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God and Gadgets: Following Jesus in a Technological Age

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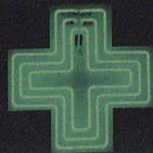
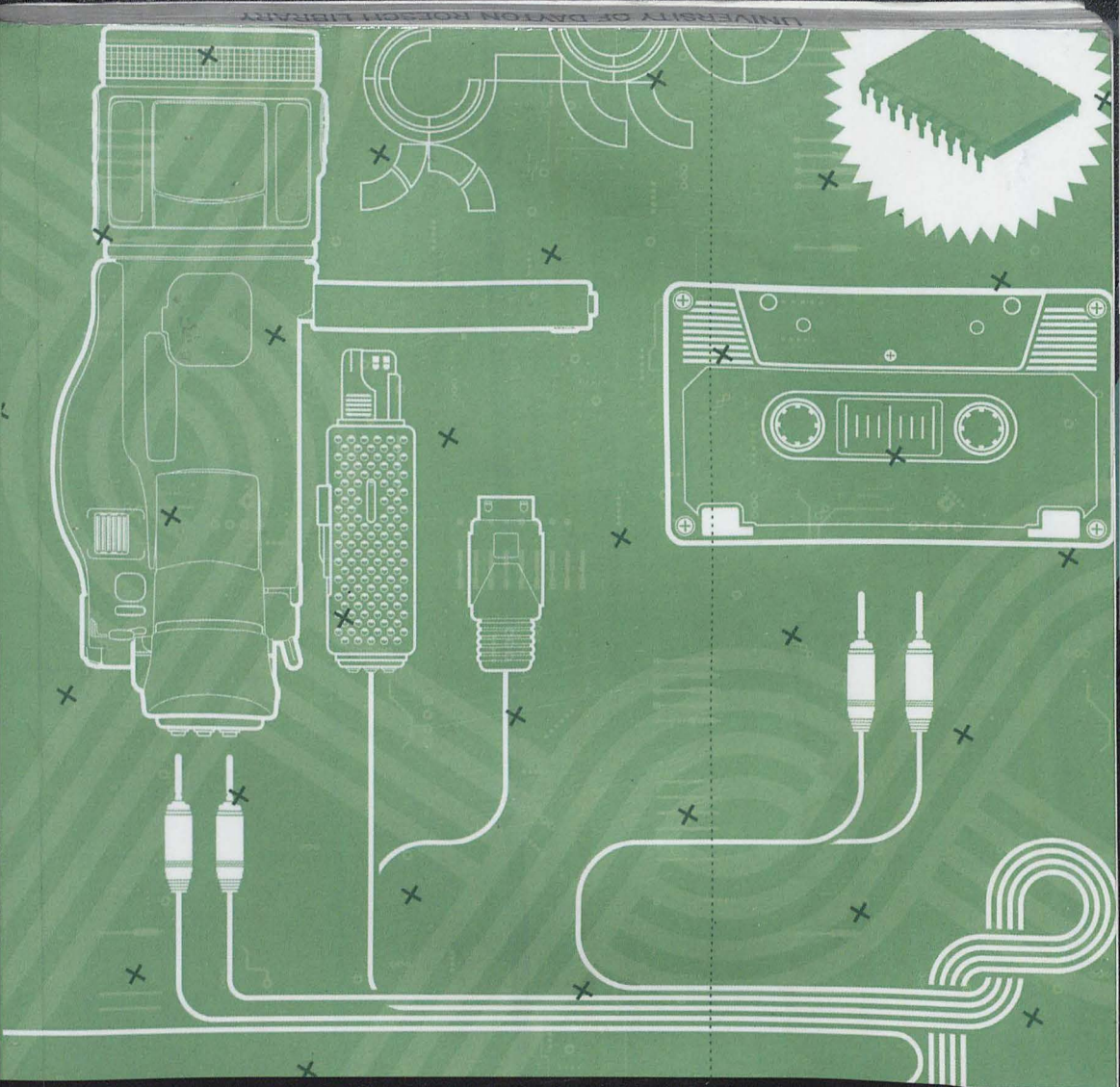


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GOD AND GADGETS

Following **Jesus** in a Technological Age

BRAD J. KALLENBERG

Foreword by Nancey C. Murphy

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Chapter 3 tackles the question of the role technology might play in the fulfilling of Jesus' Great Commission (Matt 28:18–20) by looking carefully at biblical texts concerning evangelism, evangelization, and witness. This chapter is a revision of a presentation I made at the Evangelism Roundtable, *Issues of Truth and Power: The Gospel in a Post-Christian Culture*, convened by the Billy Graham Center in 2004 at Wheaton College.

Chapter 4 began as an address given to the Region-at-Large division of the National Association of Baptist Professors of Religion in June of 2009 (Chicago). It argues that the practice of Christianity and Christian theology follows "the logic of gift" rather than the logic of tools.

A portion of chapter 5 originated as "Weight-bearing Crosses and Trusses: Christian Ethics and Engineering," my portion of the presentation series, *Contested Allegiances: Christianity in an Era of Permanent War*, at DePaul University (Chicago) in 2003. The chapter undertakes a decidedly positive turn with respect to technology by thinking about whether and to what extent technology might participate in redemption.

Chapter 6 was also part of the Staley Lectures given in 2005. In it I consider what positive lessons sincere Christians might gain from understanding the nature of the practices on which technology depends, particularly the practice of engineering.

I am very grateful to Cedarville University, the Billy Graham Center, Mike Budde of DePaul University, and the Region-at-Large of the NABPR for providing the concrete occasions (not to mention deadlines) for thinking through this material. But my deepest thanks are reserved for the many colleagues and friends without whose conversations my thinking would be much less clear: Andy Black, Michael Cox, Curtis Freeman, Tim Furry, David Gushee, Derek Hatch, Aaron James, Kelly Johnson, Rod Kennedy, M. Therese Lysaught, Damon Martin, Tim Meador, Jeff Morrow, Bill Portier, Ethan Smith, Terry Tilley, Sue and Bill Trollinger, Nikki Tousley, Ed Wingham, and Telford Work.

Above all, I am grateful to my wife, Jeanne, without whose holy encouragement and patient understanding—especially during those meals when my mind was miles away!—these chapters would have never been completed!

Bewitched by Technopoly

CONSIDER THE PRAYER FOR morning from the 1790 version of the Book of Common Prayer. The words are very good. But there is a surprise, so watch for it.

Almighty and everlasting God, in whom we live and move and have our being; we, Thy needy creatures, render Thee our humble praises, for Thy preservation of us from the beginning of our lives to this day, and especially for having delivered us from the dangers of the past night. For these Thy mercies we bless and magnify Thy glorious Name, humbly beseeching Thee to accept this our morning sacrifice of praise and thanksgiving, for His sake who lay down in the grave and rose again for us, Thy Son our Savior, Jesus Christ. Amen. (577)

I happen to own a copy of this prayer book. It looks as old as it is. The spine is broken and the cover would fall off, were it not for the miracle of duct tape! I bought it in a used bookstore for a dime! The elderly woman who ran the shop raised her eyebrows when she saw the price, because she knew the book's real worth.

The Book of Common Prayer is not a collection of lofty niceties. The Book of Common Prayer is a resource for people who take seriously the Psalmist's cry "seven times a day I praise Thee" (Ps 119:164). The prayer I just cited is a family prayer—one intended to be used by parents each morning in the crucial task of training children to pray and to speak well the language we call "Christian." Moses spoke of this, did he not; instructing Hebrew parents to teach their children the Word while out for a walk, when they are sitting around, as they fall asleep and—as in our case—when they rise up in the morning (Deut 6:4–9).

But the prayer sounds odd, doesn't it? Its not just the "Thees" and "thous" that betray the eighteenth-century English. It is rather the sur-

prising gratitude in their voices: "... especially for having delivered us from the dangers of the past night." Most of us hit the sheets wearily, tucked out from the day's activities. But, how many of us climb into bed *warily*, with a sense of dread, because of the dangers that lurk in the darkness? How many of us climb out of bed the next morning with a sigh of relief: "Whew! *That* was close! I could have died during the night."

Look again: "... especially for having delivered us from the dangers of the past night." This phrase sounds childish even, as if the pray-er is still afraid of the dark. What's going on here? Was the Christianity of our great-grandparents so different from ours? They prayed to the same Lord of the Universe as we. So, what gives?

I have a hunch—but you're probably not going to like it. The single most important difference between their lives and ours, between their prayers and ours, between their Christianity and ours, lies in the fact that we have electric lights. The Book of Common Prayer eventually dropped the line about the dangers of nighttime.

Think about it. By the time this eighteenth-century prayer was penned, clocks had achieved an astonishing accuracy of 1/5 second per day.¹ But there were only so many hours in a day, and that number was fixed around twelve, give or take, according to season and latitude. Once the sun set and darkness descended, human activities shifted. Fine detail work was curtailed by the dimness of firelight or the glow of a kerosene lantern. By our modern standards of productivity, the hours of evening and nighttime were virtually a total loss.²

However, God created us to live by *reciprocal* rhythms. In the words of Genesis 8: "As long as the earth endures, seed time and harvest, cold and heat, summer and winter, day and night shall not cease" (Gen 8:22). The hours between dusk and daybreak were crucial to human flourishing. All creation takes a breath and lets out a collective sigh. Only when the detail work is set aside, is there time for conversation, for storytelling, for contemplation, for prayer, for tenderness and lovemaking, for sleep; even for dreams. "It is in vain," writes the Psalmist, "to rise up early,

1. Staudenmaier, "Denying the Holy Dark," 185. My account, maybe even my style of writing, is indebted to John Staudenmaier, whose friendship is very important to me.

2. Even mechanized labor was shut down as light fails, for machines became doubly dangerous to human operators when dark descended.

to retire late, to eat the bread of painful labors; for the LORD gives to his beloved—sleep!” (Ps 127:2 NASB).

Not only was nighttime built into the created order, darkness has forever been a metaphor for limits of human understanding. Thus the mind of God is “dark” to us because it is mystery. Moreover, “dark” also may indicate those forces that provide the resistance necessary for building spiritual muscles. Only the soul that has faithfully endured its “dark night” firmly trusting the Savior makes real progress toward deeper communion with God.³ For this reason we ought not lump all “darknesses” together and vilify each as evil. For if each “dark” is unequivocally bad, then we may be tempted to brand any means by which dark can be vanquished as unequivocally on the side of good.

Are electric lights unequivocally good? What if the “dark” they chase away is broader than the dark of night? In 1910 Fillipo Tommaso Marinetti proclaimed to the very religious town of Venice: “It is time for electric lamps with a thousand points of light to brutally cut and tear your mysterious, enchanting and seductive shadows.”⁴ Evidently Marinetti expected technological change to drive away the “holy dark” as well as the darkness that our body needs for quality sleep.

Twelve hours of daylight? Not any more! Since Edison’s first successful test in 1879 and the first standardized electrical system in 1882, *twenty-four* hours of daylight has become normative. High quality, artificial light means that every form of detail work imaginable—measuring, reading, planning, traveling, manufacturing, road repair—all proceed in unending fashion. As the Starbucks billboard along the interstate proclaims, “Open 24 hours—Plan accordingly!”

My grandfather was born into the earlier, simpler age. His son, my own father, now 87, belonged to the last generation who not only understood how every technology they encountered actually worked, they also knew how to repair virtually everything they owned. Such knowledge gave my father’s generation a measure of power over their surroundings. However, things have changed for the ordinary citizen. Today’s world has been dubbed “technopoly.”⁵ Technopoly is like a monopoly, except

3. The term “dark night of the soul” is widely misunderstood. Curious readers are urged to study the sixteenth-century original in order to mine the gems there. Saint John of the Cross, *Ascent of Mount Carmel*.

4. Cited in Staudenmaier, “Denying the Holy Dark,” 175.

5. See Postman, *Technopoly*.

instead of a single individual exercising complete control over an industry, commodity or infrastructure, technology itself exercises the control. And just as ordinary folk like L'il Orphan Annie of the 1930s were once at the mercy of rich power-mongers like Daddy Warbucks, in our own age, ordinary folk knuckle under to an entire technological system.

So, the greatest difference between our Christianity and that of our great-grandparents may be a *technological* one. Am I saying that all technology is bad? Of course not. But I am saying that technology is as ubiquitous as it is incomprehensible—it is everywhere and we understand less and less of it! And for that reason it is invisible. And here's my point today: technology is shaping our discipleship in ways we do not easily recognize. We are under its spell, and we barely notice our bewitchment. To help us better see that which is invisible, let me describe some historical context for understanding a revolution in technology called "standardization."

THE STORY OF STANDARDIZATION

There are a number of ways scholars of culture explain how we got to where we are today. Sometimes a string of events—wars fought or avoided, economic boon or collapse, elections won or lost—are depicted as links in a chain that produce today. Other times credit is given to important books or movements that generate revolutionary ideas. The office cubicle, for instance, is generally conceded to be the result of Frederick Winslow Taylor's book, *The Principles of Scientific Management*, published in 1911. But what is sometimes overlooked is the role that change in the technology sector plays in altering society. Even a common cultural descriptor like the word "tolerance" has technological undertones. In fields of engineering, "tolerance" indicates the range within a measured part that is acceptable ("Three plus or minus 0.001 inches"). Outside these specifications or "specs" the part is entirely rejected. (Ones that are 2.998 inches are thrown out; ones that might be 3.002 are re-machined and measured again.) Surely this is how tolerance functions in society too. Not every person or every idea is really acceptable. We are a people who are tolerant within limits, although no one wants to specify precisely what the specs are.

It is difficult to pinpoint when the winds of change first began to blow.⁶ But for our purposes, the real action began long before Taylor's book, ninety-six years earlier, around 1815. Historians tell us that the battles and skirmishes on either side of 1812 (from about 1806 to 1815) were but a continuation of the Revolutionary War. The real action happened not on the battlefield but at the treaty table, at which the British finally relinquished the military outposts they held on American soil. These concessions were the byproduct of a shift in British foreign policy; they more or less decided to move on and turn their attention elsewhere. That is to say, despite Jackson's impressive victory at the Battle of New Orleans, the American colonies "lucked out," especially considering the relative disarray of the U.S. military at the time.⁷

Pointing to insufficient supplies, tactical errors, and faulty arms, leading voices in the U.S. military expressed loud concerns over the sloppy state of U.S. forces.⁸ In order to address these problems, in 1815 Congress passed an Act that empowered the chief of the U.S. Army Department of Ordnance "to draw up a system of regulations for the *uniformity* of manufactures of all arms ordnance, ordnance stores, implements, and apparatus. . . ."⁹ Thus "a system of uniformity and regularity" became the oft-repeated catch phrase of industrial revolution in the military sector.

The uniformity principle demanded sweeping changes not only in the military, but also for those engineering and manufacturing firms whose services were contracted by the military. For example, prior to 1815, weapons—such as the percussion musket—were assembled by skilled craftsmen who filed, shaped, and fine-tuned each part to mesh with a given set of parts to form a complex working whole—the rifle. These parts were never interchangeable between muskets. Each broken

6. The shift may have its origin in the invention of the clock. In its original form, clocks were simple tools, adopted by clergy for more easily dividing the day into divine hours. School children still sing of poor Frère Jacques who is in danger of sleeping past the moment he is expected to ring the bells announcing the predawn prayer service. The early clocks that would have kept Frère Jacques on track were crude devices that displayed only the hourly hand, because they were not very accurate. Staudenmaier, "Denying the Holy Dark," 185. In 1370 King Charles V mandated that all Parisians "regulate their private, commercial and industrial life by the bells of the Royal Palace clock." Postman, *Technology*, 27.

7. I am grateful to my friend, historian Bill Trollering, for keeping me straight on the history of this period.

8. Smith, "Army Ordnance and the 'American System,'" 43.

9. *Ibid.*, 44; emphasis mine.

musket was unique and could only be repaired by a skilled craftsman. The only way to certify the reliability of the repaired musket was an actual "proof-firing." In other words, it would be the gunsmith, rather than the soldier, that got blown up by a faulty weapon. Dangerous business indeed!

The fifteen years it took to complete standardization of weapon production required an enormous expenditure of coercive force to achieve the necessary degree of cooperation and communication. And in the end, the transformation of the practice was striking. Originally, a skilled craftsman had an entire tool shop at his disposal (and surely before 1815, it was always a "his") for handcrafting each musket as a unique, complex system. But after the changes of 1815, craftsmen were replaced by unskilled assemblers requiring at most six hand tools. The thing that made the craftsmen obsolete was the invention of hardened steel gauges, sixty-three in all, that were applied *not* to the device as a whole but used to create each individual part to spec *in isolation* from the gun as a whole.¹⁰

It took another dozen years (1841) before the private sector serving the military completed standardization and produced the nation's first fully-interchangeable firearms. But this success came at a price: the private sector had to reproduce the militaristic manner that typified production at the governmental armories, namely, *regulation*, *inspection*, and *compulsion*. Workers who might have labored for sheer love of the craft chafed against the demands for uniformity. Objectors were first chastised, then fired and blacklisted. But in the end, uniformity was achieved. Merritt Roe Smith reports,

The accuracy of these methods received an unexpected test in 1852 when, as a result of a flood at Harper's Ferry [manufacturing firm], 9000 percussion muskets with unmarked parts were stripped, cleaned, and randomly reassembled "with every limb filling its appropriate place with perfect exactness."¹¹

And we all mutter, "Of course! That's how it *should* be." But whence the "should"?

The trained eye can see that more was being engineered than musket parts. Managers coerced workers away from former customs and habits

10. Ibid., 60-62.

11. Ibid., 64.

(ironically on the grounds that such managerial force was required by *Christian love*!¹²). In this respect, the uniformity principle, which first described the new way workers viewed the *material* stuff of engineering, began also to infect the way *human workers* themselves were viewed. To say the same thing differently, managers and inspectors became to their employees what gauges were to mechanical parts.

There were two consequences stemming from the application of standardization to workers themselves. In the first place, just as gauges related to parts but never to wholes, neither managers nor workers retained the former skill set of relating to the artifact in its entirety. Workers comprehended one or more parts, but never the device as a whole. And the managers measured each worker for their conformity to regulations while giving scant attention to the working environment, much less to the device itself.¹³ In short, the know-how that once permeated the small gunsmith's shop was removed at least one step farther away from the manufacturing process. Second, these living "gauges"—the managers—related to the workforce as if to machines. Managers and inspectors measured workers for regularity while forgetting the humanity of workers whose lives consisted not in production but in living well. One historical snippet from the era suffices to drive this point home.

The oft-spoken praise of industrialism holds some truth: precision machinery enabled workers to produce more widgets in less time. Yet here is the surprise. With the aid of labor-saving devices, most workers "chose to limit their output to customary levels and carry home approximately the same monthly wages."¹⁴ Why would they do such a thing? The managers complained that the workers took unjust advantage of labor-saving machinery to work fewer hours while turning out the same number of widgets. In the eyes of the managers, such behavior showed a "lack of internal discipline" and posed a serious "labor problem."¹⁵ They

12. Ibid., 79.

13. Today, engineers rarely rise beyond middle management; the real power is reserved for managers with business rather than engineering background.

14. Smith, "Army Ordnance and the 'American System,'" 82.

15. One manager penned the following letter: "The men have been paid high prices & were in the habit of working 4 to 6 hours per day—& being absent whole days or a week. At the end of a month their pay was generally the same in amounts as if no absence had occurred. They are now required to work full time and during fixed hours . . . and the master of the Shop keeps a time account showing the time *actually spent in labor*. Here is the *great oppression* [workers] complained of. At the end of a month

reasoned that any hours that could be spent in production *ought* to be spent in production. In this manner, the workers were accused of defrauding the firm. The managers responded by clamping down, requiring fixed work hours, and compelling compliance by paying less and less for each widget produced. In the end, precision machinery greatly increased productivity but *did not save labor for anyone*. Ironically, the secret "fraudulent" practices at which workers supposedly frittered away their free time were often focal practices that made life worth living, such as farming, fishing, and raising children.¹⁶

It took thirteen years of heavy-handed, authoritarian control to inculcate a quite different form of life. In Smith's words, at the coercive insistence of their military supervisors, "workers gradually abandoned the task-oriented world of the craft ethos and reluctantly entered the time-oriented world of industrial capitalism."¹⁷ Smith goes on to conclude:

That the large scale manufacture of interchangeable firearms paralleled this change [in the workers] was no mere coincidence. Early on, ordnance officers had recognized the importance of work rules, clocked days, and regularized procedures in stabilizing the complex physical variables present in the workplace. *Experience had taught them that there was no other alternative—a factory discipline characterized by rigid bureaucratic constraints had to be inculcated and absorbed by all employees.*¹⁸

Not all manufacturing firms adopted the austere stance that came to characterize the much later theory of "scientific management" or the Ford assembly line. Nevertheless, standardization became a movement that, once inaugurated in national armories, went on to infect the whole of American engineering. Beginning with the U.S. Army Department of Ordnance Act of 1815, the practice of the armory at Springfield, MA,

the *quantity of labor performed . . . and the time during which it is effected*, are seen by a simple inspection of the Shop books. The degree of diligence used by each man is also known and hence results a knowledge of what is the *fair price* to be paid for piece work!!! The Armorers may attempt to disguise or hide the truth under a thousand clamors . . . but this is the *real cause* of their objection to a Military Superintendent. He enforces the Regulations which lay bare their secret practices (frauds—for I can use no better term)." Cited in *ibid.*, 84–85; emphasis in original.

16. On the categorical difference between "focal" practices like playing the violin versus playing the stereo, see Borgmann, *Power Failure*.

17. Smith, "Army Ordnance and the 'American System,'" 83.

18. *Ibid.*, 83–84; emphasis added.

and the private armament firms in New England “spread to technically related fields and by the late 1850s could be found in fields such as factories that made sewing machines, pocket watches, railroad equipment, wagons, and hand tools.”¹⁹ Even the nuts and bolts of engineering—I mean actual nuts and bolts—succumbed to standardization in 1864.²⁰

To summarize the story, a thirst for efficiency in warcraft spawned a vision of control-by-uniformity fueled by fear. Manufacturing firms were thereafter governed with military rigor, because manufacturing became part of the war effort in times of peace as well as war. Workers themselves were treated as interchangeable units that must conform to a preset standard or face permanent rejection from the industry. For their part, the workers grumbled loudly, with good reason, about compulsory hours, relentless productivity pressures, blind enforcement of stringent regulations, and the installation of time clocks. And they complained bitterly about the injustice of *lowering* piece rates—that is, managers lowered the amount they paid per widget in order to force laborers to increase the number of hours worked simply to earn the same wages. Last, the dwindling number of “older artisans bemoaned the disappearance of traditional skills.”²¹

NAMING THE EFFECTS OF THE TECHNOLOGICAL MONOPOLY

The lessons of these two stories—the takeover of darkness by electric lights resulting in a “modernized” prayer for morning in the Book of Common Prayer and the standardization of percussion muskets—can be illustrated in many other ways. If we were to make a detailed study

19. Ibid., 78.

20. On the standardization of threads, see Sinclair, “At the Turn of the Screw.”

21. Smith, “Army Ordnance and the ‘American System,’” 84. Eventually some manufacturers experimented with quantifying and recording the tacit skills of the expert craftsman. Most famously, General Electric developed a “record-playback” system aimed at capturing human skill in order to reproduce it tirelessly by machines. Kurt Vonnegut Jr., who worked as a publicist for G.E. at this time, immortalized the record-playback experiments in his novel, *Player Piano*. But the record-playback system was a bust and was rapidly replaced by numerical control technology. Not only could human skill not be captured in fine enough detail to drive machines, since the intended output was the manufacture of standardized parts, what was deemed more useful than a “skilled” machine that could only do one skill perfectly, was a versatile machine that by simply altering the numerical stipulations do anything (within set tolerances). Thus is born the field called “numerical control.” Noble, “Social Choice in Machine Design.”

of the history of technology, we might be able to better understand the ways that technology has a monopoly on the way Christians see the world. For the sake of time, let me briefly name three inter-related effects of technopoly, explain how these run against the grain of God's reign, and then issue a challenge. These three consequences might be thought to constitute the "World View" of technology, except they are less visible than World Views are sometimes construed.²²

Reductionism

The first effect of technopoly is reductionism. I think I can explain reductionism with a simple illustration. Many college students, working on a PowerPoint presentation for a class, have snagged the perfect digital image off the internet only to find out that when the picture is enlarged, it's too jagged? What's the problem? Not enough pixels in the original image, right? So how many pixels is enough?

Technological modeling and computer simulations are like digital photos. They "[break] reality into chunks, as many as possible but always too few."²³ The more pixels, or chunks, the larger the file and the slower the computer processes. In the end, we compromise: we opt for the largest file our laptop can handle without slowing down too much. This lesson can be generalized: *every* computer model has already made decisions about (1) the number and size of chunks reality is to be broken into and (2) what relations between the chunks are most worth troubling about (and which relations are to be ignored). (3) The only kind of relationships a computer can model are numerical ones. And the only numerical relationship that can be observed by external modelers is that of cause and effect. What results is always (4) an *approximation* of mechanical causes between *approximate representations* of objects, whether these objects be cars about to crash or people about to fall in

22. Teachers often teach by means of ideal types in order to get points across to students. In this light, Christian philosophers who want to educate us about *Weltanschauungen*, or worldviews, often teach them by listing a cluster of propositions (or tenets) said to summarize the logic of said worldviews. This becomes a little misleading when one realizes that the most nefarious aspects of worldviews is what cannot be put into a brief list of summary sentences. Such is technology.

23. James Gleick cited by Ferguson, "How Engineers Lose Touch," 18.

love. Yet the model is presented to the rest of the population as factual, even infallible.²⁴

Can God's world be "pixelized"? We used to think so. But since the advent of quantum mechanics, physicists now say the world is seamless.²⁵ What appear to be lumps of discreet stuff called atoms are really more like probability distributions knit through time and space. Do all interactions within this world reduce to mechanical cause and effect? No again. Not only is it seamless, God's world is unpredictable, non-linear, chaotic, complex.²⁶ As such it will take practical wisdom (what the ancients called *phronēsis*) rather than computer simulations to live well.

If God's world cannot be "pixelized" without loss of important detail, how much more does the spiritual world we inhabit resist "pixelization"? Yet we are tempted to oversimplify the spiritual landscape because technology has revolutionized the way we navigate physical space; because it revolutionized the way the surface of the earth is modeled.

Today the word "map" denotes a bird's-eye representation of a plot of land. We are convinced that maps are simplified pictures because we know how to shuttle back and forth between a Google map and the corresponding Google satellite photo. And of course, cartography has undergone its own standardization so that whether one uses a paper map from AAA or a "zoom-in-able" Google map or a Tomtom GPS navigator mounted on the dashboard, the driver is supremely confident of not getting lost.

Now recount all the times you have heard the Bible referred to as a "roadmap" for living. Is this a safe metaphor? No! The technological revolution has tricked us into forgetting all sorts of other kinds of maps.²⁷ As a first-order approximation to a spiritual map, consider the sport of

24. In the summer of 2007, a large bridge over the Mississippi river fell down during rush hour traffic in Minneapolis, Minnesota. Some thirty people were killed. When the bridge was constructed in 1967, civil engineers simply did not think fatigue cracking was possible in steel bridges. As a result, they built single-fail bridges: if one part goes, the whole thing falls down. Retrospectively, their smug optimism appears foolish.

25. At least, it is seamless down to the level of observability. Eventually Heisenberg tells us that observation ceases.

26. For an account of the reduction of all forms of causation to mere mechanical linkage see Juarerro, *Dynamics in Action*.

27. There are topographical maps, symbolic representations of subway lines (for a bird's-eye view, were it possible, does *not* mirror the subway guide!), even a map that represents the stress level of pedestrians (see <http://www.biomapping.net>)! All such maps require *skill* more than a printed legend in order to use them successfully.

orienteering. In this sport, competitors race to navigate a wilderness region armed only with a compass, a topographical map of the terrain, and instructions to the first of several landmarks. Each of the landmarks needs to be found in order to complete the course. This is a very demanding activity, requiring both stamina and skill—both of which can be improved by practice.

The important feature of orienteering is that one's knowledge is progressive. What counts for a "map" (the set of instructions between successive landmarks) must be followed in a particular order. Only if one finds the first landmark will directions to the second make any sense at all. There is simply no possible way to jump ahead and anticipate the final destination. One only learns of the destination and the means to arrive safely by journeying through all the landmarks.

In an earlier era, long before satellite imaging, human life in general and Christian life in particular was understood as a journey guided not by a roadmap but by orienteering an itinerary. Life was a quest for which safe arrival required both finding each landmark along the way and acquiring of skills by completing each character-building task along the way. Since the directions from the penultimate landmark only made sense to the one who had completed every leg up to that marker, each traveler or pilgrim humbly accepted as a God-given task the responsibility simply to move from the present marker to the next one on the itinerary.

The "itinerary" approach to spiritual growth will get more attention in chapter six. But for now it should be abundantly clear that so-called technological "advances" in cartography have actually introduced reductionism into the contemporary Christian outlook. If this reductive set of expectations has leaked into our practice of Christianity, we have thereby been impoverished by technological progress.

Standardization

The second effect of technopoly is that the standardization revolution in engineering has infected the whole of culture. Our culture has almost religious-like reverence for technology. The myth that the West has committed to memory combines (1) technical prowess for controlling nature, together with (2) the expectation of inevitable progress before which

(3) human beings are taught passively to conform.²⁸ Typically, this conformity takes the form of cultural standardization. Of course, standardization is ubiquitous. Cell phone clocks nationwide are in sync. Forty hours per week is the standard measure of labor. The quality of air, water, and food are measured against pre-set standards by the EPA and FDA. Daily temperature is reported as higher or lower than average. Children are measured for height and weight and IQ against standardized averages. Every slice of bread in a loaf is of identical thickness. Printer paper in the U.S. comes in reams of 500 sheets, no more, no fewer, and always 8.5 by 11 inches. SAT, ACT, GRE, MCAT, LSAT, and other tests constitute entrance standards to colleges and graduate schools. English is our standard language and the dollar our standard currency. Gas stations deliver gallons of gas, not liters. Credit ratings of individuals are accessible to everyone from the mortgage lender to the car dealer. Chemical solutions are measured against the universal concentration called "1 Normal." Water pressure is measure everywhere as P.S.I. (pounds per square inch). Cream is always sold by the pint. And if I am fifteen pounds overweight in Dayton, moving to Boston won't help matters; a pound is a pound is a pound. And for all these reasons and more, we get along quite efficiently.

However, the cultural embrace of standardization cost us something. It is self-evident today that church growth gurus are tempted to speak of growth in quantifiable terms. Mathematics is the ultimate form of standardization. But the cost to Christians may be even deeper. Again I draw on the work of historian John Staudenmaier to help us see what may have been lost in the standardization of society since 1815. A clear example of the start of this cultural shift can be found in the contrast that existed around the turn of the twentieth century between pre-standardized grain-shipping facilities of St. Louis and the standardized processes of Chicago.

For grain shipped from St. Louis, hand-bagged sacks of grain were loaded onto train cars. At the outer edge of the city, where the train tracks ended, the sacks of grain had to be loaded by laborers onto horse-drawn carts. Teamsters then drove these carts through the city to the river's edge where the sacks of grain were loaded, again by human laborers, onto riverboats for shipment.

28. Staudenmaier, "Perils of Progress Talk," 271.

In Chicago the system was quite different because the company that owned tracks outside of town also owned track that ran through the city all the way to the docks. Bulk-loaded grain cars could then be off-loaded directly onto grain boats. In other words, the Chicago system rendered human interaction and negotiation obsolete. Old-school St. Louis took human interaction as a given and relied on face-to-face negotiation to get work accomplished all along the route. "If the Chicago system was a model of integration, speed, and efficiency, . . . the St. Louis market *preserved the integrity of each man's transaction* and employed a host of small entrepreneurs at every turn. . . ." ²⁹ Staudenmaier raises the interesting question of whether the influence of standardization has resulted in a culture-wide *atrophy* of human skills for navigating the social terrain. His question is a good one. Once we are out of practice, who is to say we do not lose altogether our former skills for negotiation?

This cultural shift is today being reproduced within the walls of our churches. At stake are two different modes of living within Christian community. One makes the assumption that, with a little tweaking, the church is a well oiled machine, one that can run with little maintenance. The other assumes that in order to get along, we'll have actually and constantly to talk to each other, face-to-face, not about the weather, but about things that matter most deeply to us and over which things we will inevitably disagree. Because agreement on matters like politics, religion, ethics, and the like is not guaranteed, our ability to "stay at table," to listen charitably, to persuade with grace, and to compromise without full surrender, is a reflection of our maturity. To the extent we succeed, we are living well. To the extent we can keep the conversation flourishing, we are achieving what Paul describes to the church in Philippi: the mind (*phronēsis*) of Christ. The corporate mind of Christ is possible because we are, as the Body of Christ, an integrated whole. I may be a nose, and you an arm, and your neighbor a big toe (!), but *together* we comprise the single temple that God's Spirit inhabits. Paul writes, "for we [plural] are the temple [singular] of the living God. . . ." (2 Cor 6:16). Conversely, to the extent we live isolated from the living temple, we hamstring the entire body.³⁰

29. J. L. Larson cited in Staudenmaier, "Denying the Holy Dark," 192; emphasis in original.

30. 1 Cor 12:26 employs indicative verbs: if one member suffers, all in fact do suffer on account of the suffering of the one. See Kallenberg, "All Suffer the Affliction of the One."

In contrast, a *standardized* mode of living within Christian community has about as much soul as a bag of marbles. Each marble is identical to all the others. Marbles roll with gravity and careen off their neighbors and other obstacles in their way. But on this view it simply makes no sense to speak of marbles “negotiating” their world. Rather, the standardized view presumes that the path followed by any marble is simply a function of cleverly arranged environment. And if all marbles are interchangeable, then the arrangement of the environment can be done from the outside via “scientific” principles that supposedly apply whether we are talking about running a business or growing a church.

Instrumentalism

The third effect of technopoly is instrumentalism. The technological world proceeds on the assumption that every technological artifact is just a tool. A hammer is a technological artifact. Someone had to design it. When it is used to build a house, it is good. When it is used to bash in someone’s skull, it is bad. By itself—or so this first view goes—a hammer is morally neutral.

Of course the greatest champions of instrumentalism are the technologists themselves—the scientists, the engineers, and the manufacturers. If each artifact is neutral, then technologists need not have many moral scruples about what they make. Sadly, Christians have increasingly signed on to an instrumental view of the high-tech world. A particularly disturbing example was reported in 2007 by *The New York Times*. The story involves the use of a popular video game as the instrument for luring young men back to church. The game is “Halo 3,” a war simulation game given a “M” (mature) rating by the entertainment industry for its graphic violence. Explains one twelve-year-old who comes to play: “It’s just fun blowing people up.”³¹ Admittedly the end, namely church attendance, is good. But is the means (a violent video game) a morally neutral instrument, or one that is out of sync with the Sermon on the Mount? Or is it more acceptable or less to produce an explicitly “Christian” version of a violent video game? The *Left Behind* video game series was reviewed by *Newsweek Magazine* as characterized by top-shelf design but “a level of violence reminiscent of Grand Theft Auto.”³² For those unfamiliar

31. Richtel, “Thou Shalt Not Kill, except in a Game at Church.”

32. Ness, “Culture: Gamers’ Good News.”

with the comparison, one version, *Grand Theft Auto: San Andreas*, was banned in Australia for its violence.

And, obviously, some technological artifacts *can* be used for good or evil ends. However, we get a skewed view if we insist that the moral quality is entirely and always the use to which a given technology is put. If it is the case that each technology is morally neutral by nature, then when we study culture and study the moral character of a culture, we could ignore the technological particulars. Technology would be nothing more than an add-on.

The opposite of instrumentalism is the view that technology *has* moral and political properties.³³ There are at least three reasons to not treat technology as morally neutral. First, there are some *inherently* political technologies that by the very nature of their political character raise moral questions about right and wrong exercise of power.³⁴ The clearest examples are nuclear technologies. Obviously a country in possession of a nuclear weapon necessarily has to have a matching hierarchical, authoritarian form of government capable of overseeing such dangers. The same is true of countries that do not have nuclear weapons but are powered by nuclear reactors. In real life, you'll never find Homer Simpson working in a nuclear power plant! No, nuclear plants employ only those who are capable of following strict protocol, protocol that has been designed and enforced by the brightest nuclear engineers and backed by a powerful government, which for its part has designed armed responses for possible terrorist scenarios. But the question of freedom restriction may be moot for countries relying on renewable energy such as wind or solar power. Rulers of countries driven by renewable energy probably do not lay awake at night worrying, "What if a wind turbine fell into the wrong hands?!"

A second reason we ought not consider technology neutral is that in solving practical problems in a particular time and place, certain local artifacts display community-shaping properties. Sometimes the effects can be very positive and widespread. For example, during the 1970s the nation undertook enormous transformation to become handicap accessible. Wider sidewalks, specialized bathroom stalls, ramps, and elevators are now standard in all public buildings. From sidewalk ramps to

33. There is a difference between assigning blame and locating evil. Even when blame cannot be assigned, we are still able to tell that something is deeply wrong.

34. The following argument is from Winner, "Do Artifacts Have Politics?"

extra-wide café tables at Starbucks, each handicap-accessible innovation resonates with Jesus' admonition to care for the marginal members of society. Even if these artifacts are designed, built, installed, and maintained by non-Christians, followers of Jesus say these artifacts are morally good precisely because the artifacts themselves embody Jesus' own care for the "least of these" (Matthew 25).

Conversely, particular technological artifacts can foster local evil as well as good. In 1936, Robert Moses (1888–1981) was awarded the Cornelius Amory Pugsley Gold Medal Award "for his services in extending and developing the parks and parkways in Greater New York."³⁵ Moses held as many as twelve different New York City and State jobs simultaneously and earned a reputation for being "the man who gets things done." During his reign, he more than tripled the number of playgrounds in NYC—a good thing. But by all accounts he was a power-hungry, egocentric, violent, and racist man capable of great harm. Under Moses' watch, clumsy intersections were replaced by scenic overpasses and elegant thoroughways that allowed traffic to flow smoothly. Two hundred of these overpasses were constructed over the beautiful parkways that led to the parks and beaches. Now the nefarious part: these two hundred overpasses were built with a maximum clearance of only nine feet. Because city busses were twelve feet tall, low bridges effectively *excluded* those who rode busses, namely poor people, especially blacks and Latinos, from having access to the posh parks and beaches. This outcome was not an oversight. Moses *intended* these overpasses for evil, and as such, the use to which they were put *was* evil. Moses is long dead, but the overpasses remain standing, perpetuating moral evil without any human agent willing it so. It is almost as if these overpasses were living minions carrying forward the evil designs of their maker.³⁶

A third reason that technology is not morally neutral is that technologies are "addictive." Not all successful technologies are addictive. Staudenmaier compares dental floss to asphalt roads. Consider dental floss.³⁷ As a plaque-removal device, floss is highly successful. In recent

35. Online: <http://rptsweb.tamu.edu/Pugsley/Moses.htm>.

36. The suggestion I just made, that technology can take on a life of its own, was very much at home in the New Testament. I will take up this discussion in more detail in chapter 5.

37. I am indebted to my friend, John Staudenmaier, for the contrast between floss and asphalt in displaying two different notions of "successful" with respect to technology.

years, floss evolved from string to waxed tape. And the dispenser itself has improved in a number of ways. But let's be honest: if all the floss in the world were to disappear overnight, no one would notice! So, floss may be as successful as a technology can be. But few if any are "addicted" to floss.

But now consider asphalt roadways. Growing up in Minnesota, we had two seasons: winter and road repair. As a technological artifact, asphalt roads are barely adequate. They buckle in the summer sun while shrinking, cracking, and crumbling during the frigid winters and relentless pounding of large trucks. So, road crews repair asphalt roads endlessly.

But could we do without them? Before 1900, yes. But not since then. Of course, our dependence on asphalt has grown hand in hand with the role the automobile has come to play in our lives. But let's just think about asphalt for now. Consumer spending makes up 70 percent of America's Gross Domestic Product.³⁸ Nearly everything we purchase and consume comes from somewhere farther away than can be reached by walking. The vast bulk of it is delivered by trucks that depend on asphalt highways and service roads to get their goods to shopping areas. Then when a consumer wants to make a purchase, how do we reach the shopping areas? I recall as a child in the 1960s watching a little old lady—Grandma Anderson—*walk* the two blocks to the Red Owl grocery store and back again carrying a sack of groceries. She did this every day as long as I can remember. But anymore big chain grocery stores model themselves after the indoor malls. And which of the malls are accessible by foot? I mean, not only are they located far away from population centers, most malls are inaccessible to pedestrians. High speed multi-lane traffic whizzes around the shopping property. Traffic lights control the cars, but many intersections lack pedestrian crossings! The mall itself is surrounded by a sea of asphalt. While cars are zigzagging across the lot, pedestrians, stranded without sidewalks, are left to their own wits to get inside safely. You might think I exaggerate, but try walking safely from one end to the other of a mall parking lot with a stroller and a couple of five-year olds in tow! Ironically, the mall parking lot that is so vast only makes full use of its capacity on two days a year: Black Friday and December 26.

Whether for good or ill, American Christianity has accommodated itself to the automotive culture. A century ago, churches were built in

38. Siegel and Langfitt, "Wholesale Price Jump Dampens Good Retail News."

urban areas, because that's where the people lived.³⁹ The front doors of these churches not only faced the city welcoming all passers-by, the front doors were just steps from the sidewalk. But since the "mallification" of America, churches are now *designed* with their backs to the city. And the front doors of the church open up onto what?—a parking lot large enough to accommodate the two big "shopping" days of the year: Christmas and Easter. Of course, a healthy megachurch fills the lot many times a year; some do it more than once a week. But because of the immensity of the asphalt lot, megachurches cannot be built downtown.⁴⁰ They are built far from the heart of the city and thus far from those who are too poor to own cars. Megachurches are no longer suburban phenomena, but "exurban" ones, breaking ground for the next donut of development outside the suburbs.

You'll notice that I've yet to issue an explicit criticism. I've only attempted to describe what is so often invisible, because it seems there's no other way it can be: if you want to attend a *growing* church, you've got to get there by car. But now consider this: I once was a member of a growing church. This church had recently abandoned their suburban location for one further out, a newly-constructed "campus" in the exburbs. I already lived in the suburbs, and for me it was only a seventeen-minute drive farther away from the city. The church quickly grew. So I proposed an outreach aimed to help the poor who lived across the river in the poorest, most segregated sections of the city. In effect, I was advised to drop my idea, not because it was a bad idea, but because church leaders fully expected no one to volunteer for a ministry *so far away from the church building*.⁴¹ It was asphalt that made it possible to hold so many commuters in the lot. But it was also the great quantity of asphalt involved

39. For one fascinating moral account of change in church architecture, see Bess, "Building the Church."

40. The church I attended had approximately 2,000 attenders on a Sunday—1,000 for each of two services. The parking lot had approximately 850 spaces.

41. In Luke 14, Jesus tells a parable in which the master urges his servants to comb not only the highways, but also the roads less traveled. They were to work their way along the hedges, where the homeless, and the poor, blind and lame, and all the people who in today's world cannot drive cars, "and compel them to come in, that my house may be filled." (Luke 14:23). I've since transferred my membership to a downtown church. Everyday we give out sack lunches to homeless folk who walk up to our doors in hope of food. (Last month we gave out nearly 800 lunches.) Some of these walk back to the church on Sunday and sit through the service. At least two of these have joined the church.

that required them to locate the church so far away that the distance prevented ministry to the very population that was too poor to own cars needed for attendance.

THEOLOGICAL REFLECTION

The Gospel is a powerful and adaptable virus, capable of inhabiting and transforming any host culture! So my dark reflections are not intended to scare us but to alert us to a "worldview beneath the worldview." When I presented some of these thoughts to a conference of Christian colleagues, one of them (a historian at Duke) blurted out: "So, what are we supposed to *do*?!" I think the question is best answered this way: we respond to technopoly by being the church.

Three passages of Scripture issue calls to "come out." First, in John's *Revelation*, Christians are warned of the world order called "Babylon" and are called out: "Come out of her my people, that you may not participate in her sins and that you may not receive her plagues" (Rev 18:4).⁴²

In Genesis 19, the penny drops for Abraham's nephew, Lot. He sees clearly the imminent doom of Sodom and pleads with his sons-in-law to "come out!" "Get up and out of this place, for the Lord will destroy the city." And then the ominous words: "But he appeared to his sons-in-law to be jesting" (Gen 19:14).

To his sons-in-law, Lot's warning was mistaken for a joke. Why? Could it be that they were already enslaved by the habits of Sodom, Babylon, Technopolis? For them it was too late: they saw the situation with cosmopolitan eyes.

Between these two biblical eras, between *Genesis*, the Beginning, and *Revelation*, the Ending, Paul wrote to the church at Corinth: "we together are the [one] temple of the living God; just as God said, 'I will dwell with them and walk among them, and I will be their God, and they shall be my people. . . . Therefore," Paul continues, "come out from their midst and be separate" (2 Cor 6:16-17; internal citation is Isa 52:11).

The crucial term in Paul's plea is the tiny word "midst." We are called out of the midst of Technopolis into a different "midst"—the "midst" of

42. Are we complicit in Babylonian sin simply by driving through a Robert Moses underpass? YES! Distantly so, but the answer must still be "Yes" for any who ever drives a car. For it is the entire automotive industry that gave rise to the need for roads that became the occasion for Robert Moses's sins and the ongoing evil of his racist bridges. Who then shall escape being tainted? Thus the call goes forth: "Come out of Babylon."

Christian community. This midst is where God's Spirit dwells; this midst is where the mind of Christ is imitated; this midst is where God walks. God dwells in the realm of the in-between.

But in the in-between is also the place where we walk and work and worship and pray and love. The tiny word "midst" connotes how we structure our lives together. When Paul in another epistle writes "conduct your interactions among yourselves in a manner worthy of the Gospel,"⁴³ he uses the verb *politeuomai*. Those of you who remember your Greek will recognize the similarity of this verb to the word for city, *polis*. Our corporate conduct, our whole pattern of interactions with each other and as a group toward the outside world (and not merely our individual behavior), is what makes us into the *polis* or community of God.

So the way we "come out of their midst" is not by physically leaving Western culture. Rather, it is by restructuring our lives together in ways that show that we "keep in step with the Spirit" (Gal 5:24) of the Gospel rather than with the spirit of technological determinism.

43. Phil 1:27: *Monon axiōs tou euangeliou tou Christou politeuesthe.*