Philosophy Regarding Technology

Linking philosophical discourse to technology using the prepositional genitive of possession or attribution may promise too much.[1] It suggests that technology represents an inherent rational ordering of *techne* that offers a singular theme for philosophical analysis. A comparable claim relating to Philosophy of History or Philosophy of Religion would be more credible since these disciplines are replete with stories that offer plot and articulation in comprehensive terms. Their exponents and interpreters from earliest times could be imagined in conversation with one another reflecting common ideas and experience.

In the case of technology, vast historical and descriptive accounts represent diverse fields of praxis and explanatory data. If we consider only the technologies involved in architecture, statecraft, monetary systems and mechanical engineering we are committed to engaging philosophical modalities that include aesthetics, ethics, political philosophy and philosophy of natural science. The range sketches a mosaic. The difficulty of embracing technology conceptually stems from the temporal leaps and revolutionary discoveries that have prompted paradigmatic revolutions in outlook and practice. In the seventeenth century Enlightenment the rational and empirical philosophies of Descartes and Locke, combining eventually with Newtonian physics, generated the modern scientific world-view.

The consequent prodigious advance in technical insights and capacity mandates a modest approach to the logos that informs the advance. The approach should be confined to working around the margins. A variegated philosophical critique of technology makes the didactic point of challenging a linear vision of technical progress and belief in the inevitability of its outcomes. Moreover, it guards against the presumption that governmental and social agencies should be placed in the hands of technocrats committed to belief that there is a technological fix for every problem, including ones political and behavioural.

Concerning Virtue

The intent of this paper is to show that the interface of ethics and technology is where philosophical issues are most directly joined. Without attempting to address the unending moral dilemmas that are current in our technological culture, I am expressing general agreement with the ethical position advanced by Alasdair MacIntyre in his monograph, *After Virtue*.[2] His critique of contemporary ethical confusion has a positive bearing on the ambivalence and contradiction in our commitment to technology and its accomplishments.

MacIntyre maintains that the vacuity and loss of moral direction in Western society stems from a forgetfulness of the classical virtues which stemmed from the heroic civilization of the Greco-Roman world, augmented in time by the Christian virtues.[3] Known also as the cardinal virtues, they provided for

many generations the consensual reference points for moral conduct. These had deontological status and weight well beyond what moderns might perceive as prudential or ideal counsel. Their loss from modern ruling consciousness has left succeeding generations lacking the language or moral compass to discern and name good or ill in the flow of experience. Most disturbing is the observation that contemporary society seems unaware of this forgetfulness. Lack of the virtues has been met with analyses from social scientists which are underscored by the migrating values of pragmatism and emotivism, that is to say what works and feels good.

The memory loss has constituted a break in the narrative unity of human life, the continuing story that places us within our history and its unfolding into the future. The role of the virtues in the development of Western culture has particular relevance for technology. In fact, practice precedes ideation in recognition of the virtues. In MacIntyre's terms, "every practice requires a certain kind of relationship between those who participate in it. Now the virtues are those goods by reference to which....we define our relationships to those other people with whom we share the kinds of purposes and standards which inform practices".[4] The point is that virtues are worked out over a period of time, not without disagreements, but allied to practical relationships and activities.

MacIntyre contends that early founding societies eventually achieve a consensual agreement and language about virtues that makes these virtues referents for doing moral work. He contrasts that historical shaping of ethical judgments with the radical empiricism of modern linguistic analysts whose reviews of culture are bound to the constraints of time and place. Their development of laws and regulations tend to be unprincipled and beamed to current interests. In a subsequent volume, MacIntyre defends himself against critics who insist on the importance of temporally conditioned laws. He acknowledges the need of laws but insists that comprehending and adopting the virtue of justice is key to applying law at any particular time or place.[5]

The narration whereby an individual subject appropriates moral values and lives out a story from birth to death interlocks with the narratives of others. One can never exercise virtues solely as an individual. To live responsibly in the Aristotelian sense of the virtues is to live toward a *telos*, realizing the final cause which is the destiny of human beings.[6] Our story and moral identity involves a particular heritage stemming from our indebtedness to the expectations and obligations which membership of a family or nation carries. We are not what we choose to be, in spite of what individualists may claim. Choices are not inalienable rights.

Technology's Narrative

The foregoing account of the virtues has profound relevance to what has been happening in our technological culture. As inheritors of a personal and cultural history, we should see our story with its valuing and commitments in holistic terms and as part of a continuum. Unfortunately, however, there has been a disconnect in our perceptions of the history of technology comparable to the memory loss undergone in ethical perceptions. The forgetfulness is not simply coextensive with the long centuries before disciplined historical records of technology began to be written about two centuries ago; the memory loss is to be traced to the new way in which technology has functioned and been perceived from the beginning of the scientific industrial era. The narrative unity in the lives of the agents of technology with their culture was severed at the point when the identity of vocation and personal being largely disappeared. That occurred when the worker moved out of the guild association or cottage work station

to the factory floor and became subject to corporate planning and bureaucratic direction. Prior to that revolution, the art of the artisan typically qualified his personal being. Thus, the role and the person were identified as farmer, herdsman, baker, weaver, lens-grinder and sundry other titles. While personal attributes of goodness or badness in the functionaries were not indifferent at this stage, the critical evaluations had to do with technical adequacy.

With the modern incorporation of the work-place the regulation of the worker and the values assigned to the work have increasingly become political and cultural in import. The worker is part of a work force and subject to planned economies with productivity goals responsive to markets and advertising intentions. Moral questions are transferred from the personal equation to collective responsibility. Eventually they are seen as having global dimensions with even human survival at issue.

Mario Bunge rebuts any claim that technology can be regarded as amoral. He makes the forthright assertion that "far from being ethically neutral like pure science, technology is involved with ethics and wavers between good and evil."[7] Aside from the fact that he uses terms that resonate with religious judgment, Bunge's semantic usage prompts a further observation: it concerns the ambivalent use by English speakers of the derivatives of the Greek *ethike* and the Latin *moralitas*. When making a strongly deliberative and potentially juridical judgment about a concrete action or practical matter the tendency is to employ the Greek derivative. Hence we designate ethical medicine, ethical drugs, ethical investments and ethical investigations. The negative qualifier 'unethical' tends to be a final dismissive verdict. The terms 'moral' and 'immoral' are nuanced somewhat in our vocabulary to relate more to social and cultural constants of behaviour, a usage related to the Latin derived 'mores', a traditional pattern of social or cultural practice. The point of this semantic note is simply to emphasize that where values are at stake in practical matters, any issues beyond technical correctness are a matter for serious ethical discrimination.[8]

Ethical problems emerging in our technological society have much to do with loss of consciousness and ownership of the history of technical discoveries and related personal and cultural transformations. It was not in fact until 1881 that the abstract summary term 'technology' was cited by *The Oxford English Dictionary*.[9] It is true that the French *Encyclopedié* appeared during the first half of the eighteenth century with the intent to include complete information on the technical arts up to that time; however, it did not treat technology as an ongoing enterprise and omitted mention of many developments occurring during the years of its publication.[10] In positive terms the enlarged conception of technology as a rational exercise upgraded the status of practical arts during the eighteenth and nineteenth centuries, overcoming the perception that practical arts are inferior to literate ones. According to Leo Marx the earliest tradition of the arts promoted "invidious distinctions between things and ideas, the physical and the mental, the mundane and the ideal, female and male, making and thinking, the work of the enslaved and free men."[11] Lamentably this hopeful promise has to large degree been erased in the current global extension of technological production, with lines drawn between the corporate elite of advanced industrial societies and the poor, often female, who are employed in sweatshops of the less developed regions. Technology may also cloak the systemic diminution of the worker as a creative individual. The labourers are many and the managers/executives are few and powerful. Compliance with the corporate system marks out the preferred worker, who is seldom in a position of reciprocity with other operatives. Only a few in the manager class shape the overall technical decisions, economic blueprints, and political strategies.

Countervailing Technology

Perhaps more troubling for the integrity of the technological project and populist dreams of the better life have been the negative results of many beneficent insertions of technical skills. Edward Tenner has listed a lengthy catalogue of efficient technologies that have yielded negative or harmful results.[12] One troubling example is the way in which medical science has coped with catastrophic and acute illnesses, only thereby to increase the number and duration of chronic illnesses. A more dramatic and current concern has been the failure of push-button warfare with smart bombs and other high tech weaponry to cope with guerilla militarism. The aftermath may be more gruesome than the archaic bayonet charge. A bizarre case of the double-effect of some technological gains was reported in the Canadian Press during the writing of this paper. Banking technology had made it possible for a Canadian man to lie dead for almost two years without the knowledge of fellow residents in his condominium. Automatic pension lodgements and pre-authorized payments of condo fees obscured his passage from life to death. (A flip side of this case could be cited as the sleep of societies nurtured by nuclear power while the half-life of atomic waste radiates on for thousands of years.)

For many people the dream of a technical utopia has faded even as the promise of the information age is exhilarating to others. In the four decades since Rachel Carson's *Silent Spring* we have heard repeated warnings about the limits to growth, with a Malthusian sub text. A prominent British commentator, George Monbiot, has used the by-line, "The Age of Entropy is Here," to make his point that the assault on finite resources may have reached a point of no return, and that the impending oil shock may foreclose any ability to generate the growth required to keep "the debt-based financial system from collapsing."[13] The alarm can only grow with increasing moves by the rising economies of Asia to buy into the industrial consumer society.

Earlier critics of technological culture such as Jacques Ellul and Herbert Marcuse would not credit that culture with the will or means to reverse course. There is strong evidence to support such a negative view; and we would not want to experience catastrophic events that might have the effect of stemming the tide of socio-economic determinism. Still there are many signs that the ecological issue is beginning to stir public consciousness more decisively. Events such as natural disasters and climate change affecting large urban populations have a tendency to evoke visions of *terra infirma* and the fragility of our dependent claims. With that in prospect there may be sanguine grounds for urging the recapture of primitive elements in our stewardship of things.

Primordial Reprise

On the ecological file there is growing public interest that bespeaks longing to recapture a sense of wonder in the face of our environment, and to assume responsibility for our agency within it. Parallel with the foregoing appeal for a reprise of the ethics story that began with the virtues, there is need to recover and articulate our earliest perception of values relating to practice. A reintegrated and restored sense of wonder and joyful appropriation of discoveries that have brought comfort and empowerment to humans ought to be the tone of the story.

Restored memory would highlight how the pioneer technology of farming evoked celebratory harvest festivals that have endured in peasant societies, and symbolically among modern sophisticates. When artisans learned how to build a structure higher than a dwelling they proceeded to erect ever higher buildings to accommodate increased goods. The completion of higher elevations demonstrated a drive in the human spirit to achieve an ecstasis surmounting the limits of space and time. Symbolic artifacts that

expressed a nisus toward the metaphysical can be traced through the Mesopotamian ziggurat, the myth of Babel and the centuries long, often competitive, building of temples and cathedrals in the Judaic and Christian traditions. The same were matched by the grandeur of pagoda and minaret. A secularized version of the quest for transcendence can be perceived dramatically in contemporary exploration of space. The obverse move in common space is the archaeological dig that aspires to search out our terrestrial origins, with the artifacts then reverenced in museums and monuments.

The role of religion in the history and continuing development of technology goes far beyond the architectural reference above. The myths of Icarus and Midas are primitive warnings against blatant world-affirming praxis. In modern times the Judeo-Christian tradition has frequently been indicted for the way in which biblical concepts of creation and the linear view of time have been interpreted to sanction an aggressive exploitation of the planet, accompanied by political and military dominance. Lynn White Jr. authored a well-known thesis in which he assigned to this outlook responsibility for the ecological crisis.[14] At the same time it is fair to point out that the earliest days of these traditions featured a conservationist regime. The sabbatical directives and rituals mandated a nurturing and protective attitude toward the land and the care of both man and beast. It is noteworthy that Christian agencies in recent years have been active in promoting the model of harmony of humans with nature inspired historically by the life and work of Francis d'Assisi.

The World Council of Churches in 1979 made a notable effort to honour that earlier tradition of piety and practice. A conference was hosted at the Massachusetts Institute of Technology engaging some nine hundred scientists, religious scholars, and representatives of politics and industry. The theme of the exercise was to consider "The Contribution of Faith, Science and Technology in the Struggle for a Just, Participatory and Sustainable Society."[15] The principal objective and accomplishment of the conference was educational and consciousness-raising. It served to highlight the past role and continuing engagement of religions in world-historical activism.

While religion merits a separate and focused study in this respect, brief annotations here may indicate the varied impact the religions have made on technological culture. Islam shares with the other two kindred religions of the Middle East a world-affirming stance that was reflected in the magnificent architectural gems from its first millennium and the scientific advance that preceded major developments in northern Europe. Unfortunately, Islamic states in the ensuing centuries have lagged in technological achievement following long years of colonial status and impoverished economic conditions affecting their major populations.

Until catch-up technological moves by Asian countries were paced by Japan in the twentieth century, the religions there tended to be perceived as world-denying. Taoism which makes its object the recognition and enhancement of harmony between the material world and the transcendent, favours meditative quiescence over historical activism. Hinduism has an historic commitment to non-violence directed specifically to life forms. Veneration of the cow symbolilzes a nurturing and caring attitude which stands in contrast however with the technical demands of administering affairs in a vast population. Gandhi's symbol of the cottage loom may not be the ideal of his postmodern compatriots although still it reflects the limited possibilites open to the peasant majority. In general terms the Hindu concept of *maya* (illusion) exerts ideological restraint over attempts to change the world materially. Before Buddhism migrated out of India it drew heavily from the Hindu disposition toward worldly activism. Gautama's principle of non-attachment to things was not initially promising for the advancement of human agency.

At the same time his doctrine of the eightfold path with its emphasis on 'right action' bespoke a deliberative will to gain good karma for future reinstatement in worldly events. Arnold Toynbee drew attention to a significant technical achievement that countered the impassive image of the Buddha. Theravada Buddhists of Sri Lanka constructed irrigation canal networks during the sixth to tenth centuries of the Common Era which extended for five hundred miles and demonstrated advanced skills in hydrology.[16]

Aboriginal religions in North America have a strong tradition of caring for the environment and protecting a harmonious relation between living beings and their habitat. Their concept of brotherhood and sisterhood embracing fellow creatures represents a respectful and worshipful attitude toward the natural commonwealth. In many instances aboriginal peoples have strongly resisted economic exploitation of lands and resources. In Canada a response to such protests led to a judicial enquiry in 1974-77 resulting in a suspension of the MacKenzie Gas Pipeline project.[17] Deeply rooted love for the land bound up with their sense of integrity as a people gives aboriginal societies moral authority to warn those with lesser claims to sovereignty to practice modesty in treating things at their disposal, and even to find in them intimations of the spiritual.

Toward Holism

The extension of technology into the infinite reaches of cyberspace is both exhilarating and wondrously productive in advancing the reach of intellectual and technical power. The accompanying dilemmas and ethical questions are bound to relate back to practical terms of our existence on planet Earth. Our interventions in the sphere of ecology are a critical test of our integrity. The simple action of sorting out the household garbage can remind us of the chain of being extending along our technological story.

The voice of Dora Russell joined many others in heralding the importance of the feminist turn in the forwarding of scientific and political causes. In her view the natural talents and instincts of women advance a way of living which "has a sense of kinship, of belonging with the rest of nature, an intelligence applied to the necessities of daily living, grace and harmony in friendship and social relations."[18] Only in recent years has the most masculine of technical vocations, the engineering profession, become an effective testing ground for Russell's claims.

A striking case of a feminist engagement with 'high' technology is that of the Canadian astronaut, Dr. Roberta Bondar. She was a member of the crew of the shuttle *Discovery* in 1992 who, like most of her colleagues, confessed the wonder she felt on viewing the beauty of Earth from beyond its atmosphere. Removing herself latterly from the exotic flavour and rigorous skills of her profession she morphed into becoming a nature photographer. In 2004 she published a volume depicting scenes from each of the National Parks of Canada.[19] Operating the camera herself on many difficult terrains she followed strictly her own guideline requiring that each photograph would be devoid of any depiction of a human being or artifact. The publication itself, veiling the art and skill of lens and operator, has become an artifact witnessing to a primordial and passionate experience of discovery. Bondar's project is a reminder that in the postmodern era there is increasing need for the reserved disposition that distinguishes between and contrasts the possible and the prudent, the spectacular flash and the enduring flame.

The difficulty in maintaining a restrained and disciplined technical practice stems from the process model that informs technology. The normative image of growth measured statistically and quantitatively is

pervasive in all modern enterprise. The outstanding engineer and social philosopher, Ursula Franklin, has deplored the fact that in technology the process model of growth has prevailed over the model of natural growth in life forms. As a result we have had to cope with distortions of growth in population patterns and in consumer fashions. Even in the field of education where the flowering of intellect and cultural gifts has long been celebrated by teachers, the emphasis today is on enrollment quotas, research grants, and employable skills that dominate the process of getting an education. All of this diminishes the excitement that should resonate when the 'penny drops', a happening in which Franklin perceives mystery and wonder. As a teacher she confesses that "growth itself cannot be commanded; it can only be nurtured by providing a suitable environment."[20]

A judgment such as the foregoing is not so much a practical observation as a metaphysical statement about the way things are. It conveys an organicist vision of a holistic harmony of persons, things and events. With echoes of Whitehead, Frederick Ferré states the view that "an organicist metaphysical institutional framework would mean for postmodern technology...that such technologies will aim at *optimization* rather than *maximization*. Healthy organisms and populations need homeostatic restraints."[21]

It may appear fanciful to express hope that restraint in employment of world resources could return us to a former stasis of equilibrium. At the same time we may draw limited encouragement from observing the biosphere where systems have a way of renewing themselves. This happens at the cellular level and among mature animals which/who may return to normalcy after undergoing illness or injury. There is in fact historical and archaeological evidence that the planet itself has achieved self-cleansing after numerous catastrophes and infections. The cosmic proportions of present dangers, however, make it clear that the human agency responsible for so much of it requires reformation of values and energies.

The thesis mooted here is that the human story and the earth story are to be read together because they have been authored together in the same context. Where the reading gets out of step is when the human story becomes a cultural tale and cultural enforcers weaken our critical faculties. The technological culture entrenches comforts and assumes entitlements just because they are accessible by technical means. The impersonal abstract means of their delivery obscures the linkage between our appropriating the provenance of technology and the processes of nature and history which underlie them. When a culture is taken for granted its goods tend to be considered features of the moral order. Ethical discernment requires the long look back to originative value distinctions and the stories that have exhibited their outworking in many people and their times. The scientific and industrial developments that have produced modern technology are essentially a European heritage. This unfolded during centuries of political and military rivalry; that is, until the twentieth century folded into the twenty-first. Now the promise of a new unified Europe has come a long way toward fulfillment because its people have reached back into a common culture and assessed a present interest which convinced them that there is a better way than one with profligate misuse of talents, wealth and energy in national and ethnic competition and conflict. One could conclude that they have now come to an ethical resolution succeeding the immorality of destroying one another.

On the technological file, rhetorical appeals may not win many points toward establishing a global commonwealth in succession to the destructive competitive assault of industrial technology on our common planetary home; but that is no reason to cease reiterating them. To strengthen them requires overcoming memory loss concerning the story of how we have come to be as we are and to do as we have.

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Notes

1. The Prentice Hall "Foundations of Philosophy Series" lists eighteen titles which in some cases merit similar reservations.

2. *After Virtue*, Second Edition, University of Notre Dame Press, Indiana, 1984, 1-5.

3. Prudence, justice, temperance, fortitude, together with faith, hope, and charity.

4. Op cit. , 191.

5. Alasdair MacIntyre, *Whose Justice? Which Rationality?* Indiana: University of Notre Dame Press, 1988, ix.

6. Op cit. p.217-219. Indiana 1988, ix.

7. George Bugliarello & Dean Doner (eds), *The History and Philosophy of Technology*, University of Illinois Press, Urbana, 1979, 262.

8. Moral Philosophy in the university is now mainly designated as Ethics. And philosophical discourse addresses the ethics of a Plato or Kant, not their morals.

9. Art "Technology", *O.E.D.*, Oxford, 1989.

10. Bryan Bunch, & A. Hellemans (eds) *The History of Science and Technology*, Houghton Mifflin Co., New York, 2004, 247.

11. "The Idea of 'Technology' and Postmodern Pessimism" in Y. Ezrahi, E. Mendelsohn, H. Segal (eds) *Technology, Pessimism, and Postmodernism*, Kluwer Academic Publishers, Dordrecht, 1994, 14.

12. Edward Tenner, *Why Things Bite Back: Technology and the Revenge of Unintended Consequences*, Albert Knopf, , New York, 1997.

13. Featured article, *The Guardian* (UK) August 24, 2004.

14. "The Historical Roots of Ecological Crisis", *CLV*, March 10, 1961.

15. Roger L. Shinn (ed), *Faith and Science in an Unjust World*, Report, Vol. I, World Council of Churches, Geneva, 1980, 3ff.

16. Arnold Toynbee, *A Study of History*, Oxford University Press, London, 1960, 81.

17. *Faith and Science*....Op cit., 341-352.

18. Dora Russell, *The Religion of the Machine Age*, Routledge and Kegan Paul, London, 1983, 250.

19. Roberta Bondar, *The Passionate Eye: Discovering Canada's National Parks*, Harper Collins, Toronto, 2004.

20. Ursula Franklin , *The Real World of Technology*, CBC Massey Lectures, CBC Enterprises, Toronto, 1990, 27.

21. Frederick Ferré, *Philosophy of Technology*, Prentice Hall, New Jersey, 1988, 134.

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