are also best equipped to conquer other peoples who exist at the mercy of nature. And once the primitive enemy was defeated, the British carried out their moral obligation to instruct him in the ways of modern civilization, especially the acquisition of technological benefits. Churchill was hugely proud of the civilizing mission essential to British empire-building.

Churchill was also a true believer in prudence and the "martial virtues—physical strength, courage, skill, discipline"—in the face of mortal danger. He preferred the old manner of conducting war, in which a general led his troops on the field of battle and risked death alongside his men at the heart of the action, to the new manner that the First World War established, in which generals sitting in safety miles behind the front lines ordered multitudes to advance into murderous shellfire and machine-gun bursts. Physical bravery and skill in maneuver enthralled Churchill. His principle hero was his legendary eighteenth-century ancestor, John Churchill, Duke of Marlborough, the general who never lost a battle in the long war against Louis XIV. Among twentieth-century military leaders his particular favorite was T. E. Lawrence, who led insurgent Arab forces in their fight against Ottoman rule, and who was extraordinary precisely because he was so anti-modern, so reminiscent of the old chivalric order, though he rode a camel rather than a horse.

Churchill lamented that modern technology was rendering these old virtues obsolete. It was getting so most anyone could kill anyone else, and in large numbers, by pressing a button. Churchill was a junior minister

during the First World War, a war that saw slaughter on an unprecedented scale, made possible by novel mechanization and the genius of the chemists. In his 1924 essay "Shall We All Commit Suicide?" he wrote of the horrors of the "destructive science" unleashed in the war, from explosives to poison gas, and warned that "the peril with which mankind menaces itself" might only increase. He speculated that explosive technology might advance to the point where a single small bomb could destroy an entire town.

The ancient ways of killing had been best, but there was no going back now. The Second World War depended to an even greater degree than the First on the ability of the combatants to wield the power of science for military ends. Churchill called this the "Wizard War," and as prime minister he did much to encourage such technological developments as radar and sonar in hopes of giving Britain and her Allies an edge. And, of course, the advances of explosive technology he had presaged came to pass with an even greater power than he had predicted—but fortunately at the hands of the Allies, and with the aim of securing victory for peace and freedom. After the war, Churchill was among the first to recognize the precariousness of the peace of the atomic age, as rival nuclear arsenals threatened to wreak global destruction at a moment's notice.

Science, Civilization, and War

Churchill's broader thinking on science and technology must be understood in the context of his sweeping interpretation of the history of mankind. In various interwar writings, Churchill offers a kind of mythic account of the beginnings of civilization, an echo of the "Archaeology" with which Thucydides begins his account of the Peloponnesian War—the *logos* of the beginnings, of the first things. Like the Thucydidean account, Churchill's is one in which early man knew no rest: he writes in "Shall We All Commit Suicide?" that "before history began, murderous strife was universal and unending." Men lived in solitude and fear.

Gradually, men learned to cooperate. They created the legal conceptions necessary for settled security. Places and times of rest developed that allowed for the accumulation of strength and wealth. This flourishing of law and prosperity constituted the foundation of civilization. But while Churchill saw the forward progress of civilization as having proceeded in fits and starts for thousands of years, there seemed to have been a dramatic and accelerating advancement in just the few generations leading up to his own. In his 1931 essay "Fifty Years Hence," he writes that "the

age we live in differs from all other ages in human annals," witnessing for the first time not only the mass attainment of minimal subsistence, but of comfort and plenty, of dramatic increases in health and longevity, and even of leisure and "aspir[ations] to culture." What has "produced this new prodigious speed of man? Science is the cause." In another interwar essay ("Mankind is Confronted by One Supreme Task," from 1937), Churchill lists some of the recent achievements of science, technology, and medicine:

> We see the mass of the nation in the enjoyment of so many comforts and facilities of which the rich and powerful never dreamed a hundred years ago. We travel with incredible speed. Already we grumble if aeroplanes only go at 120 miles an hour. We speak to each other across dark distances by waves in the ether. Millions of people own and enjoy motor-cars and motor-bicycles. The poor man in his cottage can hear each night concerts or news from every capital in Europe. The cinema not only presents the millions with lively amusement, but also revives the pageant of the past and portrays the finest stories the world has ever told. Behind these incidents, which could be multiplied indefinitely, lie grand, marvellous discoveries like chloroform and antiseptics, and all the other improved methods of preserving health and curing disease.

Yet while Churchill readily remarks that society cannot but be "grateful to science for these inestimable gifts, which increase the pleasures and reduce the pains of human existence," he warns in "Fifty Years Hence" that scientific and material advancement does not necessarily imply moral advancement:

> [Science's] once feeble vanguards, often trampled down, often perishing in isolation, have now become a vast organized united class-conscious army marching forward upon all fronts towards objectives none may measure or define. It is a proud, ambitious army which cares nothing at all for the laws that men have made; nothing for their most time-honoured customs, or most dearly-cherished beliefs, or deepest instincts.

And not only does the onward march of modern science pay no respect to tradition, but it has, Churchill explains in "Shall We All Commit Suicide?," given man ever greater powers of inflicting pain and death. The indecisive combat of the Stone Age—"one cannot do much with a clumsy club"—gave way to the "collective enterprise" of war-making. The same

shift toward cooperation that characterized the rise of civilization also increased man's destructive reach; problems of communication, organization, and logistics were in time surmounted by technological advancement. By the dawn of the twentieth century, "War really began to enter into its kingdom as the potential destroyer of the human race." Crucially, "Science unfolded her treasures and her secrets to the desperate demands of men, and placed in their hands agencies and apparatus almost decisive in their character." For all its blessings, science seemed to have brought man to the brink of new and more terrifying miseries:

> The whole apparatus of scientific slaughter on a vast scale is being perfected and expanded day and night. The wars of the future will involve whole nations. Men and women, young and old, all will be under the flail. Not only shells and bombs will fall upon our heads, but poison gas will burn and stifle us. Even pestilence may be spread far and wide, and met by preventive inoculation. A hideous kind of warfare may be waged by scientists commanding armies of innumerable microbes which will fight for and against us in the battlefield of our unhappy bodies. [From "Mankind is Confronted by One Supreme Task," 1937.]

Reflecting on these "shocking possibilities," Churchill writes, "we may not feel so proud and happy about all that science has done and is going to do in the lifetime of most of those who will read this page. The achievements of science in the nineteenth and twentieth centuries were not necessarily to the happiness, virtue, or glory of mankind." Thus, the "supreme issue" facing mankind is the choice between "moving forward into a paradise of earthly delights" and "plunging into a senseless hell" devoid of the "treasures and joys of ordinary life." It is "our right and duty to choose—and to choose well."

But what would this choice mean in actual practice? Churchill is not calling for an abandonment of all the discoveries of modern science—many of them, as he repeatedly notes, have done much good. Nor is he calling for relinquishing just the specific tools for inflicting misery and death: Winston Churchill would never suggest wholly forswearing death-dealing science and casting away all armaments; he knew well that the nature of the world does not admit of such solutions. Moral nations must be prepared to defend themselves lest "base, degenerate, immoral" nations prostrate them through the ruthless application of modern technology. The potential for modern technology to empower evil was driven home for Churchill in the use of submarines during the First World War. As he recounted decades later, in a 1949 speech at the Massachusetts Institute

of Technology, "There was a general belief even in the Admiralty where I presided, that no nation would ever be so wicked as to use these underwater vessels to sink merchantmen at sea" because the attacker could not then rescue the crews of the ships they sank. But this moral objection did not bar Germany's Imperial Navy from employing U-boats, and so the Royal Navy, too, had to adopt submarine technology to keep pace.

No, the choice before us—mankind's "one supreme task"—is not to relinquish technology but to seek after virtue and wisdom. Science, Churchill explains, stands on a plane "much lower than that of manners and morals." The material progress that science offers is "really only valuable in so far as it liberates the innate goodness of the human heart. It would not be a blessing but a curse if it rolled forward uncontrolled by the moral principles of simple decent men and women. It can never be our salvation. It may be our doom." The great choice we face is whether our better angels will guide our scientific future or be forever silenced by it.

Remaking Man

What of the power of science to remake man himself? Will human nature remain constant despite the quickening pace of technological change?

In "Fifty Years Hence," Churchill speculates that human life will be subjected to influences altogether new: "In a future which our children may live to see, powers will be in the hands of men altogether different from any by which human nature has been moulded." Almost certainly thinking of Huxley's *Brave New World* (published five years earlier), Churchill considers the possibility that man will control every aspect of human birth and development in order to meet the needs of future societies:

> There seems little doubt that it will be possible to carry out in artificial surroundings the entire cycle which now leads to the birth of a child. Interference with the mental development of such beings, expert suggestion and treatment in the earlier years, would produce beings specialized to thought or toil. The production of creatures, for instance, which have admirable physical development with their mental endowment stunted in particular directions, is almost within the range of human power. A being might be produced capable of tending a machine but without other ambitions.

Such a creature, Churchill notes, would be ideally suited to fulfill the demands of Communist theory:

> But might not lop-sided creatures of this type fit in well with the Communist doctrines of Russia? Might not the Union of Soviet Republics armed with all the power of science find it in harmony with all their aims to produce a race adapted to mechanical tasks and with no other ideas but to obey the Communist State? The present nature of man is tough and resilient. It casts up its sparks of genius in the darkest and most unexpected places. But Robots could be made to fit the grisly theories of Communism. There is nothing in the philosophy of Communists to prevent their creation.

Such technique must be rejected on moral grounds, Churchill writes: "Our minds recoil from such fearful eventualities, and the laws of a Christian civilization will prevent them." But if a program of this sort were somewhere carried out, it would result only in a corruption—producing merely living machines instead of truly human beings. Churchill's reference to robots is a nod to Czech writer Karel Čapek's 1921 play *R.U.R.*, in which artificial sub-human creatures (for which Čapek coined the word "robots") labor as slaves for human beings. Any attempt to tamper with human nature, Churchill argues, would result in similar sub-human creatures, and so any such attempt could have as its aims only exploitation and oppression. Meanwhile, human nature itself perdures. Years later, in his M.I.T. address, he would again argue that science and technology cannot subjugate and destroy the human spirit: "It is not in the power of material forces…to alter the main elements in human nature or restrict the infinite variety of forms in which the soul and genius of the human race can and will express itself"—at least, he added, not anytime soon.

Recall that, in response to our growing power to deal death and destruction, Churchill counseled the cultivation of virtue; his advice in the face of the broader challenge of technology, including its attempts to tinker with human nature, is much the same:

> It is therefore above all things important that the moral philosophy and spiritual conceptions of men and nations should hold their own amid these formidable scientific evolutions.…There never was a time when the inherent virtue of human beings required more strong and confident expression in daily life; there never was a time when the hope of immortality and the disdain of earthly power and achievement were more necessary for the safety of the children of men.

The hearts of future generations, he writes, "will ache, their lives will be barren, if they have not a vision above material things." Science cannot alter essential humanity for better or worse, Churchill argues, but in refashioning

the world it can make man's immutable disposition and desires more potently dangerous. The future will demand better of us to prevent worse.

How the Humanities Can Moderate Science

Much of Churchill's writing about science and technology focused on their role in education. He believed that Britain should step up its technical education, but also urged that it be accompanied by the study of non-technical subjects like history and ethics that could moderate and guide the restless and reckless energy of science. This dual concern arose from Churchill's lifetime of reflection, but especially from his experience of the Second World War.

Churchill had been keenly aware during the war of just how narrow was Britain's margin of survival—and thus he had looked for any lifeline that modern science could offer. "Unless British science had proved superior to German, and unless its strange, sinister resources had been effectively brought to bear on the struggle for survival," he wrote in his awesome six-volume history of the war, "we might well have been defeated, and, being defeated, destroyed." Victory and peace should never be cause for complacency, so even after the war, while out of power, Churchill worried about the state of Britain's technical education, as made clear in his 1949 speech at M.I.T., the premier American technical school:

> We have suffered in Great Britain by the lack of colleges of university rank in which engineering and the allied subjects are taught. Industrial production depends on technology and it is because the Americans, like the pre-war Germans, have realized this and created institutions for the advanced training of large numbers of high-grade engineers to translate the advances of pure science into industrial technique, that their output per head and consequent standard of life are so high. It is surprising that England, which was the first country to be industrialized, has nothing of comparable stature.

As the reference to pre-war Germany suggests, Churchill was well aware that industrial capacity can translate not only into domestic prosperity but into military might. His concern with Britain's deficiencies in educating technical experts led to the establishment of Churchill College, which stresses the study of science and technology, in Cambridge in 1959.

Even as he was lamenting Britain's paucity of technical colleges, Churchill was seeking in his M.I.T. speech to "be guided by balance and proportion." That meant striking "other notes than those of material progress," including an appreciation for the humanities:

> How right you are in this great institution of technical study and achievement to keep a dean of humanities and give him so commanding a part to play in your discussions! No technical knowledge can outweigh knowledge of the humanities in the gaining of which philosophy and history walk hand in hand. Our inheritance of well-founded slowly conceived codes of honour, morals, and manners, the passionate convictions which so many hundreds of millions share together of the principles of freedom and justice, are far more precious to us than anything which scientific discoveries could bestow.

As a lifelong enemy of tyranny and a foe of any regime that attempted to order human activity according to principles not in accord with human nature, Churchill cautioned that fundamental political questions should not be confused for technical or abstract questions. "Those whose minds are attracted or compelled to rigid and symmetrical forms of government should remember that logic, like science, must be the servant and not the master of man," he argued. "Human beings and human societies are not structures that are built or machines that are forged." Indeed, the deepest of human questions—"how we live and grow and bloom and die, and how far each human life conforms to standards which are not wholly related to space and time"—are impervious to scientific analysis.

Parts of the M.I.T. speech echo another that Churchill delivered some months before at the University of London. In that speech, called "The Essential Verities," he makes the case for university education not on grounds of technical capacity, material output, or earning power, but rather by stressing the ways that a university education can open up wide fields of thought and knowledge to be continually pursued throughout life. Imbibing especially of the great books can immunize a student against the "clack and clatter of the modern age." Moreover, traditional education in the classics—of the sort that Churchill had himself bridled at as a young man—had served as a unifying force, binding Europe together in a common heritage "which is now I fear rapidly becoming extinct and I should like to say that university education ought not to be too practical."

By contrast to that emphasis on tradition and unity, modern science and technology had served during the Second World War to make the disunity of Europe more horrendous in its consequences. As external sources of wisdom weaken, science will, in its relentless way, begin to drive human affairs—a situation that Churchill considered unacceptable. Balance and proportion must be maintained: "The duty of a university is to teach wisdom, not a trade; character, not technicalities. We want a lot of engineers in the modern world, but we do not want a world of engineers. We want

some scientists, but we must keep them in their proper place." In another context, years earlier, Churchill described the Germans before the war as some of "the most educated, industrious, scientific, disciplined people in the world"—but people who had been "taught from childhood to think of war and conquest as a glorious exercise, and death in battle as the noblest fate for man." Science is evidently no guarantor of liberty or civilization; traditional values, Christian ethics, and the shared study of the humanities are necessary sources of moderation in human life and politics.

Science and Political Life

A common theme emerges from all Churchill's meditations on science and technology: that science is an amoral force, that it grants us power but does not tell us how to use it wisely. Science can do much to relieve man's estate. But it can also be "perverted" toward evil ends, as Churchill noted in his famous 1940 "Finest Hour" speech and again in his 1949 M.I.T. speech, where he warned that the world might "sink into the abyss of a new Dark Age made more sinister…by the lights of perverted science," and that "science no doubt could if sufficiently perverted exterminate us all." Pointing science away from evil is a necessary political act. The accrued wisdom of the humanities and the traditions of Western civilization are vital for the right ordering of political life—and the proper place of science is to aid in achieving the aims of a well-ordered political life.

Churchill of course understood that this is a delicate balance; science cannot be easily subordinated to political life, both because its clean logic can be so much more attractive than the messiness of politics, and because the new powers it gives us challenge our traditional sources of wisdom and virtue. The staggering achievements of science define the modern age, and they have tremendous power to shape human life, but the question must always be: to what ends? Science despises limits; it grasps everything within its reach; it propels man ever faster forward. If we would have science be "the servant and not the master of man," as Churchill put it, we must govern science, drawing on and defending the sources of civilized restraint.