Chapter 2

Critique of Technology (DRAFT)

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If critique barely changes a thing, including youth consciousness, what is its utility? Most critiques of media and technology are instrumental by definition and intended to have an effect or make a difference. If it has been enough for criticism and critique to offer a counter to progress narratives, then how effective has this been? Has the critique of media and technology run out of steam, as Latour (2004) suggests? If out of energy drawn from the steam age, should critique be retrofit to run on light and signals? Meantime, the trend in vaping may conceivably pressurize critique enough to sputter into the future. Is the critique of media and technology over time sufficiently prejudicial or probative? Instrumental or terminal?

Accounting for prehistories of cultural evolution, where two hominids debate the merits of a stone implement or pictograph, the first and best critique of technology is Genesis. For over 2,500 years and to this moment, the Garden, Tree of Knowledge, Tower of Babel and Babylon are commonly raised to illustrate the fourfold of spirituality, nature, humanity and technology and accentuate critique. Critique of technology is given dimension in Revelation 18 and takes a form of uncompromising judgment (Greek *krino, krisis*, Latin *iudicium*, *discrimen*) of merchants and luxuries as YHWH proceeds to level Babylon. This chapter begins with the spiritual critique of media and technology and proceeds historically through cultural criticism and social, psychic, ontic, and identic critiques. Differentiated from the spiritual critique that precedes, cultural criticism of media and technology emerges in the fifteenth and sixteenth centuries as a mode of describing and depicting the mechanical arts. In the eighteenth and nineteenth centuries, spiritual critique is displaced through a rejection of religion and theology as sources of modern authority. With spiritual ground undermined, social, psychic, ontic, and identic critics of media and technology compete for defensible ground for leverage. The history of critique is a search for ground. This chapter historicizes the critique of media and technology as well as critique as a practice that has run out of steam. “Critical distance” from or “free relation” to media and technology— a seductive orientation since the 1940s— has been instrumental in critique’s gradual decline. The critique of critique has quickened the decline. The conclusion questions the short-term future of machinic critique and long-term renewal of spiritual critique.

Spiritual Critique of Media and Technology, 550 BCE - 1400 CE

Renewed to describe the tower of servers projecting an aura of information through the cloud for an effortless scale to the luminosity of the heavens and how predictably this latest conveyance atrophies and stifles dialogue, the Tower of Babel is history’s longest standing critique of technology. In Genesis 11:1-9, J gives this storied critique of building materials, plans, purpose and architectural structure. Suspicious of the fired blocks or bricks, which can be deployed in various ways and were more base than sacred (e.g., foreshadowing Jericho), and of the building plans that smacked of conspiracy to afford an illusive conveyance to hide from and avoid good works or ascend and seat a new kingdom, YHWH moves to judge the work. The fundamental question is why, given the vast realm of possibilities of expression, faith or thanks, did humans collude to plan and build a tower to the heavens (planned to be a year’s travel, 10,950 miles high)? Without a base of spiritualism, humanity is obviously deceived and self-deluded. YHWH then moves to action and shows how readily intentions can be exposed and

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plans foiled. The plans and ability to communicate them are made incoherent while king Nimrod, the masses, architects, masons and laborers pay the price and are divided and scattered. At least at that point, there would not be a giant symbol or idol to which the masses would gravitate. YHWH, Moses and J dub the entire edifice "Babel."

Kafka (1917/1975a) adds that the plans were deferred to future generations, which "recognized the senselessness of building a heavenly-reaching tower; but by that time everybody was too deeply involved to leave the city" (p. 39). Generations find themselves too implicated or over-committed to abandon the tower's extension and Babylon's expansion. Although a story of the concentration of power and apotheosis, the more focused critique of idolatry comes later in Isaiah, where the final fall of Babylon materializes the "day of the Lord," or judgment (13:1, 6). In Exodus 20:3-4, Moses receives the first Commandment ("You shall have no other gods before me") and second, an injunction against shaping material into a representation or elevating things to a height of YHWH. The *King James Bible* translates this as "Thou shalt not make unto thee any graven image, or any likeness…" and in the *New American Standard Bible* as "You shall not make for yourself an idol, or any likeness..." Isaiah 44:9-20 is satiric iconoclasm, as vanity is exposed in idolizing artifice and the nature from which it derives. But here, YHWH sarcastically singles out and embarrasses the technologists, the artisans or designers, engravers, drafts-people, smiths, and carpenters, for adoration of materials, media, tools and products while reducing their craft, skills and trade to the fabrication of idols. In this cogent depiction of the process of idolization, Isaiah makes it clear that technical drawings, in providing the plans, schematics and symbols for originals and copies, can be every bit as idolatrous as the 3D artifacts they found. Babel and Babylon archetypes or prototypes are reiterated over time as an opposition or tension between the production, consumption and mediation of things versus development of higher values, or more simply between vice technology and noble deeds.

The Tower of Babel is an example or reminder to future generations of judgment, in a sense that humans must daily choose or discern between good works and bad and in a sense that YHWH will render a decision come a day in the future. Jesus would eventually emphasize, "And if any man hear my words, and believe not, I judge him not: for I came not to judge [*κρίνω, krino*] the world, but to save the world" (John 12:47). In Mary of Magdala, Jesus appears post-Resurrection and teaches that come judgment day one cannot hide behind the artifice of words or works; rather, the soul should say here and now to desire: "You [mis]took the garment [I wore] for my [true] self" (9:5). Given the garment of gender, Mary is initially dismissed by other disciples when she reports the good news and asks, "do you think that I have thought up these things by myself in my heart or that I am telling lies about the Savior" (10:6)? The disciples were deceived by the "foolish wisdom of the flesh" or the material before they could believe the truth of her soul and words (9:23, 10:1-5) (King, 2003).

From the wisdom of Confucius, Mencius warns of over-directing one's energies and desires toward worldly things at the expense of cultivating virtue. Although he approves of the tower built by King Wen, given its relative austerity, communal nature and spiritual ends, (2:1-5), he warns of another tower selfishly raised by the despot prince Kee. Demonstrating higher values articulated by Confucius, Mencius acknowledges that changes are afoot: "Halls several times eight cubits high, with beams projecting, several cubits;— these, if my wishes were to be realized, I would not have…. thousands of chariots following after me;—these, though my wishes were realized, I would not have" (34:2). This criticism of excess follows Confucius, who recognized that "the high-mindedness of antiquity showed itself in a disregard of small things; the high-mindedness of the present day shows itself in wild license" (16:2). Following Lao Tzu,

a contemporary and rival philosopher of Confucius, Chuang Tzu cautions against attachment to worldly things, as they come from and return to nothing (Kieschnick, 2003; Mitukuni, 1979). In a story of "The Goose that Cackled," he comments paradoxically that troubles arise in a one-sided "treating things as things but not letting them treat you as a thing" (p. 121). Wary of reliance on ancient wisdom and its judgment on present progress, in 213 BCE Emperor Qin Shihuangdi banned and ordered the destruction of a range of texts across China including Confucian and Taoist texts (Jiang, 2007, pp. 2-4). Qin also initiated the building of the Great Wall across northern territory, which Kafka (1917/1975b) reports, in paraphrasing a Sinologist or 'proto-Orientalist', "would provide for the first time in the history of mankind a secure foundation [or grounding] for a new Tower of Babel" (p. 25).

Through the first century BCE, Buddhism was spread from India along the Silk Road west through Arabia and east through China. Somewhat like Hebraic, Christian, Confucian and Taoist teachings, early Buddhists juxtapose the humble spiritual quest of the monk against the ambitious material concerns of the privileged and rich. In the ancient biography, the Bodhisattva Siddhartha "renounced power and worldly pleasures, gave up his kingdom, severed all ties, and went into homelessness" (Aśvaghoṣa, ca. 110/1894, p. 25). With distinctions in practice between India and China, Buddhists attacked material trappings with rigor, suggesting that humans are subjected to miserable delusions (suffering) of the senses in seeking pleasure and meeting desire in objects or technologies, which invariably in their hollow promise leave one empty. Of course like Christians, few lived like hermits, monks or nuns and for the common Buddhist there were degrees of detachment from the material world. With disagreement on various aspects, Buddhism shares with Hinduism wariness toward material things and attachment or desire generated. For instance, in the Bhagavad Gita, Krishna cautions against an entanglement of mind and material possessions, and those distracted from higher callings of wisdom and the spiritual: "Confounded with various thoughts and designs, they are entangled in the net of folly; and being firmly attached to the gratification of their lusts, they sink at length into the *Naraka* [human hell] of impurity" (p. 117). Similar to Christianity, Buddhism looked favorably on the production or preservation of icons, relics and images as instructional or instruments of devotion (Kieschnick, 2003). Diffused across pre-Islamic Arabia and Persia, Buddhism was commonly practiced in cities such as Mecca and Medina.

In revelation, Muhammad acknowledges Hebraic Law but the Qur'an (2:83-84, 7:142-145) (Translated by A. Y. Ali, 1934) does not repeat the Commandments verbatim. The first is iterated as divine Law ("Worship none but Allah") (2.83) while the lesson on the fabrication and veneration of idols is given as a demonstration of Abraham's faith and iconoclasm (21.51–70). "'What are these images, to which ye are (so assiduously) devoted?'," Abraham asks of his father's generation. "'And by Allah, I have a plan for your idols'," he continues, and "'So he broke them to pieces, (all) but the biggest of them'." Demonstrating that there were no resident powers within the bunch, he asks the big idol to speak. Hearing nothing and feeling shame, its fabricators and worshipers partially admit self-deception and are urged from then on to turn instead toward Allah. In addition, the Qur'an (95:4-5) makes it clear that worldly goods yield to good works, all of which yield to the spiritual: "We have indeed created man in the best of moulds," the spiritual, "Then do We abase him (to be) the lowest of the low," the material. "Except such as believe and do righteous deeds," or good works, "For they shall have a reward unfailing." With a generally positive view of crafts as a source of livelihood (Ghabin, 2009, pp. 124-132), the Qur'an (59:24) cautions against imitating by icon or competing with Allah's creations, and Muhammad's Traditions (*hadiths*) reinforce an injunction against the fabrication

and veneration of idols (e.g., statues of Buddha). Muhammad (ca. 624/1932) paid close attention to what Arab artisans made and how they conducted themselves in commerce and trade (Ghabin, 2009, pp. 31-39, 133-148). *Hadith*, along with a system of *hisba*, a moral and religious duty to righteousness or in the Qur'an (22:41) given as "enjoin the right and forbid wrong," worked to subject the market and its artifacts to a higher spiritual calling (Ghabin, 2009). In the *hadiths* is a story of Muhammad's critique of architectural excess in decoration and height, directed at a house on the streets of Medina. Once the owner embodies *hisba* and tears the structure down in response, Muhammad exclaims: "Be aware! all the buildings are harmful for their owners except those intended for his necessities" (pp. 199-200). Early mosques were simple and austere, as was Muhammad's family house in Medina. Revered as light (33:46), by the 16th century in an increasingly aniconic culture it was rare, if not a prohibition within *hisba*, to decorate architecture or implements with any figural depiction of the Prophet.

Although veneration of idols and "false" or "strange" gods in antiquity separated mono- from polytheism, the injunction against engraving, painting and producing spiritual images and objects within Hebraic and Christian theology was relaxed. Establishing and sustaining monotheism required a simultaneous critique, destruction and fabrication of images, objects and structures. For example, Roman icons were depreciated or destroyed and others, such as Christian works, were raised and given reverence. As Hebraic, Christian, Buddhist and Islamic religions spread, attacks on icons and idols were often conducted in tandem with attacks on their makers and keepers. In addition to rituals, everyday life outside of the temples and churches had to be actively regulated and at its most direct reduced to inspections, iconoclasm, or heavy-handed policing. By 650, a venerated theme of spiritual judgment on design, production and representation, suggesting or leading to action, regulation and reform, characterized the critique of technology.

In the *Cratylus*, Plato (ca. 380 BCE) recalls Socrates discerning between two types of wisdom. The first, Socrates notes, is spouted by Heraclitus, who says "'everything gives way and nothing stands fast,' and, likening the things that are to the flowing of a river, he says that 'you cannot step into the same river twice'" (402a). Wisdom (*phronêsis*, *sophia*) in this sense, Socrates clarifies, "signifies the grasping (*epaphê*) of this motion, on the assumption that the things that are are moving" (412b). In response to Heraclitus, he continues, "but some are moving quickly, others slowly. So what moves quickly is not all there is" (412c). There are those who believe "that everything is always moving and flowing," but what if "as it happens things aren't really that way at all" (439c)? Socrates ends the dialogue disagreeing with Heraclitus' doctrine that things are "flowings or motions," suggesting that wisdom instead also means grasping what is slow and enduring (440b). Plato acknowledges a primal link between wisdom and technology but this wisdom is more of the type to which Heraclitus refers, of fast flowings, changes and motion (410a-d). In the *Protagoras*, he notes that Prometheus gave fire *and* wisdom, or wisdom of technology, to humans (321d). Fire, he suggests, can nonetheless be stopped or stilled by water. Throughout the dialogues, and quite vividly in the *Cratylus*, Plato demonstrates reverence toward distant ancestors (*prógonos*) and the ancients (*palaiós*), standard bearers of both might and right, common, although not uniform, across antiquity.

Although Plato does not use the word *ματαιοτη*, often translated as vanity (*vanitas*), the implication is that some knowledge and technologies are vain. Are all designers or technologies susceptible to vanity? For instance, Paul says in Romans 8:20: "For the creature was made subject to vanity;" humans and nature are corruptible. In *Institutes of Oratory* (90-95 CE), Quintilian speaks of *ματαιοτεχνία*, *mataeotechnologia*, a judgment of vanity passed on specific

crafts and technologies or more generally qualifying technology as inherently vain (Book II, 20:3). The Tower of Babel, its plans, and knowledge of its construction are *mataeotechnologia*, are they not? The means through which ancients critiqued technology were varied and not limited to "skepticism" (*zêtetikê*) (Mitcham, 1994, pp. 277-283).

With reverence for ancient times is a conviction that desirable, primeval states of humanity and nature are in the distant past (Johnston, 1933). Expressed from a standpoint of modern times in the nineteenth and twentieth centuries, this is reduced to traditionalism and primitivism manifesting as "the discontent of the civilized within civilization, or with some conspicuous and characteristic feature of it" (Lovejoy & Boas, 1935, p. 7). Similarly, archaism suggests a gradual decline from high points of culture. Conversely, the critique of primitivism appeals to indefinite technological progress. Minimalizing reverence for the ancients, progress narratives counter with a closed, dark past against an open, romantic frontier. Stories of decline and primitivism contradict cultural evolution and juxtapose the past simplicity of life with the progressive complexity of technology, or pristine state of nature with a highly evolved material world. This is reiterated in the story of the fall from the Garden of Eden and succinctly summarized in Ecclesiastes 7:29 ("God hath made [hu]man[s] upright; but they have sought out many inventions"). This is commonly interpreted as a corruption or devolution of innate goodness through artifice or device. Hesiod's (ca. 700 BCE) *Works and Days* summarizes this critique as a gradual deterioration from a pristine golden race or age through silver, bronze and hero ages to his present iron age. The progressive degradation of morality and spirituality is associated with the progression of technology as he projects into the future: "might will be in right, and modesty will no longer exist" (191-192).

In some wisdom traditions, ancestors and the ancients are, rather than suspended in a distant past or immemorial antiquity, retired to another land or kingdom over the mountains or waters and may return some day to restore what was lost or stolen. Following Spanish conquest in the 1520s, chroniclers conveniently exaggerated Aztecah (Aztecs) confusion of their god Quetzalcoatl with the sudden appearance of invader Cortés (Lockhart, 1993). As Sahagún (ca. 1545), a Franciscan monk, documented Aztec spirituality he also refuted it, belief for belief, as so much idolatry. The Aztecs conveyed practices of honoring gods of "the fire, the water, the wind, the sun," as "by means of them we live; they guide us, they protect us. They support, they carry" (p. 56). Despite Sahagún's dismissal, Aztec crafts and inventions were subordinate to the higher powers. Spiritual aggression expanded into "New World" from "Old," but for the indigenous an appeal to the past and ancestors was much more hopeful than accommodating a fate of "progress." "The light of civilisation would be poured on their land," a historian wrote of Cortés's first contact with Aztecs in 1519, "but it would be the light of a consuming fire… Their doom was sealed when the white man had set his foot on their soil (Prescott, 1873/1922, p. 207).

Cultural Criticism of Media and Technology, 1450 - 1820

As Augustine (ca. 413-426) documented the gradual decline of the Roman Empire, he stayed centuries of invasion and war by recounting the daily prayer and ritual necessary to momentary solace from burdens and temptation of life in the "earthly city" (Book 19:28). This city is divided, "one in worldly possession, the other in heavenly hope;" the latter anticipates dedication to good works on Earth to serve the city of God (Book 15:21). When Gibbon (1802) summarized the decline, he too stayed centuries of the diffusion of religion and war with the daily turn of the wheel and technologies for food and livelihood. Fortunately for humans, despite a declining Empire he wrote, "the more useful, or, at least, more necessary arts, can be

performed without superior talents, or national subordination… the scythe, the invention or emblem of Saturn, still continued annually to mow the harvests" (pp. 581-582). By December 800 or the day Pope Leo crowned Charlemagne Emperor of Rome, which marked the beginning of what 400 years later was called the Holy Roman Empire, the spiritual or metaphysical ground for the critique of technology was well established. Evident in Chaucer by the fourteenth century, discontinuity or opposition between ancient and modern, east and west, and orient and occident emerged. Over the next 150 years, as ships sailed for colonization, exploration and mission, creating slave and trade routes, a division between old and new world and civil and civilized or cultured and cultivated versus primitive was established. Along with aggressive expansion and iconoclasm, within theology was longstanding concern for the edification of humans, including education in the crafts for commerce (Bynum, 1973). Customary processes of writing, copying and printing helped spread critique but by this time it was becoming evident that religion and spirituality were creative or inspiring forces of technology (Noble, 1997; Ovitt, 1987; White, 1967, 1975).

Gutenberg's innovation on the traditional screw press with moveable type and printing of the Bible (Latin Vulgate) from 1450 to 1455 best represent new forms of the spiritual promotion of technology. In the *Catholicon of 1460*, Gutenberg acknowledges in his only colophon that "this excellent book" was completed, "not by reed, stylus, or quill, but with the miraculous and harmonious concurrence of punches and types cast in moulds" (quoted in Stillwell, 1936, p. 11). Hence, he gives praise to God, book and technology. After Gutenberg's death in 1468, Schoeffer follows the tradition in 1473 but now expands the praise to engravers and printers: "Not without the aid of native artisans did Moses achieve the design of the tabernacle and Solomon that of the temple" (quoted in Stillwell, 1936, p. 17). Pope Innocent VIII in 1487 decreed praise on the new technology and condemnation for printing anything that challenged Christian faith: "the evil influence of badly conducted arts of printing constitutes to-day the greatest danger to society." The result was pre-publication regulation by Censors. Pope Leo X decreed in 1515, again with a mix of praise, caution and regulation:

> Wherefore, that that invention, so advantageous to extending the glory of God, to the increase of the faith, and the diffusion of the arts and sciences, may not have the contrary result and become an obstacle to the salvation of souls, we have deemed it advisable to direct our attention to the printing of books, lest in the future thorns grow up with the good seed or poisons be mixed with the medicine. (quoted in Schroeder, 1937, p. 504)

A decree that the press was neither good nor bad, reserving judgment on how it is used, characterized cultural criticism of technology.

Generating revenue for the bishops and Pope, printing presses were deployed to increase the volume of Papal indulgences, which Luther directly challenged with *Ninety-Five Theses* on 31 October 1517. Beginning with Grünenberg's press in Wittenberg, Luther also exploited the new technology to print accessible dissent, disputations and translations to reform Christian doctrine and practices. Remarking on Grünenberg's run of *On Confession*, in 1521 Luther nonetheless criticizes the product: "It is printed so poorly, so carelessly, and confusedly, to say nothing of bad typefaces and paper" (p. 292). Even while confined to the Wartburg Castle he maintained hands-on relations with printers and illustrators to sustain production schedules and rates. Phenomenally, he translated the New Testament between December 1521 and February 1522 and by the end of September Lotter had typeset and printed an edition of 3,000 copies (Cole, 1984; Newman, 1985). Printers in other towns and cities typeset and produced editions, some without Luther's name or with mistakes he had already corrected for Lotter editions.

Frustrated, in 1525 he circulated "An Admonition to the Printers" noting that these practices were making counterfeit works out of good works. Intimately familiar with the technology, he wanted presses regulated with an ethic of "never allowing a book to appear that isn't useful." Rather than regulation of this market by the Church, Luther encouraged self-regulation but rather than subjugation to God he observed subjugation to profit.

Civil government and religious reformers only haphazardly or partially regulated what was printed and the quality. Various manuscripts long kept private in fear of religious retribution were typeset and printed while graphic artists, designers, illustrators and illuminators assumed liberty to lampoon and depict what otherwise was suppressed. Cutting and engraving wood or iron and the presswork necessary to print pages was demanding and tedious, but some artists, such as Dürer and Holbein, nonetheless worked with engravers on commission to produce high-quality woodcuts. In 1509, da Vinci suggested that this trend signaled profound changes. Using words, he said, to describe the human body and all its parts in minute detail, inside and out, confuses the reader and confounds knowledge. Da Vinci reasons, "it is therefore necessary both to depict and to describe" (folio no. 798, W. An. IV 157a, p. 91). Only better is watching or being the anatomist. This challenged "book-learning" and countered with the truth of "simple and plain experience:" "my subjects require for their exposition experience rather than the words of others," he affirmed (1508, p. 58). He had rationalized dissection of cadavers to accurately depict anatomy, generate knowledge of mechanics and illuminate the Creator's microcosm. For da Vinci, nearly each body part was an instrument with mechanical purpose, which defined the human as "so fine an instrument" with "so great a variety of mechanism" (ca. 1489, folio no. B21V, p. 133). The Church was tolerant of dissection and in 1515 Pope Leo X merely denied him access to the hospital anatomy room in Rome and refused to grant him a commission but by that time da Vinci already dissected thirty bodies (Jakobovits, 1958; Luis, 1517; McMurrich, 1906). While embarking on dissection (ca. 1480-82) and in a habit of comparing mountain terrain with human anatomy, he reflected as if approaching a body or skull:

> I came to the mouth of a huge cavern before which for a time I remained stupefied… And after remaining there for a time, suddenly there were awakened within me two emotions, fear and desire, fear of the dark threatening cavern, desire to see whether there might be any marvelous thing therein. (folio no. 1339, Br. M. 155a, pp. 1127-1128)

Within limits of Catholicism, he was dissecting bodies, not souls. According to Freud's (1910, pp. 23-24) psychohistory, a newfound utility of the dead to the living, da Vinci's hesitance at this precipice symbolized his failure to vivisect the psychic, whether of his own mind and soul or others'.

More than theologians, liberal arts philosophers often disparaged handiwork and the mechanical arts. In Venice one of da Vinci's elders concluded, "he is thus called [*prudentia*] whose soul grows callous from use, as from working with the hands" (Strozzi quoted in Blanchard, 2007, p. 1159). Da Vinci counters this as he reinforces the necessity to describe *and* depict:

> You have ranked painting among the mechanical arts but, in truth, if painters were as apt at praising their own works in writing as you are, it would not lie under the stigma of so base a name. If you call it mechanical because it is, in the first place, manual, and that it is the hand which produces what is to be found in the imagination, you too writers, who set down manually with the pen what is devised in your mind. (folio no. 654, Ash. I. 16a, p. 328)

Literary style took advantage of the presses to describe *and* depict technology. In 1470, the *Orthographia* included the now famous Fichet Letter, a commentary on the new presses that printed "with speed, elegance and beauty." Gutenberg deserved praise for inventing "divine and praiseworthy things, in so much as he cut letters of a such a sort that whatever can be said, or thought, can be immediately written or copied" (quoted in Stillwell, 1972, p. 92). The first books integrating typeset and engraved block prints were religious, such as Pfister's *Biblia Pauperum* (1460), but printers also established a market for depicting and describing mechanics and the mechanical arts: *Verona Valturius* (1472), *De Architectura* (1521), *Pirotechnia* (1540), *Humani Corporis* (1543), *De re Metallica* (1556), *Das Ständebuch* (*Book of Trades*) (1568), *Livre des Instruments Mathematiques et Mechaniques* (1569), *Diverse et Artificose Machine* (1588), *Teatro Nuovo di Machine et Edificii* (1607), *The English Improver* (1649), *Mysteries of Nature and Art* (1654), *Orbis Pictus* (1657), *Humane Industry* (1661), *Theatrum Machinarum Novum* (1662), *Mechanick Exercises* (1683-1703) and *Lexicon Technicum* (1704). From Biblical descriptions, Bruegel's depictions of the Tower of Babel (1563) are ominous. Spiritual critique, such as the *Speculum Vitae Humanae* (1570), and contempt for handiwork were common but looked antiquated against the cultural criticism of media and technology found in the new illustrated books (Knoespel, 1992; Long, 1997).

Symbolizing attempts to regulate depiction and description in England, the frontispiece for *The Bishops' Bible* (1568) places a pious Queen Elizabeth I amidst a wealth of spiritual, civil, material and regal culture. Reinforcing executions for heresy, in a June 1555 Proclamation Queen Mary I banned "authors, makers, and writers of books, containing wicked doctrine, and erroneous and heretical opinions," which included works of Protestant authors (e.g., Luther) (p. I. 52). With criticism of Catholicism and printers censored, she followed in 1557 with the Royal Charter of the Company of Stationers, limiting the production of presses, creating a form of copyright and patent monopoly for printers and stationers already within the guild. When Elizabeth was crowned in January 1559 she quickly lifted restraints against Protestantism in the first injunction but chartered the Company of the second. About fifty-five grants or "patents of privilege" were created throughout her reign over economic expansion and abundant invention. In her Golden Speech on 30 November 1601, Queen Elizabeth I acknowledged widespread criticism of the monopolies and the riches accrued to the Crown. As "God's Instrument" she said she had never been a "greedy, scraping grasper… nor yet a waster." "My heart," she insisted, "was never set on worldly goods" (pp. 337-338). Bringing a week of debate in Parliament to closure, she moved to remedy the fact "that my grants [for new inventions] should be grievous unto my people, and oppressions to be privileged under color of our patents." (p. 339). The Queen supposed she was duped by the "varlet and low persons" among the inventors, who dealt with her "like physicians who, ministering a drug, make it more acceptable by giving it [i.e., the invention and trade privilege] a good aromatical savor; or when they give pills, do gild them all over." Hence, the inventions should be for the "people's good" (p. 339). In the Proclamation *Reforming Patent Abuses* that followed, she revoked a range of patents and privileges. Elizabeth I's analysis is about limits of the Monarchy, duty to good works, and natural liberty but also gives dimension to the cultural criticism of technology that helped, along with the inventions themselves, offer subscription to modernity (Nachbar, 2005).

In the "Preliminary Discourse" of the *Encyclopédie*, d'Alembert (1751) draws a bridge to the past but the expanse is excessive. Progress appears as just a chain of small steps on the surface as "the imagination of the moderns was reborn little by little from that of the ancients" (p. 66). One continuity spanning the divide, he continues, is that

> the mechanical arts, which are dependent upon manual operation and are [still] subjugated… Subsequently it became a reason for holding them in contempt—so much does poverty harm everything that accompanies it…. What real difference is there between a head stuffed with facts without order, without utility, and without connection, and the instinct of an artisan reduced to mechanical operation? (pp. 41, 42)

However, Diderot's (1751) "Prospectus" puts the expanse in stark terms by contrasting moderns with ancients or more recently with sixteenth century inventories of knowledge: "Think of the progress that has been made since their time in the sciences and the arts! Think of the many truths that are unveiled today which were not dreamed of then!" And "laws of sound criticism were entirely unknown" (pp. 108, 109). Chambers' *Cyclopaedia* tried to account for changes *circa* 1728, says Diderot, but "everything was lacking on the subject of the mechanical arts. Chambers read books, but he saw scarcely any artisans" (pp. 110-111).

> It is thus that we have become convinced of men's [and women's] ignorance concerning most of the objects in this life and of the difficulty of overcoming that ignorance…. In a workshop it is the moment that speaks, and not the artisan. (p. 124)

But the challenges of depicting and describing only partially explain why "not enough has been written well on the mechanical arts" (p. 122).

Authorities took the *Encyclopédie* to be a critique of religion and sovereign power. When Volume I was published in June 1751 concerns were immediately raised about entries on *Ame* (Soul) and *Authorité Politique* (Political Authority). Volume II's (January 1952) "additional notes" attached to the Bible entry proposing "a critique of the Books and the authors of Holy Scripture" and the entry on Certitude helped move the Council of State on 7 February 1752 to suspend publication of additional volumes. King Louis XV ruled that the *Encyclopédie* laid "foundations for an edifice of errors, for the corruption of morals and religion, and for incredulity" (quoted in Hoyt & Cassirer, 1965, p. xi). With an intervention by the Director of the Printing Library, Diderot and d'Alembert continued with the publication schedule but the *Encyclopédie* was again suspended in March 1759. Three volumes of plates depicting the mechanical arts were published beginning 1762 but the last ten volumes of description were not published until December 1765. By that time, Diderot and d'Alembert were labeled *Cacouacs* (i.e., mischief-makers), a label some applied to moderns in general. For Rousseau (1769), who distanced himself from *Encyclopédie* in 1757, moderns nearly by definition rejected spiritual and "metaphysical entities." Sarcastically, he was waiting for "a being not only organic but intelligent" to be created from a molecule under a microscope (p. 233).

In *Frankenstein; or, the Modern Prometheus*, Shelley (1818/1831) picks up the pace of the story with the closing of a lecture on modern progress and Victor becoming a disciple of science. Modern scientists' eyes seem to merely "pore over the microscope or crucible," the lecturer concludes, but they "have indeed performed miracles… and even mock the invisible world with its own shadows." "So much has been done," Victor resolves afterward, but "more, far more, will I achieve: treading in the steps already marked, I will pioneer a new way, explore unknown powers, and unfold to the world the deepest mysteries of creation" (p. 34). After two years of studies in chemistry, anatomy and mechanics, he became "capable of bestowing animation upon lifeless matter" and commenced on "the creation of a human being" (pp. 38, 40). On a November night, he succeeds. Galvanized or given life, the new creature is a thing of beauty but overnight becomes a "miserable monster" through the pains of Victor's fear and guilt. At the moment of creation, he confides, "the beauty of the dream vanished, and breathless horror and disgust filled my heart" (pp. 44, 43). Hence, he leaves the creature to fend for itself. From

then on, Victor is a "shadow of a man" tormented by the "monstrous Image" he "endued with the mockery of a soul still more monstrous" (p. 163). Through the end, the creature realizes and avenges its existential condition, "wretched, helpless, and alone" and wanting to destroy "every vestige of cultivation in the garden" and more pointedly destroy Victor Frankenstein and "all thou lovedst" (pp. 112, 120, 198): "I, the miserable and the abandoned, am an abortion, to be spurned at, and kicked, and trampled on" (p. 200).

In her 1831 introduction, Shelley describes the challenge of narrating discourses on invention—literary, mechanical, natural and spiritual—readily separated and mixed by the moderns (pp. vii-xi). Whether wanting to prove herself worthy of her parentage and "the page of fame," or "speak to the mysterious fears of our nature, and awaken thrilling horror," she nonetheless reduces the genesis of *Frankenstein* to a dream (pp. vii, viii). Effectively, modernity might as well have its genesis in a nightmare and be moderated as just a dream and another story. Shelley transitions from how "supremely frightful" it may be to mimic or mock the Creator to mocking the human being, "the stupendous mechanism of the Creator," to mocking technology (p. x). The monster, technology, out-wits and out-lasts the second creator but not necessarily the first. In 1830, Dublin's *National Magazine* extrapolates the lesson: "Modern literature was no doubt moulded by the ancient, in shape and lineament; but, like the monster in *Frankenstein*, it now threatens the very existence of its creator" (p. 525). Slighting spiritual critique, moderns developed a cultural criticism of media and technology. The Tower of Babel stands for the spiritual critique of technology while *Frankenstein* became a prototype for cultural criticism.

Social Critique of Media and Technology, 1840 – 1900

In the *Critique of Pure Reason*, published in 1781, about the time Boulton and Watt were designing a rotary steam engine to drive cotton spinners in mills, Kant developed critique as a method to set limits on what can be known beyond the ground of experience and how to firm this up as the empirical and objective ground of reason (p. xix). Rather than "criticism of books and systems," Kant founded critique to "expose the groundless nature of the pretensions of" two faculties, reason and understanding (p. 54). He proceeded with the *Critique of Practical Reason* (1785) and *Critique of Judgment* (1790), and a critique of *Religion within the Limits of Mere Reason* (1793) in the face of a Censorship Edict and charges of insubordination by the King after the second edition in 1794. Critics adjusted the method (i.e., simply put, "expose the groundless nature of the pretensions of…") or "critical theory" to an increasingly open field of objects. Kant (1781) proclaimed: "Our age is the age of criticism, to which every thing must be subjected," including the "sacredness of religion," "authority of legislation," power of steam and natural liberty of capital (p. xix).

Carlyle (1829) took this for granted and proposed that the modern age was "not an Heroical, Devotional, Philosophical, or Moral Age, but above all others, the Mechanical Age… It is the Age of Machinery." "Philosophy, Science, Art, Literature, all depend on machinery," he added (pp. 442, 443). More profound was the interpenetration of culture, humanity and machinery:

> Not the external and physical alone is now managed by machinery, but the internal and spiritual also…. [Humans] are grown mechanical in head and in heart, as well as in hand…. Their whole efforts, attachments, opinions, turn on mechanism, and are of a mechanical character. (p. 444)

Protests against machinery in Britain were common, including the Luddites' efforts in breaking shearing and spinning frames and looms from 1811 to 1813, but government protected the

industrialists' capital through police or military force and legislation. A few decades later, in her research for *Mary Barton*, Gaskell (1848) documented Manchester workers lamenting: "There's never been good times sin' spinning-jennies came up." "Machines is th' ruin of poor folk," they complained (p. 133). The Age of Machinery was prolonged with humans reduced to appendages and inventors and machines becoming Promethean, as Shelley suggested.

Engels and Marx faced stories that forces of production were now a force of history or more specifically, the steam engine was an engine of progress. Following his "Outlines of a Critique of Political Economy" (1844), Engels (1845) begins *The Condition of the Working-Class in England* with an observation that the agricultural and industrial proletariat in Great Britain begins "with the invention of the steam-engine and of machinery for working cotton. These inventions gave rise, as is well known, to an industrial revolution, a revolution which altered the whole civil society" (p. 1). The "victory of machine-work over hand-work in the chief branches of English industry was won," says Engels, "and the history of the latter from that time forward simply relates how the hand-workers have been driven by machinery" (p. 7). In short order, a self-contained machine became a mega-machine:

> In 1834 England exported 556,000,000 yards of woven cotton goods, 76,500,000 pounds of cotton yarn, and cotton hosiery of the value of £1,200,000. In the same year over 8,000,000 mule spindles were at work, 110,000 power and 250,000 hand-looms, throstle spindles not included, in the service of the cotton industry; and, according to MacCulloch's reckoning, nearly a million and a half human beings were supported by this branch, of whom but 220,000 worked in the mills. (p. 7)

In 1807, England abolished their African slave trade but not slavery. In 1808, the US north did the same. The number of slaves in the US nonetheless increased from 697,879 in1790 to 3,179,589 in 1850 (Ballantyne, 1858, p. 427). Following the cotton gin patent in 1794 and diffusion across southern states in the early 1800s, the number doubled between 1820 and 1850. A Presbyterian preacher only half jokingly commented how before the cotton gin a slave was worth $300 to $400, and afterward was worth $600, and soon $900 "and then there was no such thing as moral law… then 1,000 or 1,200 dollars, and slavery became one of the beatitudes" (Beecher, 1863, p. 15). If machines were made to make history could the adversity experienced by those who worked for the machines power an alternative force of history?

When in 1844 Marx declares that "the critique of religion is essentially completed" and "the critique of heaven is transformed into the critique of the earth," he suggests that the spiritual ground of critique had been sufficiently undermined (pp. 131, 132). While moderns removed Heaven as a fulcrum for a lever that could move the Earth, Marx recognized the futility of replacing an ancient cosmos with the quicksand of modern culture. Countering the relativity of criticism of one text to the next, or one art (e.g., fine, liberal) to another (e.g., mechanical, menial), he and Engels discover social bedrock in materialism. In their first joint work, Marx's section on the history of materialism is significant but equally so is their analysis of the criticism of technology. Criticism, Engels and Marx (1845/1956) assert, including a more critical criticism of technology, mistakenly tries to establish "a free attitude to its object," and then "calls to history, saying: 'You ought to have happened in such and such a way'." Criticism simply does "not recognize history as it really took place" (p. 21). "In real history the *cotton industry* was founded on *Hargreaves's* jenny and *Arkwright's* throstle, [and] Crompton's *mule*." "In reality the invention of the steam-engine *preceded* all the above-mentioned inventions; according to Criticism it is the crowning of them all, the last." "In reality the machine replaces *manual labour*… is extremely exhausting and gives rise to peculiar diseases… In reality the machine is a

machine, according to Criticism it has a *will*, for as it does not rest, neither can the worker: He is subordinated to the will of another" (pp. 21-22). Hence, the transcendent critique of Hegel becomes immanent critique, beginning with face value premises and powered by contradictions between the ideal and material.

From Kant, it was apparent that neither criticism nor critique alone was solvent action, which is to say the idea of culture or philosophy elevated above everyday life or handiwork became a modern convenience (e.g., "a free attitude to its object"). From then on, impartial criticism and indifferent critique were recognized as baseless, groundless or powerless. If "the pen is mightier than the sword," a notion popularized by *Hamlet* (1601, scene 2.2) and distilled by Bulwar-Lytton in 1839, Engels and Marx (1845) had little confidence that those who "go into ecstasy over the *wonder-working* power of the '*pen*'" could actually change anything (p. 135). After being censored and resigning as Editor of the *Rheinische Zeitung* in March 1843, Marx held mixed expectations for the press. Emancipating people from *categories* (e.g., of property, to have and have not) was easy (Engels & Marx, 1845, p. 59). Emancipation from conditions in the cotton fields or mills, or the most oppressive, slavery, required something much more precise and complex. By that time, they had already separated out the task of writing "in the interests of the proletarians" from the "literary bungling of a Critical Critic" (pp. 58-59). *The Holy Family* and *The German Ideology* (1845) stage this critique of cultural or critical criticism for pay dirt in January 1848 and the *Manifesto of the Communist Party*.

In the *Manifesto*, Marx and Engels (1848) acknowledge that "steam and machinery revolutionised industrial production" and modern industry is now led by the bourgeoisie, but deny these developments as social progress (p. 8). Accordingly, the

> bourgeoisie cannot exist without constantly revolutionising the instruments of production, and thereby the relations of production, and with them the whole relations of society…. All fixed, fast-frozen relations, with their train of ancient and venerable prejudices and opinions, are swept away… All that is solid melts into air, all that is holy is profaned. (p. 10)

Given the industrial and bourgeoisie revolutions, the *Manifesto*'s aim was uniting a divided proletariat through communism, which required the "forcible overthrow of all existing social conditions." Famously, Marx and Engels conclude: "Let the ruling classes tremble at a Communistic revolution. The proletarians have nothing to lose but their chains" (p. 31). The first thousand copies were printed in Germany the third week of February. Radicalized as a Chartist before translating the *Manifesto* for its first printing in English in November 1850, Macfarlane (1850) welcomes democracy along with communism. She lists two "*very disgusting facts*" of democracy in the Republic of the new world. "American negro slavery, and American exclusion of white women from the exercises of all political, and many social rights" are as bad as serfdom and military despotism in old world institutions. Democracy, she observes, "is still *seeking* an *adequate* mode of expression" (p. 423).

The combination of labor (forced, slave and wage) and machines raised economic and political questions but inasmuch as it was changing the earth it raised natural and environmental concerns. Arrival of the Latter-day Saints (Mormons) into the Great Salt Lake valley or basin beginning 24 July 1847 characterized the process of violently displacing indigenous peoples (e.g., Goshute, Kusiutta, Paiute, Shoshoni and Ute) and placing agrarian and pastoral designs on the landscape and wildlife. On 14 December 1848, the Mormons resolved "to carry on a war of extermination against all" "wolves, wildcats, catamounts, Pole cats, minks, Bear, Panthers, Eagles, Hawks, owls, crow or Ravens & magpies" (Lee, 1848, p. 82). About 15,000 were shot in

three months. New agricultural technologies progressively destroyed indigenous food sources and while about 18,000 Indians were in the Great Basin in 1847, by 1860 there were 80,000 Mormons and Indian communities and populations were decimated (Smaby, 1975).

The "new geography" was formed in the 1860s to make sense of the alarmingly observable influence of humans on nature. Signifying changes, *Man and Nature* represents a comprehensive attempt to describe the "modes in which human action has been or may be most injurious or most beneficial in its influence upon the physical conditions of the earth" (Marsh, 1867, p. 10). Cultivating the garden had taken on new dimensions. Although tunnels or canals, such as the Suez with excavation beginning April 1859, were immediately noticeable in scale, the other extremes were easily overlooked or taken for granted as inexhaustible. For example, the abundant numbers of birds and their migratory habits seemingly protect them from numerical reduction or extinction.

> But experience shows that when not protected by law, by popular favor or superstition, or by other special circumstances, they yield very readily to the hostile influences of civilization, and, though the first operations of the settler are favorable to the increase of many species, the great extension of rural and of mechanical industry is, in a variety of ways, destructive. (Marsh, 1867, p. 94)

The wild bird population suffered through disorientation and destruction of habitat and scientific specimen production, but in the first issue of *Audubon Magazine*, Thaxter (1887) questions the and consumption of birds for hats. Birds such as egrets and plovers were plucked for plumes and feathers or stuffed for design and decoration. She apologizes directly to the upland sandpipers: "You shall not shelter and protect and care for them [your baby sandpipers] with the same divine instinct you share with human mothers. No, some woman wants your corpse to carry on her head. You shall die that vanity, that 'Fashion,' may live" (p. 14). She sees this culture and fashion as "a sign of heartlessness and a mark of ignominy and reproach," indicating that "the Audubon and other societies work with heart and soul to protect and save" the birds (p. 14).

Through the nineteenth century, social and immanent critique of media and technology was given form beginning with the work of Engels and Marx. They also gave the critique of morals form, which was made more scathing by Nietzsche in *Beyond Good and Evil* (1886) and *Genealogy of Morals* (1887). Cultural criticism, despite its misgivings, was moved to represent nature within "machine in the garden" criticism and moral critique (Marx, 1956, 1964). Arts and crafts criticism and agrarian and environmental critique of machines offered new ground to humanize or naturalize some practices by revolutionary and regulatory action counter to capitalism. Through the century, the religious promotion of technology or righteous capitalism contradicted spiritual critique, which was sustained in a minor form. Although "technology" is first defined in *Glossographia* in 1661 ("a treating or description of Crafts, Arts or Workmanship") it is not until the founding of the Massachusetts Institute of Technology in 1861 that "technology," as a word, concept and system, was popularized and made a specific object of critique and criticism. About this time, school systems across the world formalized curriculum in arts and crafts, design, and manual training for children and youth. Dopp (1902) reasoned that these formal educational experiences "will train the child to control machinery rather than be controlled by it" (p. 171). From social critique, education should lead to action. Understanding a machine, she explained, requires teaching a student "its purpose, how constructed, how controlled, and how used for the amelioration of society." She emphasizes, "these are the problems that the school should undertake to teach him to grapple with, rather than to occupy him with activities that tend to render him as automatic, as unfeeling, as a part of the machine

itself. (p. 171). If technology was once beneath culture, that had changed. The ancients called the Supreme Power or Manifestation of the cosmos, "Day," and as Emerson (1857) said of the era, "works and days were offered us, and we took works" (p. 77).

Psychic and Ontic Critique of Media and Technology, 1910 – 1970

As the expanse of da Vinci's works were published, most from the Paris Codici and Codice Atlantico between 1891 and 1894, he was established as "a pioneer of the modern spirit." One historian wrote that da Vinci culminated a 200 year process, which began with "Dante, the first modern man," in distinguishing the "Modern from the Middle Age… His attitude towards life was, in a word, thoroughly modern" (Thayer, 1894, pp. 514, 510, 508, 515). Freud (1910) acknowledges that da Vinci "became the first modern natural philosopher," as "he learned to depreciate authority and to reject the imitation of the 'ancients' and constantly pointed to the study of nature as the source of all wisdom." But, Freud reasons, "we would say that the 'ancients' and authority only corresponded to the father, and nature again became the tender mother who nourished him" (p. 102). Da Vinci's flying machines, the "human bird," were notoriously reduced to childhood sexual fantasies. Freud was certain that "Leonardo bears out what we must assume from our investigation of children of our times, namely, that his childhood investigation [into machines] was directed to sexual matters" (p. 109). As Klein (1923) began her analysis of children, she asked of da Vinci's (1505, p. 420, folio Sul Volo cover 2 r) infamous prophesy (i.e., "The great [human] bird will take its first flight from the back of its great swan; it will fill the universe with amazement and all literature will tell of its fame."): "Does not this mean winning the mother's recognition of his genital achievements?" "Leonardo's genital activity, which played so small a part as far as actual instinctual gratification was concerned, was wholly merged in his sublimations" (p. 99).

If in recapitulation theory, says Freud (1910), "psychic development of the individual is a short repetition of the course of development of the race," culture or society, then the individual unconscious undergirds the social (p. 60). Social ground, bedrock on the surface of Engels and Marx, was readily liquefied or made molten by the psychic magma beneath. The cultural, social and immanent were fluid while interiorized, "psychic impressions" of the self provided seemingly indestructible ground (p. 60). A frozen Siberia of ethical or social ground could be melted by one hot, steamy psychic molecule. If Marx and Engels trusted an entire proletariat to materialize and ground a base or fulcrum for leveraging technology in its favor, Freud needed only the minutiae of psychic content to ground a small lever and demonstrate the insubstantial gravity of supposed heavyweights such as da Vinci and modern machines.

During his 1912 visit to New York, Jung suggested how technology worked its way into the unconscious. "America does not see that it is in any danger. It does not understand that it is facing its most tragic moment; a moment in which it must make a choice to master its machines or be devoured by them." The danger is that the more we try to master the machines, the more one "must be savage to" one's "own unconscious self" (p. SM2). As Europe descended into a nightmare, Freud (1915) lamented that individuals, feeling disillusioned, were reduced to cogs "in the gigantic machine of [a] war… at least as cruel, as embittered, as implacable as any that has preceded it" (pp. 275, 278). More so for Jung (1919) than Freud, certain machines and structures (e.g., automaton, chariot, cog, engine, lever, tower) were primal and archetypical, shaping "intuition and apperception to forms specifically human" (p. 19). Psychoanalysts such as Tausk (1919) confirmed these insights: "complicated machines appearing in dreams always represent the genitalia… these dreams are dreams of escape" (p. 61). Tausk discovered the

"influencing machine," "a representation of the patient's genitalia projected to the outer world, analogous in the origin to the machine in dreams" (pp. 65, 66). Jung (1928) drew da Vinci's reduction of the human to a machine to a logical conclusion:

> The living body is a machine for converting the energies it uses into other dynamic manifestations… [A chimp's or a beaver's] differentiation is a product of what one might call "natural culture," which functions as a transformer of energy, as a machine. Similarly human culture, as a natural product of differentiation, is a machine. (pp. 41-42)

One of the dangers or mistakes in the design or production of machines, he adds, "lay in carrying over into the outer world what belonged to the inner" (p. 40). There is trouble afoot if the "pleasure-principle" prevails over the "reality-principle" from childhood through adult.

Klein (1921) demonstrated that redressing what gets carried "over into the outer world" and what is best left "to the inner" is the primary task of child analysis. However, she adds, in some cases "the roots lie too deep for us to be able to penetrate down to them," the unresolved turn granite, unless analyses begin at infancy (p. 62). Cultural or social problems of design and technology are mirrored in minute unresolved psychic problems of child's play (pp. 48-53, 62-67). Many neuroses and psychoses of the expansive modern world are found in the child's 40x40 inch playpen. "The delay of the machine age" is at least partially explained by the ancients' better understanding of these demands, from child to adult, in discerning what is best kept inside and injunctions to constrain designing and building with godliness, splendor or spiritual improvement (Sachs, 1933).

Phenomenologists through the 1910s and 1920s countered that these analyses abstracted psychic content by simplifying the external world as merely material or appearance. In this "purified theoretical attitude," Husserl (1913c) wrote, "we no longer experience houses, tables, streets, or works of art; instead, we experience merely material things" (p. 27). However, "a drinking glass, a house, a spoon, theater, temple, etc. mean something. And there is always a difference between seeing something as a thing and seeing it as a useful object, as a theater, temple, etc." (p. 250). For all the concerns about the busying effects of the modern world, psychic critique leaves the world obscured and depersonalized. Husserl's (1913b) method of attending to acts in everyday life provided a form of cultural criticism or description of media and technologies. He describes his perception of his desk or writing table ("table-perception"), from proximity to "parts of the room" "behind his back," then "to the verandah, into the garden, to the children in the arbor etc." The table sits at hand "with its 'books,' the 'drinking glass,' the 'vase'" (pp. 52, 53). Walking around the table, he is conscious that its qualities are more than "merely material" (wood, glue and fasteners) and sensate (cool and smooth) (p. 86). Whether defending his method or table, Husserl (1913a) paraphrases a "commandment" of the new criticism: "never write a critique before you have understood what is being criticized, according to its simple sense" (p. 39).

Heidegger was elected on 21 April 1933 as Rector of the University of Freiburg and commenced to enforce the Nazis' Civil Service Act of 7 April, which dismissed Jews from university positions and removed Husserl's emeritus status. On 1 May he joined the Nazi Party, and eventually removed his dedication in *Being and Time* (1927) to Husserl, his mentor and friend. *Being and Time* finds ontological ground for a phenomenology of the near and commonplace, following Husserl's maxim, "'to the things themselves'" (p. 24). Heidegger (1927) directs attention to the hammer, which is inconspicuous in its handiness. Although hammers were given due attention in mythology and theology, he was correct in noting how taken for granted they had become. The entry in the *English Cyclopedia* (1867), for example,

indicated that it "will not be necessary to notice the hammer as a mere *tool*; but its importance as a *machine* has become such, that a few lines of description are here requisite" (p. 608) (see also *Encyclopaedia Britannica* [1910] entry). Heidegger and his wife built a cabin in Todtnauberg in 1922, which offered ample opportunities for hammering as respite from writing *Being and Time*. Perhaps it's Heidegger's description of a broken or damaged hammer, making it unusable or conspicuous and obtrusive by its "unhandiness," that is most insightful in *Being and Time*, signifying the broken philosophy and career that became conspicuous or more or less unusable as well (pp. 68-69).

Heidegger's intentions for phenomenology were "purely ontological" and "far removed from any moralizing critique of everyday" existence "and from the aspirations of a 'philosophy of culture'" (p. 156). His evacuation of philosophy from culture was political inasmuch as it was intellectual. He asked in 1925, "can the critique of pure reason simply be 'extended' to a 'critique of culture'" (p. 187)? To students, he lectured in 1928 that we cannot understand the world as "beings qua tools, as that with which humans have to deal, as if being-in-the-world meant to move among cultural items" (p. 181). And in 1929 at Davos in a disputation, reiterating *Being and Time*, he insisted, "my position is the reverse [of Cassirer]: The *terminus a quo* [point of origin, of Being] is my central problematic" (p. 202). The ground of being was the ground of culture. Politically, it was a different story. In *Mein Kampf*, Hitler (1925) explained the Nazi's principles for stemming "the decline of the German people" by finding a "granite foundation" for an anti-Semitic "*Germanic State of the German Nation*" (p. 455). For Hitler (1925, pp. 302-455) and Heidegger (1929b, pp. 69-78), Germany was righting its ship while philosophers of culture were writing the "decline of the West" (Spengler, 1918). Hitler complained that one "had to be ashamed of being a German when seeing [in the press] these sweetish hymns of praise to [France] the 'great culture nation'" (p. 71). In its anti-Semitism, *Mein Kampf* hinted at an imminent destruction of Jews and European Jewish culture, not French culture. On Hitler's 44th birthday (20 April 1933) the Nazis staged *Schlageter* with its notorious line: "When I hear of culture... I release the safety catch of my Browning [gun]" (Strobl, 2005). At Freiburg, Heidegger paid homage on the ten-year anniversary of Schlageter's death, "defenseless facing the [French] rifles, the hero's inner gaze soared… for the German people and its Reich" (1933a, p. 41) and in his Rector's address the following day on 27 May to the "will to greatness" and march of Germany "into its future history" (1933b, p. 475).

After the war, in July 1945, Heidegger faced a denazification committee and with Freiburg under French occupation was forced to give up his position in January 1946. The prohibition on lecturing was lifted in September 1949 and he resumed teaching at Freiburg in 1951. After giving a lecture titled "The Enframing" in December 1949, Heidegger (1954a, 1954b) retitled the essay "The Question Concerning Technology" (QCT) for a lecture in Munich in 1953. He edited out a particularly callous statement made in the 1949 version: "Agriculture is now a mechanized food industry, in essence the same as the production of corpses in the gas chambers and extermination camps" (p. 27). In the QCT, the cold analogy to "the production of corpses" following "food industry" is omitted and curiously ". . ." is left as a trace (1954a, p. 83). The Nazis exterminated six million Jews, through detention and work camps, mobile death squads, killing centers and, beginning 1942, stationary gas chambers. At the height of genocide in Auschwitz-Birkenau in mid 1944, about 6,000 Jews were gassed each day.

Heidegger (1954) proposes that in a process of questioning we establish a "free relationship" to technology to discern its essence (p. 3). Following this "way of thinking" promised a chance of deliverance from technology: "Everywhere we remain unfree and chained

to technology, whether we passionately affirm or deny it" (p. 4). His insight that we establish a free relation to technology reiterates Hegel's (1807) premise that organic beings essentially exist for themselves and assume "a universal and free relation to inorganic nature" (p. 271). In a 1957 lecture he clarifies the "free relation" as a "step back:" "the step out of technology and technological description and interpretation of the age, into the *essence* of modern technology which is still to be thought" (p. 52). German academics who took steps back could conveniently claim no knowledge of, forget or delete the technologies of the Holocaust. Heidegger also reiterates in 1953 his observation in the mid 1930s that this new teleological relation to technology marked the "inner truth and greatness" of Nazism (p. 213). Heidegger (1966) paves the ground toward a "free relationship" to technology and asserts that "Nazism moved [us] in that direction" (p. 22).

The further one drilled down into the ground of being and essence the more one pulled core samples of the unconscious, psyche and soul, or subjectivity. For the Frankfurt School, which was closed and displaced from its material foundations in the spring of 1933 while its faculty left in exile from the Nazis' Civil Service Act, finding social, moral, psychic or ontic ground for a critique of media and technology was crucial. One critique deconstructed, eroded or undermined the ground of the other and, where ethical critique prepared ground, Freud (1930, pp. 75-91) found narcissistic quicksand. On Marx and Engels' immanent *Kapitalkritik,* critique of ideology and commodity fetishism, and Freud's *Kulturkritik*, the Frankfurt School built an unmoored critique of instrumental reason and rationality (Feenberg, 1991, 2002; Habermas, 1981a, 1981b; Horkheimer, 1947; Leiss, 1972). Horkheimer and Adorno's (1947) *Dialectic of Enlightenment*, or "critique of enlightenment" with its own inherent instrumentality (p. xviii), was a helpful addition to cultural criticism and the critical historiography of media and technology: e.g., *Instinct of Workmanship and the State of the Industrial Arts* (1914), *Metropolis* (1926), *Man and Technics* (1931), *Technics and Civilization* (1934), *Technology and Society: The Influence of Machines in the United States* (1941), *Mechanization Takes Command* (1948), *Empire and Communications* (1950), *A History of Mechanical Inventions* (1954), *The Technological Society* (1954), *The Gutenberg Galaxy* (1962), and *The Machine in the Garden* (1964).

The ground of critique was made material once again in Carson's "Silent Spring" in June 1962 in the *New Yorker*. A "grim spectre has crept upon us almost unnoticed," she begins, but this time it is not communism, as that was being snuffed out by both oppression and despondence. The spectre now was the relatively rapid twenty-five year change in magnitude of humans and their technologies in an assault on the environment: "the contamination of the air, earth, rivers and seas with dangerous, and even lethal, materials" (p. 35). "The pollution of our environment has many sources—radioactive wastes, fallout from nuclear explosions, domestic wastes from cities and towns, and chemical wastes from factories as well as the new fallout from chemical sprays," she continues, dangerously affect our natural resources (p. 64). Birds, with their universal appeal and primordial power, had fallen silent she reports in part fable, part fact as DDT and other insecticides entered food chains and upset ecologies: "In the mornings, which had once throbbed with the dawn chorus of robins, catbirds, doves, jays, and wrens, and scores of other bird voices, there was now no sound; only silence lay over the fields and woods and marshes" (p. 35). With apathy and spoils of convenience, she said, we go about our everyday business with our "mind closed to thoughts of the sterile and hideous world we are letting our technicians make" (p. 94). The pesticide industry was "up in arms," quickly countering that Carson ignored "the enormous benefits in increased food production and decreased incidence of

disease that have accrued from the development and use of modem pesticides" (Lee, 1962, pp. 10, 11).

Carson passed away in 1964 while *Silent Spring*, adding activism to cultural criticism, was catalytic for the environmental critique of media and technology in the late 1960s and 1970s. *Silent Spring* along with *Unsafe at Any Speed* (1965), *The Greening of America* (1970), *Nuclear Power and its Critics* (1971), *Limits to Growth* (1972), and *Small is Beautiful* (1973), which defined appropriate technology, characterized newfound links among environmental activism, criticism and critique. Technology assessment, technological forecasting and environmental impact assessment signaled policy responses to anticipate risk or industrial accidents, crises, disasters, diseases and hazards. Curricular reforms, such as science, technology and society (STS), science and technology studies (STS), and design and technology (D&T), offered educators and students in the late 1960s and 1970s experiences and insights for making activism and ecocriticism integral to technological literacy (Kimbell & Stables, 2008; Petrina, 1992, 2000, 2014).

Identic Critique of Media and Technology, 1975 - 2001

Coincidental with the English translation of the QCT in 1977, Heidegger was elevated to a status of the first postmodern man and philosopher in that his "thinking moves beyond objectivity, beyond 'humanism,' beyond technological rationality, beyond traditional concepts of language, truth, and thinking as such, one cannot escape the sense that this is a path resolutely outside and beyond the general horizons of modern thought" (Palmer, 1976, p. 428). The renewal of the "Heidegger affair" in the late 1970s notwithstanding, part of the appeal was the existential, ontic soil that grounded identity and the "me generation." Social and psychic critiques were running out of steam and suspended in token groundbreaking. As Lyotard (1979) observes in *The Postmodern Condition*, "we cannot conceal the fact that the critical model in the end lost its theoretical standing and was reduced to the status of a 'utopia' or 'hope,' a token protest." The "social foundation" with its narrative of emancipation had "blurred to the point of losing all of its radicality" (p. 13). Moreover, he notes, in "contemporary society and culture—postindustrial society, postmodern culture"—"the grand narrative has lost its credibility" (p. 37). Despite post-foundational talk and dwarfing of narratives or traditions, ontic or categorical identity seemingly offered insurmountable, solidified, protected ground, enshrined in the *Universal Declaration of Human Rights* on 10 December 1948 and civil rights in most countries to buttress against discrimination and inequality.

Indigenous activists in the 1970s and 1980s reclaimed some of the ground or land taken through colonial expansion. For example, Aborigine northern lands taken in 1863 were reclaimed through traditional territory rights in 1976. Upon first contact of the British Empire in 1770, Cook concluded that the indigenous "seem to have no fixed habitation" yet the Aborigines had been there for 60,000 years (p. 320). In the 1970s in Australia, this point was explicit: land defines what it means to be Aborigine. O'Shane argued in 1979 that the Australian government's management of unceded land "threatens the continued exploitation of our people and our natural resources by multinational mining corporations" (quoted in Burgmann, 2003, p. 69). In 1981, She became the first woman and Aborigine to head up a government department in Australia. In America on 27 April 1763, Chief Pontiac addressed a council of tribes gathered on the banks of the Ecorse River and appealed for unity in sieging Fort Detroit and halting British incursions on traditional lands. Neolin, of the Lenni Lenape (of the Wolf), which joined with Pontiac and his Ottawas for various sieges, had journeyed to Paradise to see the Master of Life (Keesh-she'-la-

mil'-lang-up) (Hunter, 1971). The spirit messenger brought wisdom, which Pontiac (1763) articulated:

> This land where ye dwell I have made for you and not for others. Whence comes it that ye permit the Whites upon your lands? Can ye not live without them?… Ye could live as ye did live before knowing them,—before those whom ye call your brothers had come upon your lands. Did ye not live by the bow and arrow? Ye had no need of gun or powder, or anything else, and nevertheless ye caught animals to live upon and to dress yourselves with their skins. (pp. 28-30)

In 1977, the Hau de no sau nee, or Six Nations Iroquois Confederacy, among which includes the Seneca (which joined in the sieges in 1763), issued *A Basic Call to Consciousness*, "probably the most concise and comprehensive critique of Western Civilization through Native eyes in print:"

> Western technology and the people who have employed it have been the most amazingly destructive forces in all of human history…. The destruction of the Native cultures and people is the same process which has destroyed and is destroying life on this planet. The technologies and social systems which have destroyed the animal and plant life are also destroying the Native people. (*Akwesasne Notes*, 1978)

The "call to consciousness" complemented action; in 1970 the Oneidas (one of the six Iroquois nations) filed a land claim and with sustained activism was finally successful in 1985. In Canada in 1975, the Cree and Inuit reclaimed traditional fishing and hunting rights in James Bay and northern Québec.

As the British Empire declined from mid-century, among the legacies of colonialism were a derision of indigenous knowledge and translation of economic and technological development as westernization. For instance, Bengalis in the 19th century were taught contempt for previously revered Arabic, Persian and Sanskrit cultures while nearly everything British was held as the standard. Gandhi (1922) challenged this process, contending that the "tendency of Indian civilisation is to elevate the moral being, that of the western civilisation is to propagate immorality" (p. 57). He called his *Hind Swaraj or Indian Home Rule* a "severe condemnation of 'modern civilization'"— "Machinery is the chief symbol of modern civilisation; it represents a great sin" (pp. 2, 95). Technological development exacts a steep cost from spiritual development, Gandhi submits: "By using Manchester cloth, we would only waste our money, but by reproducing Manchester in India, we shall keep our money at the price of our blood, because our very moral being will be sapped" (p. 95). Postcolonial development in dependent countries was in other words neocolonial (Pfeifer, 1979). From August 1947, when the British Raj was partitioned into India and Pakistan with both given independence, through the late 1970s India's population doubled to 700 million. Despite intensive modern development, per capita average annual income was merely US $260 while poverty remained at 50% nationwide or total in the slums of Bombay and Calcutta. Representing ecocriticism and ethnocriticism at the time, *The State of India's Environment 1982* reported that its natural resources were quickly depleting or deteriorating, with 70% of lakes and rivers heavily polluted with raw sewage and toxic waste (Centre for Science and Environment, 1982). *The Bad Earth: Environmental Degradation in China* (1984) reported similar effects in the world's most populous country. On balance, a reassertion of Hindu, Muslim and Sikh identities empowered women but communal violence among the three faiths marked postcolonial India and Pakistan.

Fifty-one African countries or republics gained independence during the postwar era and through the 1970s; nearly the entire continent became postcolonial and again vulnerable to western development or "dependency domination" (Okolo, 1983, p. 237). The question of

whether precolonial or indigenous technologies were as effective or more sustainable than colonial and postcolonial or capitalist technologies was reiterated as the concept of the "third world" was exploited during this time. This was no trivial question given 17,500 years of agricultural technologies and 2,500 of iron production in Africa before first contact in Guinea in 1450 (Bokoum, 2004). In Nigeria, for example, colonial scrap iron policies "succeeded in strangling the local industry and arresting the further development of indigenous technology" despite reports from the smelters at Sukur that their implements lasted twice as long as those made from the cheaper, imported scrap (Emeagwali & Abubakar, p. 29). The last of the indigenous iron smelting furnaces was taken out of production in the early 1980s. Traditions and continuity with the past were severed, disrupting obligations of the Sukur to their ancestors (Childs & Killick, 1993). By that time, 80% of the Nigerian government's revenue was dependent on crude oil exports, energy consumption of the North, and basically the British Petroleum corporation. Okolo (1983) argued against these trends that autonomy "will, above all, call for indigenization of science and technology, learning from the natives and their long rich traditions [rather] than from the masters, who, in a very short span, have brainwashed the African mind." From autonomy could emerge "a world much larger and deeper than anything that the modern West has offered to Africa" (p. 246).

Feminists in the 1960s and 1970s documented the gendering of media and technology and directly challenged an entrenched doctrine of separate spheres. Rich (1972) summarizes an alarm that sounded in the 1960s as a realization that among "the devastating effects of technological capitalism" there was now an inability to "envision new human and communal relationships." "I am a feminist," she argues,

> because I feel endangered, psychically and physically, by this society, and because I believe that the women's movement is saying that we have come to an edge of history when men—in so far as they are embodiments of the patriarchal idea—have become dangerous to children and other living things, themselves included. (p. 39)

The supremacist postmodern man was discredited in the return of the repressed modern woman. A century of feminist critique of media and technology was validated as the scale and scope of failures of patriarchy increased. As women reclaimed control over oral contraceptive technologies and policies through the 1960s and 1970s they recouped key elements of control over their bodies and careers. Woman's bodies and subjectivities constituted sacrosanct ground while expanding livelihoods meant undermining essentialisms and reclaiming culture. "While we socialize our men to aspire to feats of mastery," Cowan (1979) observes, "we socialize our women to aspire to feats of submission." "Boys play with blocks; girls play with dolls. Men build; women inhabit. Men are active; women are passive. Men are good at mathematics; women are good at literature." "We trained our women to opt out of the technological order," she concludes, "as much as we have trained our men to opt into it…. women who might wish to become engineers or inventors or mechanics or jackhammer operators would have to suppress some deeply engrained notions about their own sexual identity" (p. 62). Through the late 1970s and early 1980s, women changed practices through critique and direct action and corrected the record of cultural criticism to demonstrate inherent biases of media and technology: e.g., *Dynamos and Virgins Revisited* (1979), *Killing Us Softly: Advertising's Image of Women* (1979), *Women and the Mass Media* (1980), *Machina ex Dea: Feminist Perspectives on Technology* (1983), *More Work for Mother* (1983), and *Machinery of Dominance: Women, Men, and Technical Know-How* (1983).

This criticism was well placed yet experiences of women in kibbutz's of Israel or the Soviet Union, mestizas and Latinas in the Americas, Muslim women in the middle east, Chinese women growing up as communists, or African diaspora and Bengali women tested limits of identity politics. Identifying as differently abled, gay or lesbian, aboriginal, indigenous, postcolonial or religious provided claims to cultural distinction as well as protected ground. All claimed rightful parity with the women's and civil rights movements and anti-capitalism. "Standpoint epistemology" was developed in the mid 1980s to account for how or why identities are differently grounded, located and oriented toward objects, human, material and spiritual (Ahmed, 2006; Haraway, 1985; Harding, 1986, p. 660; Romany, 1991). Feminism "makes visible unvalued female activity and names it as the ground of life" for the critique of media and technology, but Haraway (1985, pp. 180-181) sarcastically quizzes, "*the* ground of life?" "Which identities are available to ground such a potent political myth called 'us'[?]… Painful fragmentation among feminists (not to mention among women) along every possible fault line has made the concept of *woman* elusive" (p. 155). With the "ontology grounding 'Western' epistemology" "undermined, probably fatally," identity is, at best, something fractured and partial (pp. 152-153, 155).

Human identities and protected ground are needlessly irrefutable or weighty next to cyborgs, agile and strategic as they are, which revel in fragmentation and the loss of identity, needing only transitory signals to ground critique and go. Haraway (1985) describes a cyborg as "a kind of disassembled and reassembled, postmodern collective and personal self" (p. 163). Cyborgs are the beings of recrafted bodies and minds reliant on communications and biologies intent on "*the translation of the world into a problem of coding*" (p. 164). "From one perspective, a cyborg world is about the final imposition of a grid of control on the planet," she advances, "the final appropriation of women's bodies in a masculinist orgy of war." "From another perspective, a cyborg world might be about lived social and bodily realities in which people are not afraid of their joint kinship with animals and machines" (p. 154). "The machine is us, our processes, an aspect of our embodiment," Haraway advises. On shaky ground, "we can be responsible for machines; they do not dominate or threaten us" (p. 180). Banking on random access memory, the "cyborg would not recognize the Garden of Eden" (p. 151). Inessentials, "'god' is dead; so is the 'goddess'" (p. 162).

Does it matter whether electronic (e.g., detection, guidance, surveillance), human (e.g., cultural, ethical, identic, ontic, psychic, social), or spiritual (e.g., moral, religious) error or terror was behind September 11, 2001 (9/11)? On video, what more is depicted than two jets flying into skyscrapers in New York City? In the evening, the President of the US reported: "Thousands of lives were suddenly ended by evil, despicable acts of terror. The pictures of airplanes flying into buildings, fires burning, huge structures collapsing, have filled us with disbelief, terrible sadness, and a quiet, unyielding anger." After assuring that the country's "financial institutions remain strong, and the American economy will be open for business [tomorrow]," he quoted David in Psalm 23:4: "Even though I walk through the valley of the shadow of death, I fear no evil, for You are with me." Within a week, he put the US on a crusade and war on terrorism. A few months after 9/11 on Al Jazeera, Sheik Hassan argued in response that "oppression always leads to an explosion!" "Under the cover of the new world order, Muslims in Chechnya and Iraq have been brutalized…. Any Muslim on the face of the earth who bears faith in God and his Prophet feels oppression today" (quoted in Aljami, 2001). On the same show, the anchorwoman resolved, "someone has to say to the United States, this is a red line!" "Here and no more, in Palestine and Iraq, in other Arab realms" (quoted in Aljami, 2001).

Conclusion

Has the search for ground necessarily come full circle and back to spiritual critique of media and technology? After all, the Tower of Babel offers a venerated theme of judgment on design, production and representation, suggesting or leading to action, regulation and reform. Or is this the era of cyborgenic and robotic critique? The machinic critique of media and technology, the most immanent of all, is epitomized in the illustrious Mac versus PC ads that ran from 2006 through 2009 and Cortana versus Siri ads beginning 2014. The longstanding process of company criticizing company, pots calling kettles black, is resolving in the machinic critique of machines (Petrina, 2014). All is not yet lost for humans; cultural criticism, describing and depicting media and technology, has merits. The mere performance of critique has value. Critics, whether of architecture, art, design, media, engineering or technology, invariably face a "gulf between the creative and critical" (Forster, 1947, p. 17). For practitioners, accusations remain that criticism is "grotesquely remote from the state responsible for the works it affects to expound" (p. 13). Engels and Marx (1845/1956, p. 21) warn of justifying a "free attitude" toward media and technology, or trying to establish disinterested, sober criticism. Establishing a "critical distance" from or "free relationship" to media and technology have proven impossible and politically disparaged (Braidotti, 2006, pp. 85-94; Jameson, 1984, p. 87). Distantiation has run aground.

In addition to charges of futility is a realization that critique has run out of steam (Latour, 2004; Marek, 1986). The realization is reflexive and not merely more post-critical commentary, another critique of critique (Petrina, 2012). The problem is not so much a cooptation of critique by the other side, conspiracists, corporations, deniers, machines, etc., as Latour (2004) suggests. "What has critique become when a French general, no, a marshal of critique," asks Latour, claims "that the Twin Towers destroyed themselves under their own weight, so to speak, undermined by the utter nihilism inherent in capitalism itself" (p. 228) (i.e., Baudrillard, 2002, p. 8)? Nor is it that critique is easy, if not cheap; action is comparatively costly (Latour, 1998, pp. 94-95). The problem is that critics of media and technology have no reliable ground for their critiques. This chapter historically traces what Latour (2005) infers: "Critical discourse has of late become impotent. It has no leverage point left" (p. 4). Machinic critique forms its own short-lived ground while social, psychic, ontic, and identic critiques are uninformed and removed from a world transfixed by religious and spiritual devotion.

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