Progress and *Progressio*:
Technology, Self-betterment, and Integral Human Development

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Let men make all the technical and economic progress they can, there will be no peace nor justice in the world until they return to a sense of their dignity as creatures and sons of God, who is the first and final cause of all created being. Separated from God a man is but a monster, in himself and toward others; for the right ordering of human society presupposes the right ordering of man’s conscience with God, who is Himself the source of all justice, truth and love.

John XXIII, *Mater et magistra*, no. 215

In a recent commercial advertising the HTC Droid DNA smartphone, a man is prepped for a procedure in a futuristic surgical theater.1 Seated in a chair and fitted with a device that envelops his right arm and thorax, a smartphone placed in the center of his chest activates the surgical apparatus—presumably functioning as an artificial heart. “Droid DNA augmentation initiated,” announces an android surgeon, triggering the injection of nanoids that begin bi-onically hybridizing the subject’s DNA in a strand displacement cascade. As the treatment takes effect, sequential progress is audibly chronicled: “neural speeds increasing to 4G LTE;” “brain upgrading to a quad-core processor;” “predictive intelligence with Google Now complete.” The augmentative sequence finalized, the man (now trans-human? cyborg?) lifts his gaze out onto a horizon of new, endless possibility. A narrator concludes: “It’s not an upgrade to your phone; it’s an upgrade to yourself.”

Debatable science and marketing hyperbole aside, the ad encapsulates a familiar promise of technology. Not only is it getting better all the time, but because of it *so are we*. Our technological devices enable us to manipulate and maneuver our world with ever-greater efficiency, swiftness, and expertise—facilitating what would otherwise be inconceivable. To the extent that work is necessary for human dignity, technology offers a means by which the human person can effectuate her labor, her God-given vocation, her self-realization within a God-ordered creation. It does not seem outlandish, therefore, to assume

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technology can be essential to human flourishing. Being both a result of human innovation and vital to the human vocation, it is understandable that we might assume that technological progress is human progress—that an upgrade to our phones might well be an upgrade to ourselves. But is it?

That is the question at the heart of this essay. Looking first at the general contours of Catholic social doctrine regarding human and technoscientific progress, it is then necessary to note the difficulty of thinking Christianly about technology. Focusing on the particular device of the mobile phone—specifically the way in which it is sourced, manufactured, and disposed of—the concentration is placed on one illustrative, seemingly innocuous, and increasingly constitutive aspect of our ordinary existence. The phone is thus an exemplification of what sociologist Mike Michael calls the “technoscientific artefacts” that “operate as the facilitative backdrop to the doing of everyday life” wherein “the norms, expectations, conventions of social interaction are in part enacted with, and mediated through, all manner of mundane technologies.”

Reflecting on the device in light of the effective conditions for its realization, we can better appreciate how the goods of the mobile phone are bound up in a rather complicated web of relationality. Our devices may well connect us with others in ways far deeper than we generally acknowledge, which in turn requires that we reconsider the question of progress with respect to the whole. Returning to the concept of “integral human development” will therefore offer the frame of reference needed to assess the potential for technology as a means for human advancement.

THE PROMISE OF PROGRESS:
PROSPECTS, PORTENTS, AND PROVISOS

Can a particular technological device entail progress for its possessor? It is a seemingly straightforward question, ostensibly about the myriad feats a given device enables us to perform, the power it accordingly affords us, and the prospect of self-betterment it offers in turn. Right from the start, though, we must recognize how deceptively difficult it can be to hazard an answer, with matters muddled by rather slippery conceptions of the good(s) in question. A mobile phone undoubtedly makes us better at performing certain tasks, but does it make us better? To even approach such a question, we need a comprehensive moral framework. Catholic social doctrine offers just that, with an especially fecund tradition of reflection on technology, progress, and self-betterment—perhaps most comprehensively in the notion of integral human development, which will be addressed in detail below. Before turning to that particular tenet, however, some general contours

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of magisterial teaching bear consideration here: 1) the consistent affirmation of the legitimate goods science and technology offer, 2) the need to situate such legitimate goods (and their limits) in context, and 3) the dangers of an unchecked trust in the promise of technoscientific progress.

It is especially notable that many of the modern encyclicals reference developments in science and technology as an occasion for a recapitulation of Church teaching in the first place. Pope St. John XXIII, for instance, situates *Mater et magistra* (1961) in the lineage of Pope Leo XIII’s *Rerum novarum* (1891), with “subsequent changes” prompting the need “to confirm and make more specific… the mind of the Church on the new and important problems of the day.”

Foremost among such notable changes are a variety of technoscientific developments including:

The discovery of nuclear energy, and its application first to the purposes of war and later, increasingly, to peaceful ends; the practically limitless possibilities of chemistry in the production of synthetic materials; the growth of automation in industry and public services; the modernization of agriculture; the easing of communications, especially by radio and television; faster transportation and the initial conquest of interplanetary space.

Such advances open up new horizons, requiring rearticulation of the gospel anew. Yet, despite a still-pervasive conflict myth concerning the Church’s relationship to science and technology, the general tenor of magisterial response is neither reactionary nor reproving. Quite the contrary, it is rather optimistic—even celebratory. Various papal fathers consistently acclaim the advancement of science and technology and the potential goods such progress might entail for the betterment of the individual person and human family.

In point of fact, John XXIII suggests that the “present advance in scientific knowledge and productive technology” offers “to a much greater degree than ever before” an opportunity to “reduce imbalances;” indeed, “scientific and technical progress” has already given rise to “greater productive efficiency and a higher standard of living,” leading to an “increase in social relationships,” “mutual ties,” and “development in the social life of man.” The Holy Father accordingly affirms the quest “to deepen and extend [humankind’s] dominion over

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4 *Mater et magistra*, no. 47.
5 *Mater et magistra*, nos. 54, 59-60.
Nature,” noting with approval how the “progress of science and technology that has already been achieved opens up almost limitless horizons.”

The Second Vatican Council’s Pastoral Constitution on the Church in the Modern World, *Gaudium et spes* (1965), offers similar approbation:

Man judges rightly that by his intellect he surpasses the material universe, for he shares in the light of the divine mind. By relentlessly employing his talents through the ages he has indeed made progress in the practical sciences and in technology… [and] has won superlative victories, especially in his probing of the material world and in subjecting it to himself.

Moreover, the Council Fathers affirm how “man has ceaselessly striven to better his life” and, chiefly with “the help of science and technology,” has “extended his mastery over nearly the whole of nature” such that “many benefits once looked for, especially from heavenly powers, man has now enterprisingly procured for himself.”

In *Laborem exercens* (1981), Pope St. John Paul II likewise lauds efforts towards “subduing the earth” by an “immense development of technological means” that he unequivocally regards “an advantageous and positive phenomenon.” Insofar as technology offers humankind “a whole set of instruments”—an *omnium gatherum* that “facilitates,” “perfects,” “accelerates,” and “augments” human work—it is “undoubtedly man’s ally.” In fact, the Holy Father opens his encyclical by advocating the “continual advance of science and technology,” equating the fruits thereof with our “daily bread” as “the bread of science and progress” that humankind has produced by the “work of [his] hands” and “sweat of his face.”

Blessed Pope Paul VI similarly sees science and technology as vital to human advancement, suggesting in *Populorum progressio* (1967) that industrialization is essential to “human progress” as “both a sign of development and a spur to it.” He specifically commends the “dint

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6 *Mater et magistra*, no. 179.
8 Vatican II, *Gaudium et spes*, no. 33
10 *Laborem exercens*, no. 5.
11 *Laborem exercens*, no. 1.
of intelligent thought and hard work” by which “man gradually uncovers the hidden laws of nature and learns to make better use of natural resources”—assuming “control over his way of life,” pioneering “new investigations and fresh discoveries,” and taking “prudent risks” in “new ventures.” Such sentiments echo his predecessor, who called for addressing inequality via “development” fostering “the best possible adjustment of the means of production to the progress of science and technology” in keeping with “the demands of the common good.”

Urging the faithful “to take an active part” in facilitating “man’s self betterment,” John XXIII argues “it is not enough for Our sons to be illumined by the heavenly light of faith and to be fired with enthusiasm,” for amidst “a culture and civilization… so remarkable for its scientific knowledge and its technical discoveries,” engaging the world requires an apostolate that is “scientifically competent” and “technically capable.”

At the same time, the magisterium insists on a circumscribed conception of technoscientific products and potential—often in the same breath as praises are sung. While in Sollicitudo rei socialis (1997) John Paul II approvingly notes how “technological civilization” contributes to “human liberation,” granting that humankind “needs created goods and the products of industry… enriched by scientific and technological progress,” he insists on its “limits,” the “danger of the misuse,” the “appearance of artificial needs,” and the imperative to subordinate “the possession, dominion and use [of such goods] to man’s divine likeness and to his vocation to immortality” which is “the transcendent reality of the human being.”

Paul VI correspondingly argues human advancement “necessarily comes up against the eschatological mystery of death,” at which point only faith in the “death of Christ and his resurrection and the outpouring of the Spirit” is able to “help man to place his freedom, in creativity and gratitude, within the context of the truth of all progress and the only hope which does not deceive.” Technologies that humans conceive, create, and employ offer a real but range-bound freedom and power.

What’s more, an unchecked assurance in technoscientific progress risks obscuring the dangers of a despotic techno-utopianism. Paul VI

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13 Mater et magistra, no. 78-9. Importantly, the demand of the common good necessitates concern “not merely to the present generation but to the coming generations as well.”
14 Pacem in terris, no. 147.
15 Pacem in terris, no. 148.
states unequivocally: “Every kind of progress is a two-edged sword. It is necessary if man is to grow as a human being; yet it can also enslave him, if he comes to regard it as the supreme good and cannot look beyond it.” In the Apostolic Letter Octogesima adveniens (1971), the pope similarly warns against a totalizing credo of “ceaselessly renewed and indefinite progress” marked by a “new positivism” of “universalized technology as the dominant form of activity, as the overwhelming pattern of existence, even as a language, without the question of its meaning being really asked.” Progress, wrongly taken to be “the condition for and the yardstick of human freedom,” risks becoming “an omnipresent ideology” that oppresses despite its promise to liberate.

Paul VI thus introduces a new term, technocracy, to the encyclical lexicon in a sober warning:

It is not enough to develop technology so that the earth may become a more suitable living place for human beings…. The reign of technology—technocracy, as it is called—can cause as much harm…. Man is truly human only if he is the master of his own actions and the judge of their worth, only if he is the architect of his own progress. He must act according to his God-given nature, freely accepting its potentials and its claims upon him.

In resistance to technocracy, Paul VI again urges the “deep thought and reflection of wise men in search of a new humanism, one which will enable our contemporaries to enjoy the higher values of love and friendship, of prayer and contemplation,” for only this “will guarantee man’s authentic development—his transition from less than human conditions to truly human ones.”

Such authentic humanism transcends a “narrow humanism, closed in on itself and not open to the values of the spirit and to God who is their source,” typified by an overestimation of technology’s “apparent success” in “organizing terrestrial realities without God.” Ostensible advances will ultimately languish if “closed off from God,” for humanistic aspirations and attainments “closed off from other realities” will “end up being directed against man” and instead become “inhuman.” It is, therefore, only in an expansive notion of progress—what Paul VI calls “integral development”—that we find the true ends of

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18 Populorum progressio, no. 19.
19 Octogesima adveniens, nos. 41, 29.
20 Populorum progressio, no. 34.
21 Populorum progressio, no. 20 (emphasis mine).
22 Populorum progressio, no. 42.
23 Paul VI is here citing Henri de Lubac, Le Drame de L'Humanisme Athée, 3rd ed. (Paris: Spes, 1945), 10. In a much-quoted line, Paul VI adds: “Man is not the ultimate measure of man. Man becomes truly man only by passing beyond himself.”
human advancement. Real progress is that “authentic development” which is “well rounded” and fosters “the development of each man and of the whole man.”

John XXIII encapsulates the foregoing in his observation that while science and technology can be “gigantic forces for good,” they can all too easily become “engines of destruction.” If “scientific and technical progress is to be used in the service of civilization,” it must acknowledge the “supreme importance of spiritual and moral values.” Quoting Pius XII’s 1953 Christmas Eve address, John XXIII notes the incoherence of an age “marked by a clear contrast between the immense scientific and technical progress and the fearful human decline” where the human is at risk of devolving into a “monstrous masterpiece” through “transforming man into a giant of the physical world at the expense of his spirit.”

He further maintains that while it is “claimed that in an era of scientific and technical triumphs... man can well afford to rely on his own powers, and construct a very good civilization without God,” in truth “these very advances in science and technology frequently involve the whole human race in such difficulties as can only be solved in the light of a sincere faith in God, the Creator and Ruler of man and his world.”

Thus, the Holy Father extols the faithful “not to allow their consciences to sleep,” for while “the Church teaches—and has always taught—that scientific and technical progress and the resultant material well-being are good things and mark an important phase in human civilization,” so too does She teach “that goods of this kind must be valued according to their true nature: as instruments used by man for the better attainment of his end.” The pope concludes: “May these warning words of the divine Master ever sound in men’s ears: ‘For what doth it profit a man, if he gain the whole world and suffer the loss of his own soul?’”

Such sentiments are, of course, nothing new. They can be traced at least as far back as St. Augustine’s *City of God*, Book XXII, wherein he notes with praise how:

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24 *Octogesima adveniens*, no. 34.
28 *Mater et magistra*, nos. 243-44 (emphasis mine). John XXIII also describes this condition as “idolatry” wherein “men are losing their own identity in their works.”
29 *Mater et magistra*, no. 209. Psalm 126.1 is later quoted to reinforce the point: “Unless the Lord build the house, they labor in vain that build it” (no. 217).
30 *Mater et magistra*, nos. 245-46.
There have been discovered and perfected, by the natural genius of man, innumerable arts and skills which minister not only to the necessities of life but also to human enjoyment. And even in those arts where the purposes seem superfluous, perilous and pernicious, there is exercised an acuteness of intelligence of so high an order that it reveals how richly endowed our human nature is. For, it has the power of inventing, leaning and applying such arts.  

It is remarkable that, according to Augustine, even when human *technē* veers into the perilous and pernicious it still reveals the greatness of human abilities—endowments worthy of celebration insofar as they reveal the greatness of the endower. Augustine thus has no compunction about celebrating the “progress and perfection which human skill has reached” in “astonishing achievements,” nor the “completeness of scientific knowledge [which] is beyond all words and becomes all the more astonishing when one pursues any single aspect of this immense corpus of information.”  

Yet, he does so within the context of acknowledging the God-infused “capacity for reasoning and intellection.”  

Such cognizance of “the Creator of this noble human nature” gives rise to a worship of “the true and supreme God whose providence rules all that He has created, whose power is unlimited, and whose justice is infinite.” Indeed, in a passage immediately preceding the quote above, Augustine hails “those supernatural arts of living in virtue and of reaching immortal beatitude which nothing but the grace of God which is Christ can communicate to the sons of promise and heirs of the kingdom.”

Magisterial teaching stands in this vein, celebrating legitimate techno-scientific progress within the *regnum hominis* while reminding us of the *regnum Dei* beyond.

What are we to make of all this? On the one hand, the magisterium repeatedly reminds us of the necessary limits of technological prowess and the destructive potential that technology can represent if such bounds are heedlessly ignored. To disregard the limits of technology, we are reminded, is to refuse to acknowledge what it cannot do and thus to distort what it can. On the other hand, magisterial teaching is anything but hidebound when it comes to technology. Instead, the papal fathers repeatedly stress the real and potential goods that technology can procure, arising out of and further facilitating human work. The magisterium commends the role that technology has historically

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32 Augustine, *City of God*, 484-85.
33 Augustine, *City of God*, 484.
34 Augustine, *City of God*, 485.
35 Augustine, *City of God*, 484.
played in the development of humankind, especially in its rightful assertion of dominion over creation and the triumph of the spirit over matter. The faithful—and indeed all people of good will—are accordingly encouraged in their various scientific and technological pursuits. On balance, perhaps we could say the magisterium generally adopts an affirmative position: that which is not against me is with me.

In constructive and critical pastoral guidance, the tradition certainly offers extensive resources germane to the present concern: whether and to what extent a given technological device might be a means for self-betterment, especially in terms of the authentic humanism and integral development noted above. Before considering exactly how Catholic social doctrine might illumine matters, however, it is worth contemplating the givenness of the given device in question. Like all technological devices, the mobile phone in not simply a given—it is a product, which is to say it is produced. That might seem like inconsequential semantics, but philosopher George Parkin Grant (1918–1988) explicates the importance—and difficulty—of carefully attending to that which makes our given devices possible. His ground-breaking contribution is worth recapitulating in some detail, especially in terms of its theological import.

THE DIFFICULTY OF THINKING CHRISTIANLY ABOUT TECHNOLOGY

“In each lived moment of our waking and sleeping,” begins George Grant in his seminal essay on technology, “we are technological civilization.” In making this claim, Grant endeavors to illuminate the extent to which “we have encompassed ourselves within technology” such that “our political and social decisions are interwoven with the pursuit and realization of technological ends.” This development is not a matter of mere happenstance, for “we westerners willed to develop a new and unique co-penetration of the arts and sciences, a co-penetration which has never before existed.” The “co-penetration of knowledge and making” is not “simply an extension of human making through the power of perfected science,” but “a new account of what it is to know and make.” Indeed, this new account of knowing and making—epitomized by the writings of Francis Bacon (1561-1626) and René Descartes (1596-1650)—was explicitly distinguished from the ancient science and was animated by “the faith that the mastery of nature would lead us to the overcoming of hunger and labor, disease and war… [and] could build the world-wide society of free and equal

37 Grant, “Thinking about Technology,” 15.
38 Grant, “Thinking about Technology,” 12.
people.” Acknowledging the legitimacy of such aspirations, Grant nevertheless contends that “progress is a more complex matter than was envisaged by those who had believed that a better society would arise ineluctably from technology.”

Grant is particularly concerned with highlighting the novelty of our technological civilization, a paradigm in which we are so deeply embedded it can be hard to see it for what it is. Carefully examining default assumptions about technological progress, for instance, he exposes the extent to which we take the givenness of the predominant paradigm and its products for granted. Usually construed as “a great step forward in the systematic application of reason to the invention of instruments for our disposal,” the supposed progress is shown to arise out of a much larger narrative.

Human beings have from their beginnings developed instruments to help them get things done (indeed in our era many distinguish human beings from other animals by calling us the tool-making animals). The word “instrument” is not confined simply to external objects such as machines or drugs or hydropower, but includes such development of systems of organisation and communication as bureaucracies and factories. Technology is then thought of as the whole apparatus of instruments made by man and placed at the disposal of man for his choice and purposes.

While Grant concedes that this story is to a certain extent “undeniable,” he is concerned that it obscures the novelty of the technological civilization in which we find ourselves.

That novelty is perhaps best exposed by scrutinizing a commonplace claim: that our given technological devices are neutral and do not impose on us the ways they should be used. This prevalent assumption construes technological devices as mere instruments whereby “the morality of the goals for which they are used is determined outside them,” where “capacities have been built into them by human beings… who operate those machines for purposes they have determined.” Yet this commonsense notion does not allow such devices “to appear before us for what they are,” naively assuming their givenness “as if they existed in abstraction from the events which have made possible their existence.”

What events make possible their existence? Grant notes how our technological devices are comprised of:

40 Grant, “Thinking about Technology,” 19.
41 Grant, “Thinking about Technology,” 20.
a vast variety of materials, consummately fashioned by a vast apparatus of fashioners. Their existence has required generation of sustained effort by chemists, metallurgists and workers in mines and factories... [and] have been made within the new science and its mathematics. That science is a particular paradigm of knowledge and, as any paradigm of knowledge, is to be understood as the relation between an aspiration of human thought and the effective conditions for its realization.43

Our order of things is “so taken for granted as the way things are” that it is given “an almost absolute status,” and as such it becomes “our civilizational destiny”—and “like all destinies, they ‘impose.’”44 Grant suggests that his attempt here is to be descriptive; he is not necessarily aiming to advance any particular normative claims. In fact, he concedes that it may well be, as is often supposed, “that the development of that paradigm is a great step in the ascent of man” and “the essence of human liberation.”45 His stated intention is simply to show how particular technological devices are inseparable from the paradigms that produce them, arguing that to assume a given device is neutral (and therefore does not impose) is to erroneously abstract it “from the destiny that was required for its making.”46

Part of the destiny required for its making entails the advent of institutions that can generate the requisite research and development needed to produce such technologies in the first place, such that “the ‘ways’ that automobiles and computers can be used are dependent on their being investment-heavy machines which require large institutions for their production.”47 Such technical devices “can be built only in societies in which there are large corporations,” which are “instruments with effect beyond the confines of particular nation states” and risk becoming (perhaps inevitably) “the instruments of the imperialism of certain communities towards other communities.” The institutional requirements for the production of technological devices, which “exclude certain forms of community and permit others,” exemplify how modern technology and modern society are coproduced by “the same account of reasoning.”48 The question of a particular technological device, therefore, quickly becomes a question about the ideational and institutional paradigm that produced both the given device and the effective conditions for its realization.

Theorizing technological devices as merely neutral instruments becomes increasingly difficult, for it requires conceding that they are

43 Grant, “Thinking about Technology,” 21 (emphasis mine).
45 Grant, “Thinking about Technology,” 22.
46 Grant, “Thinking about Technology,” 23.
48 Grant, “Thinking about Technology,” 27.
governed “according to standards of justice which are reached outside of the existence of the [devices] themselves.” If, however, we see how both the device and the effective conditions of its realization are inseparable, we can begin to see how the “instruments and the standards of justice are bound together, both belonging to the same destiny of modern reason.” This destiny and its standards of justice are in turn related to “modern conceptions of goodness,” wherein the good becomes “our free creating of richness and greatness of life and all that is advantageous thereto.”

Grant suggests that this conception of goodness, this “liberation of human desiring from any supposed excluding claim,” is concomitant with the “liberation in which men overcame chance by technology—the liberty to make happen what we want to make happen.” If it is not already obvious, such accounts of goodness and freedom, justice and reason, have a particular genesis and trajectory. If Grant’s assessment is allegedly descriptive, it is nonetheless clear the normative does not lag too far behind.

Grant’s attempt to lay bare “the novelness of our novelties” challenges the supposition that the technologies functioning as the backdrop of our existence are utterly anodyne.

When we represent technology to ourselves as an array of neutral instruments, invented by human beings and under human control, we are expressing a kind of common sense, but it is a common sense from within the very technology we are attempting to represent. The novelness of our novelties is being minimized. We are led to forget that modern destiny permeates our representations of the world and ourselves. The coming to be of technology has required changes in what we think is good, what we think good is, how we conceive sanity and madness, justice and injustice, rationality and irrationality, beauty and ugliness.

We accordingly tend to think about technology in terms of its own rationale. Whereas we may think we are thinking about, say, the employment of one neutral instrument (such as a mobile phone), in reality we “have bought a package deal of far more fundamental novelness than simply a set of instruments under our control… a destiny which enfolds us in its own conceptions of instrumentality, neutrality and purposiveness.”

In light of this, “deliberating in any practical situation our judgement acts rather like a mirror, which throws back the very metaphysics of the technology which we are supposed to be deliberating about in

50 Grant, “Thinking about Technology,” 30.
52 Grant, “Thinking about Technology,” 32.
detail.”⁵³ We tend to inevitably adopt a default “decision for further technological development,” which “exalts the possible above what is” and therefore compromises “our ability to think that there could be knowledge of what is in terms of which the justice of every possible action could be judged in advance of any possible future.”⁵⁴ Instead of an ethics marked by “a posse ad esse non valet consequentia,” we are left with an ethics of “when you see something that is technically sweet you go ahead and do it” and merely “argue about what to do about it only after you have had your technical success.” Thus Grant concludes: “technology is the ontology of the age.”⁵⁵ Amidst such a technological ontology, he contends, there is “a pressing need to understand our technological destiny from principles more comprehensive than its own.”⁵⁶

Grant’s account helps us to see the predicament of thinking theologically amidst a predominant technological ontology. While it is difficult for us to see our technological devices as anything other than given neutral tools that users must employ and allocate properly, Grant exposes the way in which our devices are bound up in the ideational and institutional paradigms that produce them. Our mobile phones are not just little pieces of magic wrapped in plastic and glass that arise out of nowhere.⁵⁷ Their existence is predicated on ideas and institutions—certain forms of community in relation to other communities, ways of being in relation to others—which require our attention if we are to adequately assess the possibility of progress they offer. It shows us just how convoluted our seemingly straightforward questions about technology can be, how difficult it is to think about technology with principles more comprehensive than its own. Perhaps the point is best expounded via a concrete example, returning to our question about the mobile phone. If we look more closely at the systems and structures that give rise to our mobile phones—part of the effective conditions for their realization—we can underscore the necessity of devoting our theological attention not just to the givenness of the device itself but also to the wider paradigm that produces it.

THE EFFECTIVE CONDITIONS FOR THE REALIZATION OF THE MOBILE PHONE

In his song “Ain’t No Reason,” Brett Dennen laments his own acquiescence to world in which “slavery is stitched into the fabric of [our] clothes.”⁵⁸ I want to likewise suggest that exploitation is stitched

⁵³ Grant, “Thinking about Technology,” 33.
⁵⁴ Grant, “Thinking about Technology,” 34.
⁵⁵ Grant, “Thinking about Technology,” 32.
⁵⁶ Grant, “Thinking about Technology,” 34.
⁵⁷ I am grateful to my friend, Fr. Christopher Adams, for this way of wording the matter.
into the very fabric of our phones, produced and discarded within an all-too-common complex of global capitalism. It is imperative to examine the sourcing, manufacturing, and disposal of mobile phones if we are to adequately reflect on what Brian Brock calls the “material artifact” aspect of the “technology assessment.”\(^{59}\) As Grant has shown us, a given device is never merely given but always also produced. And the effective conditions for the realization of our technological artifacts, as we shall see, are bound up in a rather complex and compromising web of social, political, and economic entanglements.

The story begins in Numbi, within the war-torn Democratic Republic of Congo (DRC), where coltan—a black, metallic ore—is mined. From this ore, tantalum (\(^{73}\)Ta) is extracted: an element critical for the production of electrolytic capacitors that store and release our phones’ electricity. Crucial as these processors are for the functions we demand of our devices, the mining of the ore on which they are predicated is lucrative business; lucrative business that, in turn, has funded and fueled one of the deadliest conflicts in the world over the last century. Numbi, in the South Kivu region of the DRC just west of Rwanda, is the epicenter of coltan mining—accounting for nearly 80% of the world’s supply. For years it has been (not coincidentally) one of the most violent regions within one of the most violent regions of the world, including the site of the bloody Ituri Conflict.\(^60\) When in the aftermath of the 1994 Rwandan Genocide, the Hutu perpetrators fled westward to the DRC, groups such as the FDLR (Forces démocratiques de libération du Rwanda) assumed control of several of the Kivu region’s most productive and profitable mines—gaining and maintaining their jurisdiction through utter brutality. But this is the story of just one region, with a similarly sad tale replicated throughout the DRC.

Zainab Hawa Bangura (special representative on sexual violence to the United Nations) notes that “in 2013, rebel groups in the Democratic Republic of the Congo generated almost $1bn from minerals extracted from mines in conflict zones,” with “civilians unlucky enough to live near deposits of conflict minerals… driven from their homes, subjected to horrific human rights abuses, and sometimes

\(^{59}\) Brian Brock, *Christian Ethics in a Technological Age* (Grand Rapids: Eerdmans, 2010), 15.

\(^{60}\) Megan Camm calls the 1999 Ituri Conflict as a “war within a war” (i.e., the Second Congo War), gruesomely “fought between consortiums of local tribal militias and proxies…. Disorganized bands, often armed only with machetes, clubs, lances, and bows and arrows descended on civilian populations, killing, raping, and burning as they went. Victims, including women and children, were often brutally mutilated.” Megan Camm, “Conflict in Congo,” *World Policy Journal* 28.4 (December 2011), 70-80.
forced into slave labour.” Armed groups that control these mines perpetuate systematic sexual violence: “Rape in this context is not the collateral damage of warfare—it is the direct result of the illicit trade in conflict minerals.” While Bangura acknowledges that “most companies are five to seven layers removed” from the “violent phase” of a mineral supply chain that is “complex,” she unequivocally emphasizes that the “link between sexual violence and conflict minerals is not: the international demand for these minerals fuels a vicious cycle of rape and war.” Because of the dual threat of armed conflict and systematic sexual violence, the DRC is considered one of the most dangerous places in the world to be a woman. Suffice to say that the extraction of coltan is at the geopolitical center of an unfathomably monstrous conflict, leaving aside issues pertaining to the environmental impact of extracting this “natural resource.”

Advocacy groups have sufficiently pressured some multinational corporations into stemming their use of conflict minerals and there have also been some legislative strides within particular nation-states—i.e., provisions in the 2010 U.S. Dodd-Frank Act. However, a recent report from the UN Group of Experts on the DRC addressed to the UN Security Council noted “while progress has been made to promote due diligence and traceability for [conflict materials]… many problems remain with respect to production and trade.” Persistent “violations of international humanitarian law” include: “recruitment and use of child soldiers, summary executions, sexual violence and the targeting of civilian populations.” Indeed, even in areas where there

have been gains made against rogue armed groups, the national defense forces charged with protecting the Congolese people (known as the Forces Armées de la République Démocratique du Congo, or FARDC) have themselves further perpetuated the domination, exploitation, and violence that has engulfed this region.67

What becomes of this coltan once mined? It, along with other conflict minerals, is sold in underground markets, processed through smelters and refiners, and shipped together with various constituent parts to assorted manufacturers across the world.68 Two-fifths of mobile phones are then assembled by the world’s largest electronics manufacturer: the Taiwan-based multinational Hon Hai Precision Industry Company, which trades as the Foxconn Technology Group. With over a million employees—nearly half of whom work in a sprawling plant in Longhua, Shenzhen—Foxconn is the largest private employer in China.69 An extensive press deluge in recent years noted numerous human rights violations: workers hired or fired on a moment’s notice, deplorable working conditions, excessive hours, insufficient vacation and leave, unrealistic production quotas, unremunerated overtime, worker exhaustion, and widespread clinical depression.

An independent investigation by the Fair Labor Association in the spring of 2012 found over fifty violations of the FLA Code and Chinese labor law, including: working hours (weekly averages exceeding legal limits, with stints of seven days or more without a minimum 24-hour break), health and safety (unreliable policies, procedures, and practices compounding generally compromised worker wellness, including exposure to harmful chemicals and a deadly explosion at one facility), worker integration and communication (reported alienation from workplace committees, management-appointed committee nominations, unresponsive top-down communication), and inadequate compensation (unpaid/unscheduled overtime, variable benefits, and required co-pay into insurance programs that did not benefit workers).70

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67 UN Security Council, “Final Report,” 3-4. The many foreign and domestic armed groups fighting within the region include: the Mouvement du 23 mars (M23), the Nduma Defense of Congo (NDC), the Forces de résistance patriotiques en Ituri (FRPI), the Lord’s Resistance Army (LRA), and the FDLR.

68 As one commentator frames matters: “The tantalum capacitors might come from Australia or the Congo. The nickel in my battery probably originated from a mine in Chile. The microprocessor chips and circuitry maybe came from North America. The plastic casing and the liquid in the LCD were manufactured from petroleum products from the Gulf, Texas, Russia or the North Sea, and moulded into shape in Taiwan.” John Agar, Constant Touch: A Global History of the Mobile Phone (Cambridge: Icon Books, 2004), 14.


Angela Bao, writing about the attraction of China’s rural poor to urban manufacturers like Foxconn, describes how the “motivation to break the cycle of poverty spurs millions of farmers to make the frantic, often desperate leap from rural to urban life.” Complicating migrant workers’ quest for self-betterment, an arcane “household registration system” known as hukou—originally devised in the 1950s to keep farmers from migrating to urban centers after the Soviet Union ended industrial support to China—“gradually evolved into what is now an invisible and all but insurmountable barrier for farmers to achieve equal rights as urban dwellers,” preventing the rural poor from establishing official residence in cities and denying access to various forms of government welfare (including education and healthcare).

The result is a “severely skewed dual structure,” not just between rich and poor but also between the urban and rural poor. Compounding matters further, the Chinese Central Government’s 1978 “Reform and Opening-Up” campaign “laid out the welcome mat for its rural poor looking to strike it rich” in urban industrial centers, though the two-tiered hukou system remained intact and severely restricted the migrants’ basic rights. At roughly the same time, “at least 40 to 50 million farmers had their arable land confiscated by the government under the guise of urban development.” Nearly a quarter of the land-deprived farmers, who had to “depend largely on planting crops and vegetables to make a living,” were now expected to survive “after being chased from the land their family has plowed and cultivated for generations.” Within two decades, China’s urban population “soared from 170 to 450 million.” Millions of the displaced rural poor sought work by any means necessary; a vast number turned to low-skill, low-wage manufacturing jobs.

The pressures placed on workers in Foxconn plants are not just physical. Acute mental and emotional burdens exacerbate the physical toll. The displaced rural poor often migrate great distances to urban centers in search of work, straining and often severing ties with their families and social networks. The rupture workers experience further aggravates the aforementioned difficulties, with a notable compound effect. In point of fact, after a string of on-site suicide attempts by

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73 Bao, “Endless Road,” 25.
74 Bao, “Endless Road,” 27.
75 Bao, “Endless Road,” 25.
Foxconn workers in 2010—resulting in the installation of safety lattices, or “suicide nets,” around the perimeter of its factories76—investigations pointed to various motivating factors including overwhelming workloads, degrading conditions, and deplorable recompense. Yet, Terry Gou (Foxconn’s founder and chairman) suggested that “personal emotional problems” were at the root of numerous suicide attempts; or as Bao suggests, the workers suffered not just on account of “the lack of external security” but perhaps especially because of “the lack of a sense of internal belonging”—a displacement, detachment, and disconnectedness that led to despondency.77 While the corporeal toll is significant, Bao maintains “the emotional cost is equally dramatic.” Such alienation, itself a symptom of the strained social ties caused by the migration in the first place, flies in the face of conventional cultural wisdom: “As Chinese Confucian philosophy has it, ‘A prosperous society is impossible without stable families as its foundation.’”78

With elements mined, parts manufactured, and devices assembled, our mobile phones are then packaged, distributed, marketed, and consumed. They serve their purpose in our employment—at least until an upgrade is available—and then we haphazardly discard them. Where do they end up? More likely than not, in a place like Agbogbloshie on the outskirts of Ghana’s capital, Accra, which is home to the world’s largest technotrash landfill. In his photobook, Permanent Error, Pieter Hugo vividly documents what he calls the “global waysides that we might know only as ‘away’, as in ‘we threw it away.’”79 In this “away,” local Ghanaians sift through technotrash in search of precious metals that can be sold to recyclers for profit. Keyboards, screens, motherboards, batteries, and wires dot a desolate landscape of entwined organic and inorganic matter. Diseased and emaciated cattle graze alongside human persons sorting through the remnants of our discarded devices. It is a place so bleak that those who call Agbogbloshie home tellingly refer to it as “Sodom and Gomorrah.”80

According to a 2013 statement from the UN Working Group on Business and Human Rights, the landfill is “populated mainly by the

77 Bao, “Endless Road,” 26. She cites, for example, the massive increase witnessed in holiday travel: “In 2009, some 192 million passengers hit the rails during the 40-day Spring Festival travel—the largest human migration in history.”
poorest in society and economic migrants.”81 The e-waste—stemming primarily from other parts of the world, especially the Americas, Europe, and Asia—customarily enters Ghana marked as second-hand goods for resale. But the shipments commonly contain inoperative and obsolete electronics misleadingly labeled in order to circumvent high recycling costs. Women, men, and children comb through the graveyard of outmoded devices with little recourse to alternative employment, their livelihood essentially dependent on a life-threatening trade. Unsurprisingly, the land is almost uninhabitable—“heavily contaminated from [the] burning and disposal of toxic waste, with harmful effects on the health of the communities.” The sentiments of one worker are illustrative:

“I came here from Tamale [in northern Ghana] five years ago…. I make between two and five cedis [approximately $1.50] each day, and each month I send 50 cedis [$15] back to my family in the north. I would like to go back home, but my family needs the money, so I stay. We get too many problems here—sometimes I have to go to the hospital. It’s not good for us.”82

Many of the workers, routinely exposed to toxic chemicals, will not live past thirty years old. In one of the most polluted cities in the world, the occupational hazards are as bad as they can get.

Yet, the destitution of workers that propelled them to the dump in the first place often keeps them there—hoping that the castoffs from the developed world keep coming. As another worker put it: “This is not a good place to live. But we don’t want the people in Europe and all those places to stop sending the waste…. This is a business centre, and we are using the money we make here to help our families to have a better life.”83 The poorest of the poor glean out of necessity (if to their detriment) the castoffs of our upgrades, in a perverse juxtaposition of superdevelopment and subsistence. As Pieter Hugo describes it, Agbobloshie is a place where the “fallen icons of our proud Information Age lie as rotting fruit, the progeny of centuries of technological advancement.”84 An away place “where the notions of progress and obsolescence collapse, where memories and information stored in countless hard drives turn into black smoke and molten plastic.”85

83 Hirsch, “Not a good place,” np.
84 Hugo, Permanent Error, 97.
85 Hugo, Permanent Error, 9.
The tagline of a onetime leader in the mobile phone industry encapsulates a central aim of our devices: “Connecting people.” By glimpsing at the sourcing, manufacturing, and disposal of our phones, we discover a twisted irony in this stated aim. We are indeed connected to others by our devices, though in ways far more profound than we generally imagine. Numbi, Shenzhen, and Agbogbloshie offer glimpses into the effective conditions for the realization of our technological products, revealing deep and disturbing disorders. Such sophisticated devices require immense institutions for their realization, institutions that in turn promote certain forms of community while prohibiting others. To the extent that we consume, employ, and discard the devices on offer, we participate in particular ways of relating to those whose lives are—whether or not we realize it—closely linked with ours. The average consumer may be “seven layers removed,” but the exploitation is no less real. Blind or desensitized to such exploitation, we mistakenly assume that violence is the exception rather than the rule. The unsettling underbelly of the supposedly neutral device forces us to face and rethink the assumptions about the neutrality of our devices, which offer a promise of progress to possessors with no strings attached. By glancing at the disordered formation and afterlife of our devices, we can begin to see how we—the producers and possessors of mobile phones—are inextricably ensnared in a matrix of exploitation. The devices we unquestioningly employ implicate us within a web of relations in ways we never imagined or intended. Their neutrality is anything but neutral, their givenness anything but a given. Whatever they do, they certainly impose.

It is important to bear in mind, though, that the effective conditions for the realization of our devices are not merely material and institutional but also ideational and spiritual. Our technological objects and their requisite institutions are coproduced according to the same account of reason and being, a story we are told and sold. That which makes possible the existence of our devices includes more than miners, manufacturers, and gleaners—essential as they are as inessential cogs of commerce. It includes postulations about the world as it is and ought to be. The evermore-ubiquitous mobile phone assumes and extends a co-penetrated conception of making and knowing, constantly updated and upgraded in a way that exalts the possible over what is under the guise of progress. So constitutive of our present existence—

86 Nokia, a Finland-based multinational, was once the world’s leading vendor of mobile phones and developed one of the world’s first handheld devices in the Mobria Cityman 900. Microsoft acquired Nokia’s Devices & Services division in April 2014, ending Nokia’s direct involvement in the device sector.
an exemplary mundane artifact “related to the everyday in its micro-
social guise as a process of taken-for-granted ordering”\textsuperscript{88}—the mobile
phone is anything but an innocuous tool for us to employ and allocate
well. It is part of the modern story about what it is to know or make or
be, laying claim to conceptions of the good and the better. It is a-par-
digmatic example of our technological ontology.

Situating our technological devices against the backdrop of the ef-
effective conditions for their realization exposes the complexity of
thinking Christianly about technology. Without that backdrop, it is dif-
ficult if not impossible to even see a given device for what it is. Our
very way of knowing and making and being is mediated and consti-
tuted by technology—ever increasingly so, perhaps inescapably so. As
the late Walter J. Ong puts it, technology is “a phenomenon far more
complex” than we generally assume, “more operative within us than
outside us,” living “deep within us in the very concepts it enables us
to form.”\textsuperscript{89} So fundamental to our way of being, he cautions that it is
“too easy to impute to technology all of the threats and evils in the
world” just as it is “too easy to look at technology for all of the bless-
ings available to mankind.”\textsuperscript{90} To “localize evil in one phenomenon or
movement or even one ideology,” he warns, “is to blind oneself to
what evil is—and to what good is.” He accordingly calls our attention
to a concept of the good that is “Catholic,” which “in the strict sense…
does not mean ‘universal’ (‘inclusive,’ a bounding concept) but, in its
exact Greek etymology, ‘through-the-whole’ (a totally positive, non-
bounding concept),” a good that “must penetrate all.” To where might
we turn for such a conception?

\textbf{INTEGRAL HUMAN DEVELOPMENT: PROGRESS IN THE SCOPE OF THINGS}

Notably absent from the earlier overview of magisterial teaching
on technology was any mention of Pope Benedict XVI’s contribution,
intentionally left to the last as it is his analysis of technology that ties
the foregoing together. Benedict XVI engages the question of technol-
ogy more frequently and systematically than perhaps any previous
pope, drawing on the abovementioned magisterial tradition to further
advance the concept of integral human development.\textsuperscript{91}

Its relevance is multifarious, but it is especially illumining in two
primary respects. First and foremost, it insists on a grammar—and
therefore an ontology—that is not in the final analysis technological

\textsuperscript{88} Michael, \textit{Technoscience}, 37.
\textsuperscript{89} Walter J. Ong, “Technology Outside Us and Inside Us,” \textit{Communio} 5.2 (Summer 1978), 100-121.
\textsuperscript{90} Ong, “Technology,” 121.
\textsuperscript{91} For an excellent overview and analysis of \textit{Caritas in Veritate}, see: Miguel J. Romero, “Liberation, Development, and Human Advancement: Catholic Social Doc-
but theological. Second and following from this, it insists on a theological grammar of love (caritas) and grace (cháris) “received and given” as the beating heart of the Church’s social teaching, whose “source is the wellspring of the Father’s love for the Son, in the Holy Spirit” and whose principle (caritas in veritate, “love in truth”) “takes on practical form.”\(^92\) This twofold insistence sums up and ties together all that I have been gesturing towards in this essay, for Benedict XVI’s reassertion a theological grammar helps set the possibility of technological progress within the framework of “integraque progressio libertatem”—necessarily entailing an integral conception of the liberation, advancement, and betterment on offer.\(^93\) It is, therefore, derivative upon a vision wherein persons as “objects of God’s love” become “subjects of charity,” called to “make themselves instruments of grace, so as to pour forth God’s charity and to weave networks of charity” throughout the world.\(^94\)

The practical form of charity-in-truth includes justice, even if “charity goes beyond justice, because to love is to give, to offer what is ‘mine’ to the other; but it never lacks justice, which prompts us to give the other what is ‘his,’ what is due to him by reason of his being or his acting. I cannot ‘give’ what is mine to the other, without first giving him what pertains to him in justice.”\(^95\) Thus, “charity demands justice” if it also “transcends” and “completes” it in “the logic of giving and forgiving” characterized by “relationships of gratuitousness, mercy, and communion.” Furthermore, “to desire the common good and strive towards it is a requirement of justice and charity.”\(^96\) The demands of justice and charity therefore explicitly require devotion of our attention and efforts towards addressing and alleviating those structures of social sin that prevent right relationship, the common good, and human flourishing. For, “to love someone is to desire that person’s good and to take effective steps to secure it.” On a personal level, that might also entail “an effective shift in mentality” away from “hedonism and consumerism” and towards “the adoption of new lifestyles” which take into account our being in relation to one another and the whole of creation.\(^97\)


\(^{93}\) *Caritas in veritate*, no. 17 (Latin Version).

\(^{94}\) *Caritas in veritate*, no. 5.

\(^{95}\) *Caritas in veritate*, no. 6 (emphasis in original).

\(^{96}\) *Caritas in veritate*, no. 7 (emphasis in original).

\(^{97}\) *Caritas in veritate*, no. 51. Benedict XVI adds: “Every violation of solidarity and civic friendship harms the environment, just as environmental deterioration in turn upsets relations in society.”
Yet, Benedict XVI insists “charity without truth would be more or less interchangeable with a pool of good sentiments.”98 In such a world, “there would no longer be any real place for God” and charity would be “confined to a narrow field devoid of relations... excluded from the plans and processes of promoting human development of universal range, in dialogue between knowledge and praxis.” Such a charity cannot realize its full potential, including attending to the effects of sin. To be sure, “the Church’s wisdom has always pointed to the presence of original sin in social conditions and in the structure of society;” however, the “conviction that man is self-sufficient and can successfully eliminate the evil present in history by his own action alone has led him to confuse happiness and salvation with immanent forms of material prosperity and social action.”99 Such self-reliance is “thereby deprived of Christian hope, deprived of a powerful social resource at the service of integral human development.”100 As hope is “already present in” and “called forth by faith” marked by love, charity-in-truth “feeds on hope and, at the same time, manifests it” as an “absolutely gratuitous gift of God” that “bursts into our lives as something not due to us, something that transcends every law of justice.” It is all and only gift. And as a gift, “by its nature goes beyond merit, its rule is that of superabundance.”

Such an emphasis on the primacy and finality of God and God’s manifest charity-in-truth, mediated by the Church and known in and through a “charity, illumined by the light of reason and faith,” makes possible the pursuit of “development goals that possess a more humane and humanizing value.”101 What Benedict XVI calls an “authentic development” requires “the sharing of goods and resources,” including our technological goods and the resources they help us cultivate, but it is “not guaranteed by merely technical progress and relationships of utility, but by the potential of love that overcomes evil with good, opening up the path towards reciprocity of consciences and liberties.” Therefore, progress-as-progressio (in the sense of integraque progressio libertatem) enfolds into one the concepts of progress, advancement, and development within the framework of integral human freedom and liberation. The authentic freedom and liberation on offer, to which we bear witness through charity-in-truth, is not one that we can or will achieve by relying on technology alone. It is always and only given and received in Christ. In other words, technology has never and will never advance the human person beyond her material condition. It will not attain for her that which she seeks in her transcendent pursuits. Technology may well facilitate the human

98 Caritas in veritate, no. 4.
99 Caritas in veritate, no. 34.
100 Emphasis in original. Benedict XVI is here citing Spe salvi (2007), no. 17.
101 Caritas in veritate, no. 3 (emphasis in original).
search for that which is good, beautiful, and true; but the full realization thereof is ultimately discovered only by divine self-disclosure, a gift to be received and shared not an emolument to be achieved and hoarded.

Herein lies the threat of technology: human advancement, progress, and development “goes awry if humanity thinks it can re-create itself through the ‘wonders’ of technology” in and of itself. When technology assumes “supremacy” in the human imagination, it “tends to prevent people from recognizing anything that cannot be explained in terms of matter alone.” According to Benedict XVI, however,

all our knowledge, even the most simple, is always a minor miracle, since it can never be fully explained by the material instruments that we apply to it. In every truth there is something more than we would have expected, in the love that we receive there is always an element that surprises us. We should never cease to marvel at these things.

Benedict XVI acknowledges “technology is highly attractive because it draws us out of our physical limitations and broadens our horizon.” Yet, in order to see rightly, to see most fully, “requires new eyes and a new heart, capable of rising above a materialistic vision of human events, capable of glimpsing in development the ‘beyond’ that technology cannot give.”

This does not diminish the legitimate goods that technology offers. Benedict XVI, with his predecessors, praises technology properly understood and used. Technology is (as the pope emphasizes) “a profoundly human reality” and is “linked to the autonomy and freedom of man.” In and through it “we express and confirm the hegemony of the spirit over matter,” allowing the human spirit to be more easily enraptured in “worship and contemplation of the Creator.” It “enables us to exercise dominion over matter, to reduce risks, to save labour, to improve our conditions of life,” and “touches the heart of the vocation of human labour” for in technology (“seen as the product of his genius”) “man recognizes himself and forges his own humanity.” It “is a response to God’s command to till and to keep the land.” Yet, “technology is never merely technology” for “it reveals man and his aspirations towards development, it expresses the inner tension that impels him gradually to overcome material limitations.”

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102 Caritas in veritate, no. 68.
103 Caritas in veritate, no. 77.
104 Caritas in veritate, no. 77 (emphasis mine).
105 Caritas in veritate, no. 70.
106 Caritas in veritate, no. 77 (emphasis in original).
107 Caritas in veritate, no. 69.
108 Benedict XVI is here citing Paul VI, Populorum progressio, no. 41. Compare Vatican II, Gaudium et spes, no. 57.
Benedict XVI’s account, therefore, addresses what Brian Brock identifies as the problem with the standard technology assessment—serving as “a classic example of secular rationality in that it has no methodological place for divine action or for substantive moral or ontological claims” and thereby “assumes the practical irrelevance of God’s past and present working.” In such accounts, “humanity shoulders the responsibility of finding a way forward amidst a chaotic context from which a future must be secured” and thus “moral being and moral deliberation assume a specific and describable shape in which the power of technology plays a central role in framing human aspirations.” As David L. Schindler similarly suggests, we are problematically locked in an assumptive technological ontology that “abstracts from the logic of love proper to created being, and in so doing assumes a version of power that can only become in the end a caricature of the power of God, a power not of love but of a technical manipulation tending ultimately toward tyranny.” This ontology is thus essentially “semi-Pelagian” in that, “however unintentionally, [it] assigns to man the wrong sense of priority in actualizing his relation to God that most properly characterizes his meaning as a creature, and thereby assigns to man the wrong sense also of what it means to be a creature and to act in and by himself and hence in a legitimately autonomous way (iusta autonomía).”

In short, Benedict XVI’s reassertion of integral human development demands a wide frame of reference to measure the promise of technological progress. To assess whether a given technology might make good on its promise requires that we take into account the fullness of what it is to know, make, and be. For Benedict XVI, questions about goodness or betterment cannot be asked in abstraction from the transcendental unity of the good, the beautiful, and the true in all created being—which in turn requires reference to the Uncreated Being, the one true God. We cannot expect to answer the questions posed by technology if we assume the practical irrelevance of God, with attendant moral and ontological claims excluded. Benedict XVI seeks to turn the predominant logic of technology on its head, insisting on the absolute relevance of transcendent truths to our most immanent

109 Brock, Christian Ethics, 23.
111 Schindler, “America’s Technological Ontology,” 244-5. Schindler suggests this semi-Pelagianism, or “ontological pelagianism,” is marked by “voluntaristic freedom, instrumentalist intelligence, and positivistic religion or religiosity” (245). While he suggests that the human action in and through technology is not a “theological pelagianism that signifies a heresy in the formal sense,” a Pelagian specter nevertheless “lies at the root… as its ontological infrastructure” (246).
questions. This includes an insistence on the right relationships between creatures and other creatures, creation, and their Creator—relations marked by justice, charity, and love. It includes the recognition of limits that allow our tools to do what they are meant to do without being compromised by attempting to achieve what they cannot. It includes an insistence on the ultimacy of the ultimate, the “subsistent Love and Truth.” Only an integral progress-as-progressio can conclusively achieve what we humans universally long for: not just palliation but salvation.

CONCLUSION:
HOW NOT TO BECOME A MONSTROUS MASTERPIECE

So can an upgrade to our phones occasion an upgrade to ourselves? It is a seemingly straightforward if deceptively difficult question. An adequate answer requires we first acknowledge the tangible and genuine goods that technological devices, born of human ingenuity, can and do offer. Arising out of and further facilitating the human vocation, they enable otherwise inconceivable feats, promote human flourishing, and offer advanced abilities to their possessors. The mundane, ubiquitous mobile phone serves an exemplary case in point—a device that facilitates connectivity, communication, organization, navigation, and so on. Such dexterities are definite goods that, with successive upgrades, offer consistent improvements to our way of doing things. Whether the device might offer an upgrade to oneself, however, is a question that becomes complicated by the effective conditions for the realization of our devices. The phone, part of a presumptive paradigm that is both ideational and institutional, can no longer be seen as a merely neutral tool with beneficent potential. Even just glimpsing at the institutional requirement for its realization, which promotes certain forms of relating while prohibiting others, exposes deep disorders. The violence of the ordinary unsettles assumptions about the supposedly unadulterated goods of our innocuous devices. Couched in the evils inherent to structures of social sin, the requirements of right relationship and the common good are seriously compromised with the offered advancement derivative upon the use and abuse of others. Such disconcerting realities call for a more careful consideration of the promised progress.

The concept of integral human development offers a frame of reference attuned to the often-unacknowledged entanglements of our ostensibly inoffensive implements. Positing a wider frame of reference, the notion of integral human development offers not so much a direct answer to specific questions about particular devices but the possibility of seeing them for what they are. By seeing our devices for what

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112 Caritas in veritate, no. 52.
they are, we can begin to think Christianly about technology’s inexorable presence in us and us in it. We can call certain ways of knowing and making to account, naming and resisting the violent and nihilistic ontology on which predominant paradigms trade. We can reassert a grammar of creation, gift, and grace that can help us to see our tools and ourselves rightly. Seeing our tools and ourselves in an integral light, we can attend both to the inherent relationality of the human person and the tendency of all created goods, manufactured products, and private possessions towards the commons—acknowledging that our good and our goods are inescapably bound up with the good of the other. We must therefore attend to the malformations inherent in the ordinary as a precondition to entertaining the prospects of technological self-betterment, a muddle which more technology or better allocation cannot itself solve. If we can better see matters as they are, we might be able to resist the ease with which our tools—developed out of the human vocation to till the ground and keep it—become a means whereby we rise up against our brothers and sisters.113

The wider frame of the integral necessitates attention to the effective conditions for the realization of our devices, exposing the exploitive nature of our transactional and contractual relationships. This, in turn, complicates claims to personal self-betterment insofar as we realize our good is always bound up with the good of other creatures and all creation. Technology, in this regard, has not, cannot, and will not fulfill its promise of progress on a grand scale. The particular goods it does offer must be set within the continuum of all that is needed for human development—progressing from less to more fully human conditions, advancing the whole person and all persons. Technology can and does make us better at doing certain things, helping us achieve and attain legitimate ends, but it cannot and will not make us better in an ultimate sense. For our definitive betterment we must look beyond technology, even beyond addressing structures of social sin, to an amelioration we cannot ourselves attain. Indeed, the frame of integral human development enables us to see that our progress is not finally about immanent forms of material flourishing, nor even the reestablishment of right relationship (between human beings and between the rest of the created order), but about the reconciliation of the

113 If it is not obvious, I am alluding here to the story of Cain and Abel. Cain’s name is presumably derived from the verb Hebrew qanah. While likely alluding to the fact that he is the first progeny of Adam and Eve (“I have produced a man with the help of the LORD,” Gen 4.1), it is also possible that he is one who not only is produced but also produces (“a tiller of the ground,” Gen 4.2). While the text itself makes no mention of Cain’s tools being used as the weapon in his murder, midrashic and artistic interpretations to this effect abound. See, for instance, Lorenzo Ghiberti’s “Cain and Abel” panel on the Gates of Paradise, Florence Baptistery, 1425-1452 (Gwynne Ann Dilbeck, “Opening the Gates of Paradise: Function and the Iconographical Program of Ghiberti’s Bronze Door,” doctoral thesis, University of Iowa, 2011).
human heart with God—a gift we always only receive, which no amount of nanotech augmentation can engineer.

An insistence on the empyrean aspect of the integral does not diminish the possibility of progress (technological or otherwise) in the mundane, it merely puts it into perspective. It allows us to step back from the claims of our devices, to see them in context. To do so makes it possible to see our devices for what they are, to see ourselves for who we are, with respect to the ultimate reference point: being in relation to God. This does not detract from the possibility of improving the human conditions in the here and now. Quite the contrary, seeing ourselves in relation to God and God’s creation necessitates a disposition of gratuitous self-giving and participation in the betterment of self and neighbor. As Meghan J. Clark puts it, “the human person as an isolated, unsituated ‘self,’ truly detached from society, is an illusion.”\textsuperscript{114} Positing “\textit{imago dei as imago trinitas},” Clark insists on “mutuality and reciprocity as integral to human dignity.”\textsuperscript{115} Accordingly, the human person “has a profound obligation to belong,”\textsuperscript{116} an obligation that transcends a mere recognition of inherent relationality and compels our active involvement in the world, realized in the “virtue of solidarity” that entails “not only political or social conditions but also commitment to the personal flourishing” of one’s neighbor according to “the universal common good.”\textsuperscript{117} To fail in this regard, to participate in the “oppression, scapegoating, and dehumanization,” means that we are “sacrificing our own ability, individually and collectively, to more fully and faithfully image God, and, therefore, we stunt our ability to develop and live more fully human lives.”\textsuperscript{118}

To the extent that technology can facilitate the improvement of our human conditions, it can be an apt artifact possessed and employed to a variety of bettering ends; but to the extent it threatens the impoverishment of our being in relation to God and others, to all of God’s creation, it must be refused and resisted. Too readily can technology offer as an illusory mirage of transcendence as an escape from our own humanity. Too easily can we lose sight of ourselves as creatures standing before the God who is all justice, truth, and love. Too quickly can we become monsters. If we are to become something other than monstrous masterpieces amidst a technological ascendancy, we will need to recognize the limits of our devices and ourselves—to see our technology for what it is, to see ourselves for who we are. We must identify and resist the structures of social sin, the violence of the ordinary, which serves as the facilitative backdrop of our given technological

\textsuperscript{114} Meghan J. Clark, \textit{The Vision of Catholic Social Thought: The Virtue of Solidarity and the Praxis of Human Rights} (Minneapolis: Fortress Press, 2014), 69.

\textsuperscript{115} Clark, \textit{The Vision of Catholic Social Thought}, 66.

\textsuperscript{116} Clark, \textit{The Vision of Catholic Social Thought}, 69.

\textsuperscript{117} Clark, \textit{The Vision of Catholic Social Thought}, 110.

\textsuperscript{118} Clark, \textit{The Vision of Catholic Social Thought}, 72.
goods. And to do so, we may well need to cultivate an *askesis* with respect to the innumerable tools and toys at our disposal, a voluntary poverty that resists the unbounded exaltation of the possible.

If we are not able to fully escape technology, then perhaps our only option will be to ask not whether but how we use it—what disciplines and practices are necessary to produce people capable of using technology well. An ethics understood as a *technē* of ethos based on reason alone, a rational calculus adjudicating maximized benefit and minimized risk, is inadequate to address the momentousness of that task. We must attend to our technological destiny from principles more comprehensive than its own. Perhaps the place to begin will be to follow in the footsteps of Mary, “first among the disciples of Jesus Christ.”

Mary, as one “totally dependent upon God and completely directed towards him by the impetus of her faith,” serves as “the most perfect image of freedom and of the liberation of humanity and of the universe” and it is her *fiat* (“let it be done”) that is always the first step towards “the plan of God’s love.” In looking to Mary, and most especially to her grace- and faith-filled *fiat*, we find a reckless willingness to offer up oneself in complete dependence—putting all one’s goods and one’s very being to the service of making tangible God’s love. Such humble acquiescence to and bold participation in the will of God is arguably what we need most amidst a technological ontology. The *fiat* of Mary will not be the answer to every particular question about every particular technology, but it is an answer. It is not the resolution to our manifold problems, but it is a start.

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