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Raymond J. Jirran

A. Introduction

So much contemporary culture rests upon technology and so little of the history of technology is incorporated into the study of history, that many see little reason to study history. This lesson is designed partially to remedy this situation. With all of this in mind, it becomes evident why the course goal for this topic is **to evaluate the role of technology** in contemporary civilization according to a criteria of the persons, places, and times involved and the degree of certitude warranted.

B. Economics

During most of the Eighteenth Century the chief rivals for world supremacy were France and England. France led the way politically, militarily, economically, and culturally. Neither military defeats, nor the loss of overseas colonies in mid-century, nor the approach of royal bankruptcy prevented France from being the wealthiest nation in Europe.

In 1789, French foreign trade amounted to 200 million dollars; English 160 million. Though the French handled more money, the French monetary system was not as sound as that of the English. There was no French equivalent for the Bank of England which had been founded in 1694. While France had more capital, British capital was more mobile and more available for industrial development.

French population was twenty-six million; English, nine. The French work force was about three times that of the English. But, whereas the French tied workers to the land, the British left the land and went into the cities and into the factories. The Glorious Revolution of 1688 had brought together the commercial and landed groups to rule England together. In France, such unity against the monarchy was lacking. By this time the middle classes had enough political strength to exercise power directly toward their own interests, rather than indirectly, through the monarchy.

The French Revolution retarded technological growth. In the development of the iron industry, France never did catch up. In England, the output of the iron industry doubled between 1788 and 1796 and doubled again between 1796 and 1808. To relate this to similar developments in the United States, U.S. production was about one-fourth as much as the United Kingdom as of 1830. The U.S. imported a great deal from Sweden and Russia.

The French Revolution also retarded the growth of capitalism because the rural peasants preferred a communal to a competitive life style.[1] Due to a more intense use of the land, rather than improved technology, the year 1840 marked a general turning point for increased agricultural production in France.[2] Access to urban markets was the key determinate to the increase. For example, in Paris, the amount of fodder increased from that available for 16,000 horses in 1815 to 72,000 by 1874. Throughout the Nineteenth Century, rural France slowly changed from peasant subsistence agriculture to market-oriented small farming. By the end of the Nineteenth Century, French peasantry was inconsequential.[3]

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The industrial use of technology developed slowly. Even by the mid-Nineteenth Century, an accepted definition of a machine did not exist. Common language did not yet distinguish a machine from a tool. Machines were first regarded as tools which used inanimate sources of power. A better definition regards a machine as an assemblage of parts that transmit forces, whether animate or inanimate. A tool lacks parts. A tool is an instrument worked by hand. By 1850, only cloth production industries were thoroughly mechanized.[4]

While tools and machines are usually regarded as cultural necessities, sometimes capitalism is regarded as a cultural option than as a cultural necessity. During the early Twentieth Century, the capitalist culture option included networking big business, universities, and government. This network prevented dissent from the advantages emanating from improved science and technology. This argument suits neo-Marxism.[5]

Capitalism was once regarded as a natural outgrowth of a Christian theology of exploitation. More careful research has revealed that Christian theology regarded technology as a matter of stewardship over, rather than exploitative conquest of, nature. Scholars argue over whether the corporate culture was only competitive and exploitative or whether the corporate culture was also nourishing and protective.[6] Only since 1986, have scholars begun systematically to examine technology from the perspective of labor, rather than management.[7]

C. Politics

Between 1830 and 1880, Western Europe first perfected those cultural systems destined to dominate the world order. By 1880, Europe began imposing its way of doing things: in economics, capitalism; in politics, nationalism; in philosophy, materialism. Underlying the totality was the ability to make and use machines. There is a religious caveat more properly described in the Supplement.

On the political scene, from 1837 until 1901, Queen Victoria reigned in England. France accepted a second Napoleon in 1852 with the hope of regaining some of the glory of the first Napoleon. The modern U.S. grew out of the War (1861-65). Russia began her slow and painful reorganization into a modern state with the emancipation of serfs in 1861. After being forced open by the U.S. Navy, Japan was modernized and westernized during the period 1854-1868. Canada was unified with Dominion status in 1867, the same year in which the Dual Monarchy of Austria-Hungary was established. Italy was unified in 1870; Germany in 1871.

D. Conclusion

This lecture, combined with the readings and with thinking, has enabled the student to evaluate the impact of technology upon contemporary civilization. The issue for the West has been whether truth would determine politics or politics, truth. The incompatible inseparables at work here are those between faith and reason, value and fact, morality and science, each claiming to be the path to truth. Students are reminded to read, study, think, and prepare a comment.

Supplement

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E. Caveat

Dr. Jirran does not regard Western civilization as materialistic. When almost all of the students have read in the Bible and about ten percent of the students claim a miraculous experience and the nearby Todds Lane is interspersed with places of worship, Dr. Jirran sees a Godly people unencumbered with religious politics. To dissent from the political dictates of bishops is confused with materialism.

F. Kubala

As a point of institutional involvement by Thomas Nelson Community College, this lecture notes that the first electrical tract written in English was published by Robert Boyle in 1675. This is the same Robert Boyle who invented Boyle's law: at a constant temperature, the volume of confined gas decreases in proportion to increase in pressure. One of the most recent English tracts on electrical circuitry was written and kept up-to-date, at least when he was here, by the third president of Thomas Nelson Community College, Thomas S. Kubala (February 1979-September 1986).

G. Politics (continued)

In 1831, England was still the great center for the invention and production of machine tools. Before the mid-century, however, the leadership had begun to pass to the U. S., where it rested until about 1986. For example, in 1850, Isaac M. Singer marketed the first practical sewing machine. The first telephone was installed in a home in 1877. The patent owned by Alexander Graham Bell is probably the most valuable patent ever issued by the U.S. The first motor-driven vacuum cleaner was patented in 1899. While the modern generation of computers dates only from Mark I, developed by International Business Machines and Harvard University in 1943, the ancestors of the computer were developed and successfully applied during the late Nineteenth Century. All of this technology finds political purpose in military use

Modern technology warfare begins with the French Revolution. For example, the efforts of Napoleon to supply his vast armies led directly to the invention of canning food. The first wartime use of the telegraph came during the Crimean War (1854-56). In 1862, the Confederate Merrimack fought the Union Monitor. By the end of the Nineteenth Century, the submarine had become a practical weapon.

On the more specifically technological scene, the importance of machinery was revealed politically when the British Parliament in 1841 discovered that Liverpool business people levied a flat surcharge of 7.5 per cent in order to cover the costs of smuggling machines to America. In 1843, it came out that when Russia was prevented from buying machinery from England, she got it from the U.S. That same year, Parliament removed political constraints by lifting the ban on machinery exports.

Raymond J. Jirran

H. Conclusion

Might does not make right, even though the political winners get to tell the tale. Technology does give might, but, at least in the West, always in tension with truth. In this case the struggle is with faith and reason, value and fact, morality and science, each claiming to be the path to truth.

Comments on the Seventh Edition of Chambers, pages 773-793

In the opinion of the professor, Chambers is the most scholarly textbook on the market. Chambers well represents mainstream thinking in the history profession. The professor, however, disagrees in many significant ways with mainstream thinking. Some of these disagreements are set forth above and others in the following comments.

Page	Column	Paragraph	Line	
0778-0779				"Inevitably, routes, rates, and even the gauge of the track became political matters to be settled by parliaments or special commissions."
				Also see 0660 2 3-4 "Voltaire became…one of the century's most brilliant …historians …Voltaire believed hat religious superstition inevitably bred fanaticism…
				The professor has little regard for historians who, after the fact, then regard history as *inevitable*. See page 0778, 2, 7-8.

Footnotes

[1] Peter McPhee, "The French Revolution, Peasants, and Capitalism," The American Historical Review, Vol. 94, No. 5 (December 1990), page 1265.

[2] Peter McPhee, "The French Revolution, Peasants, and Capitalism," The American Historical Review, Vol. 94, No. 5 (December 1990), page 1269.

[3] Peter McPhee, "The French Revolution, Peasants, and Capitalism," The American Historical Review, Vol. 94, No. 5 (December 1990), page 1276.

[4] Dolores Greenberg, "Energy, Power, and Perceptions of Social Change in the Early Nineteenth Century, " The American Historical Review, Vol. 95, No. 3 (June 1990), pages 708-709.

[5] John M. Staudenmaier, "Comment: Recent Trends in the History of Technology," The American Historical Review, Vol. 95 No. 3 (June 1990), page 721.

[6] An excellent article along this line of thinking is Steve Marquardt, "`Green Havoc': Panama Disease, Environmental Change, and Labor Process in the central American Banana Industry," The American Historical Review, Vol. 106, No. 1 (February 2001), pages 49-80.

[7] John M. Staudenmaier, "Comment: Recent Trends in the History of Technology," The American Historical Review, Vol. 95 No. 3 (June 1990), page 721.