PITFALLS AND POSSIBILITIES
(OR HOW TO THINK BIBLICALLY ABOUT CHURCH
IN YOUR PAJAMAS, VR BAPTISMS, JESUS AVATARS,
AND WHATEVER ELSE IS COMING NEXT)

VIRTUAL REALITY CHURCH

DARRELL L. BOCK AND

JONATHAN J. ARMSTRONG

In *Virtual Reality Church*, theologians Darrell Bock and Jonathan Armstrong present a systematic reflection on how to faithfully apply virtual reality for ministry purposes. They examine the risks—like compromising the meaning of tangible worship—and opportunities—like safely reaching persecuted churches—of integrating revolutionary technologies into the Christian life.

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NEW MEDIA AND THE GOOD NEWS

"I HAVE BECOME ALL THINGS TO ALL PEOPLE,
THAT BY ALL POSSIBLE MEANS I MIGHT SAVE SOME."

✦ The Apostle Paul (1 Cor. 9:22)

"I LOOK ON ALL THE WORLD AS MY PARISH."[1]

✦ John Wesley

Over the six decades of his unprecedented career as an evangelist, "Hollywood-handsome" Billy Graham (1918–2018) stood up, Bible in hand, and preached crusade after crusade to a staggering 215 million souls. Endowed with the charisma of a movie star and possessing the spiritual vision of an apostle, Billy Graham made it his life's ambition to employ every means possible to reach as many people as possible for the sake of the gospel. Operating within the conventions of the twentieth century, Graham's priority to reach the world with the good news of Jesus Christ meant that he maintained a travel schedule that is simply unimaginable today. Graham missed the

birth of his first daughter because he was away on a preaching tour, and even when he was home with his family, he could be elsewhere mentally.[2] Initial planning for the 1954 London Crusade so engrossed him that he entertained visitors in the hospital room where his wife was about to give birth to their fourth child. When Graham continued to conduct meetings in the hospital room after Ruth's labor pains started in earnest, a nurse transferred her to another room. Graham recounts in his autobiography that the nurse returned a few hours later to announce that Ruth had given birth to a son, and Graham confesses that he had been completely unaware.[3]

In addition to a superabundance of personal passion, a confluence of factors that Graham could not have orchestrated also fueled the phenomenal success of his preaching. In 1949 at the Los Angeles crusade, publishing magnate William Randolph Hearst famously directed his staff to "puff Graham"—that is, to feature positive stories of the crusade throughout his media empire, which was then the nation's largest. The spiritual hunger that permeated western societies and, in fact, the entire globe, in the wake of World War II opened doors not only into hearts but also into nations.[4] Billy Graham is celebrated for having spoken in person to more people in his lifetime than any other figure in human history.

There will never be another Billy Graham. When Billy Graham was asked in 1974 at the Lausanne Congress who the "next Billy Graham" would be, he responded "they will," pointing to the crowd of evangelists who had assembled for the congress. Graham followed in a train of American evangelists who translated the revivalist tradition—which had provided the framework for Billy's own conversion experience in 1934, when

itinerant evangelist Mordecai Ham led a series of tent meetings not far from the Graham family dairy farm in Charlotte, North Carolina—into a worldwide movement. *Newsweek* declared 1976 "the year of the evangelical," and in this same year Jimmy Carter, who was vocal about his "born-again" faith, campaigned for and won the presidency. Billy Graham met with each of the US presidents since World War II, sharing vital spiritual conversations with all of them and fostering warm personal friendships with several of them.

"Graham was less a preacher than a Protestant Saint," historian Grant Wacker comments, noting that Billy Graham was listed on Gallup's "Ten Most Admired Men" sixty-one times between 1955 and 2017.[5] When one counts listeners and viewers who witnessed Graham's preaching via radio, television, and internet broadcast, the number touched by Graham's ministry surges to over two billion people—approximately one-third of the population of planet Earth at the time of Graham's retirement from public ministry in 2005. Unquestionably, Graham was used mightily by God. To this day, evangelicalism has been profoundly influenced by his ministry. Our understanding of the way church and ministry work have been shaped by his use of mass media, his broad-brush approach to denominational differences, and his gospel-centered theology.

But many sense a change in the winds. We are entering a new era that raises new questions and calls for new approaches. New technologies are now emerging that make possible social and religious movements of an unprecedented scale and complexity. At the beginning of the twenty-first century, the world was astonished that one man could preach to a third of the world's population over the course of his lifetime, but by the

end of the twenty-first century—if not well before—the technological infrastructure will be in place for one person to speak to the entire world in a single instant. What does this mean for the church? What do these new possibilities in global telecommunication mean for the community on earth to whom God has entrusted the message of eternal salvation?

A small network of ministry leaders have seen these changes coming. These leaders have been watching the shifts in the technological landscape and have been able to pivot their ministries to take advantage of new opportunities. One of the most forward-thinking ministry strategists of his generation is Walt Wilson. "Everything is now shifting from the world of atoms to the world of bits," Wilson could write already in 2000 in his book, *The Internet Church*.[6] Wilson worked for Steve Jobs as one of Apple's first project managers before joining Computer Sciences Corporation (CSC), one of the dominant tech companies at the close of the millennium. While at a consultation sponsored by MIT about how to monetize the internet, Wilson sensed a calling from God to use the burgeoning technology of the internet to spread the gospel.[7] In 2004, as Mel Gibson was preparing to release *The Passion of the Christ*, Wilson approached Gibson and asked whether he could run a series of internet ads based on the film in order to solicit those who wanted to know more about Jesus to contact an online group of specially trained spiritual counselors. This was long before many of us began to think of the internet as a mission field.

Wilson received the necessary permissions and ran the ads, resulting in unexpected numbers of decisions for Christ. Global Media Outreach (GMO), as the ministry is known today, continues to connect searching souls on the internet with spiritual

counselors online through a portfolio of ads and gospel-promoting websites. And the numbers of those making decisions for Christ worldwide continue to soar.

When I (Jonathan) interviewed Jeff Gowler, the CEO at GMO, the ministry was preparing to celebrate the milestone of having made its two billionth gospel presentation online. We conducted the interview under lockdown, as this was early in the coronavirus quarantine, and I asked Gowler how the pandemic had affected the ministry of GMO. Prior to the coronavirus crisis, GMO had been reaching about 350,000 people each day with a presentation of the gospel. Speaking in late April 2020, Gowler confirmed: "This last week our numbers have averaged 550,000 gospel presentations per day."

And Global Media Outreach is not alone in having discovered the massive opportunities of online ministry. As of October 2020, YouVersion could boast that its flagship *Bible App* has been downloaded on over 445 million unique devices.[8] One-Hope, in partnership with YouVersion, has developed a popular children's Bible storybook called *The Bible App for Kids*, which has now been downloaded over 50 million times.[9] With its colorful animations and theologically straightforward telling of the most memorable Bible stories, this app has become the stained-glass windows of the digital church, sharing the timeless stories of the Bible with a new generation of children. While experiencing our Christian life online or through computer tools still feels new for many of us, the reality is that for hundreds of millions of people, computer technology and the internet facilitate part of their daily religious experience.

Sean Dunn, a pioneer in innovative youth ministry, was doing crusade-style evangelism when he felt God calling him

to reorient his ministry paradigm. "I started to realize that I was only influencing people who were willing to give me an hour to come to my camp, my conference, my church."[10] But the question to which Dunn really wanted to know the answer was: "How do you influence a generation that runs away?" In 2017, Dunn made the leap to digital evangelism, recognizing that "the younger generations consume media differently than we do, and so we jumped into the digital thing, and that's when our growth really began to accelerate." By the close of 2019, Dunn's ministry had witnessed 83,970 people come to faith over the course of the past twelve months. "Today, we're on track to have our first day in the US where we'll see one thousand people come to faith," Dunn said in late April of 2020. "We've grown 300 percent in the last four weeks since the pandemic started." He continued: "People are huddling in their corner, but they're taking their phones."

Ken Cochrum converted to Christianity while a mechanical engineering student at the University of Texas through the ministry of Cru (formerly Campus Crusade for Christ). After graduating from college, he joined Cru as a staff member and served in various positions, including one assignment overseas. In 2012, while in prayer in his office, Ken felt God calling him to do something new and bold—to form a team at Cru focused exclusively on digital ministry. And so the Global Digital Strategies team at Cru came into being.

Ken framed the problem that the Global Digital Strategies team is trying to solve this way in our interview: "What can we do to present Jesus Christ in a relevant way within fifteen seconds on a four-inch piece of glass, anywhere in the world, 24/7/365?"[11] Ken oversees a team of about five hundred people

from around the world who together witness a remarkable response to their online missionary endeavors: "The fruitfulness that we see is about 205 million unique users in the last 365 days from over 200 countries." Ken reminded me: "Even though we see a lot of numbers and analytics in the Global Digital Strategies team, the heart behind it is really that behind every screen is a person, and every person has a story, and every single story matters to God."

What is going on as we push another decade deeper into the third millennium of the history of Christianity? What is the picture that emerges from the swirling torrents of change around us? For Walt Wilson, the story is clear: the internet is the new Roman Road. The Roman roads were built to ensure that the Roman military could move soldiers and supplies quickly from anywhere to anywhere within the empire. But this network of roads, crisscrossing the Roman Empire during the days of Jesus and the apostle Paul, was used not only by the Roman military; it also became the communication network through which the early church brought the gospel to every corner of the empire, finally leading to the conversion of Rome under Constantine the Great in the fourth century.

Like the Roman roads, Wilson notes, the internet was also built as a military tool, one designed to serve as a communication infrastructure so resilient that not even atomic warfare could neutralize it.[12] The roads that the Romans built to move their legions were traveled by the Christian missionaries of the first century. Now the network built by the US Department of Defense can be traveled by the Christian missionaries of the twenty-first century at virtually no cost. "It is hard for me not to be startled by the parallel nature of these events," Wilson

writes.[13] For Wilson, the appearance of the internet represents a divinely orchestrated opportunity to access every person on planet Earth with the gospel and thereby to complete the Great Commission.

The purpose of this book is to explore the way that VR—one specific technology reflecting the wave of new technologies in development in our era—can be applied for the purposes of Christian ministry. We would not have chosen to write a book about VR if we did not believe that VR possesses potential to reshape our culture in profound ways in the coming years. But we also hope that, by showcasing biblical and theological reflection on one specific emerging technology, this study can serve as a guide for Christian leaders as they seek to adapt any number of telecommunication technologies for ministry purposes.

Technology has been progressing at such a rapid pace that some assume there is no rhyme or reason to what may show up next in the marketplace or in our homes. The speed of change is now so lightning fast that many of us have simply quit trying to understand what is going on around us. But stewardship of the gospel demands that we make an attempt to decode this revolution.

The Internet Revolution

I (Jonathan) was speaking to a small group of church leaders in Washington State about VR and the changes that I anticipate this new technology will bring for churches and educational institutions. After the presentation, a retired missionary approached me with a question. This saint had spent four decades on the mission field in Papua New Guinea, translating the

Scriptures into one of the country's more than eight hundred languages. Picking up one of the dry erase markers, the retired missionary began writing on the white board.

"So, let me get this right," he said, drawing out a timeline of the twenty centuries of Christian history. "You're saying that the Roman roads in the first century created a way for the gospel to reach the whole Roman Empire." He scribbled a cross to represent the beginning of the Christian era. "And after Rome fell in the fifth century, Western Europe remained a center for Christian learning and tradition," he continued. "And somewhere about here," he said, marking the middle of the fifteenth century, "Johannes Gutenberg invented the printing press in the 1450s, and this started the print age, eventually leading to the full flowering of the Reformation. Then we have the rise of the railroad and the telegraph, about here," he said, doodling his way through the nineteenth century, "which coincides with the apex of the British Empire and the Protestant missions movement. Then comes mass media—radio and television," he said, moving over into the twentieth century. "And what you're saying is that the rise of the internet and virtual reality is going to be the next chapter in that story?" This missionary, who had lived the majority of his life in one of the least developed countries on earth, had seen the picture more clearly than any of us.

The world is both bigger and smaller than it used to be. The world's population is larger, and everyone maintains more complex social networks than we used to, but at the same time, everyone's reach extends further, and so we feel like everyone is closer to us than they used to be. Tom Goodwin could write in 2015: "Uber, the world's largest taxi company, owns no vehicles. Facebook, the world's most popular media owner, creates no

content. Alibaba, the most valuable retailer, has no inventory. And AirBnB, the world's largest accommodation provider, owns no real estate. Something interesting is happening."[14]

Can we map out this revolution? Since the first appearance of the internet, sociologists of religion began comparing the epic changes brought about by the printing press to an anticipated set of changes in Christianity that the internet would produce.[15] How can we get a handle on all of the technological changes taking place under our feet?

To many commentators, it is clear that the internet revolution is the fastest expanding and broadest technological revolution in human history.[16] In a mere three decades, the internet has developed from a single webpage created by the British computer scientist, Tim Berners-Lee, in 1991 at CERN in Switzerland into the world's primary communication channel for almost everything. The internet was initially developed in a nuclear physics laboratory in order to serve as a specialized research tool for scientists, yet it has become the way that most people on planet Earth shop, bank, experience entertainment, read news and product reviews, and countless other activities. Following the commercialization of the internet in 1995, the number of internet users worldwide skyrocketed. In 1995, there were about 16 million internet users worldwide; by 2001, this number had climbed to over 500 million. The number of internet users worldwide crossed the 1 billion mark in 2005, at which time this represented 15 percent of the world's population.

By 2010, the number of internet users worldwide crossed the 2 billion mark (representing 29 percent of the world's population), and then 3 billion by 2014 (representing 42 percent of the world's population). As of June of 2020, there were over 4.8

billion internet users worldwide (representing over 62 percent of the world's population).[17] It would be hard to exaggerate the breadth, depth, and suddenness of the internet revolution. At the very least, we could say that the advent of the internet has more profoundly affected the daily life of more people on planet Earth than any other invention in human history. What would its closest rival be? The invention of writing? We are clearly living in a unique juncture in history.

The extent of the revolution may be measured by counting the global numbers of internet users, but the depth of the revolution—that is, the myriad ways that technology shapes our daily lives—is not easy to assess. We do know that technology is gaining an ever-deepening influence in society. Not only are the lives of more people affected by the internet than ever, but their lives are affected in more areas than ever. As computers become faster and more capable of mimicking human interaction, their presence is becoming ubiquitous in every area of our lives.

Presently, driverless cars are at once a symbol of the revolution and one of its major frontiers, illustrating the depth of the social, economic, and cultural impact of this revolution. Around 2010, the scientific community was convinced that autonomous cars would remain impossible until deep into the future; now we can't imagine a future that does not include driverless cars.[18] As computer processing power has become ever faster and cheaper, the list of tasks that can be automated and entrusted to our digital personal assistants continues to grow. IBM's "Deep Blue" chess-playing computer lost in 1996 to Garry Kasparov, the world's then-reigning champion. But one year later in 1997, Deep Blue prevailed. A computer program, developed by a team of dedicated scientists, had defeated the world's leading chess

champion at one of humanity's classic strategy games. Could computer programs begin to best people at other intellectual challenges?

In 2011, IBM's supercomputer "Watson" challenged the undefeated Brad Rutter and Ken Jennings at *Jeopardy!* Playing *Jeopardy!* required the computer to listen to and respond to questions in natural language, winning the highly publicized tournament with the answer "Who is Bram Stoker?" in the category "19th Century Novelists" to the question: "William Wilkinson's 'An Account of the Principalities of Wallachia and Moldovia' inspired this author's most famous novel." Watson could process five hundred gigabytes of information per second, or about the equivalent of one million books. In an interview following the tournament, Brad Rutter commented: "I would have thought that technology like this was years away, but it's here now. I have the bruised ego to prove it." Ken Jennings said: "My past *Jeopardy!* experiences have been great, but they weren't really weighty with this kind of technological-philosophical importance. I think we saw something important today."[19] Since Watson's gameshow triumph in 2011, IBM has been focusing its attention on applying the computer program to improving medical care.

The latest supercomputing feat in this litany came in 2017, when Google's AlphaGo toppled the world's leading Go player.[20] Go is a strategy game of mind-boggling mathematical complexity that was invented in ancient China. IMB's Deep Blue, which became the world's chess champion twenty years earlier in 1997, was capable of evaluating two hundred million moves per second, but this level of computing is magnitudes of order too little to play the game of Go effectively. Go has an unspeakable

number of possible moves—to be precise, there are ten to the three-hundred-and-sixtieth-power possible moves in the game of Go. This means that Go has more possible moves than there are atoms in the visible universe! The game is so complex that it defies the "if this, then that" type of programing that Deep Blue had been able to harness in order to excel at the game of chess.[21] For AlphaGo to best the world's champion, the computer had to learn how to learn. Basically, the computer had to learn how to program itself, and the success of this project demonstrated that computers may be able to program themselves to accomplish other tasks that are too complicated for human programmers to reduce to a set of rules. At least for now, there is no end in sight to the limits of where this revolution is leading us.

MIT professors Erik Brynjolfsson and Andrew McAfee call this revolution "The Second Machine Age." If the Industrial Revolution in the eighteenth century began to replace the work of our hands with the work of machines, then the revolution that is now taking place all around us is replacing the work of our intellectual faculties with the work of digital computing.[22] The analogy has limitations, but it points us in the right direction. When I begin to prepare a sermon, I open Logos Bible Software and begin studying Scripture on my computer. Logos saves me hours of research time by performing a variety of search functions through the thousands of books in my digital library, tasks that had me combing the stacks of my seminary library for days at a time.

Other lucid writers speak of the same basic transitions at play in our cultural moment by other names. What Brynjolfsson and McAfee call "The Second Machine Age," Klaus Schwab, the founder and executive chairman of the World Economic

Forum, calls "the fourth industrial revolution."[23] According to this analysis, the first industrial revolution came with the rise of steam power (beginning in the 1760s), and the second came with the transition from steam power to electricity (in the decades around 1900). The third industrial revolution marks the transition from mechanical and analogue electronic processes to digital computing (beginning in the 1950s), and the fourth industrial revolution represents the internet revolution and its continual unfolding with artificial intelligence (from the 1990s onward).

In 2007, when Apple unveiled its first iPhone, it was about the only device consumers owned that they referred to as "smart." Increasingly, everything around us is becoming "smart"—that is, these devices automatically transmit data to the internet and modify their functions based on data that they receive back from the internet.[24] We are crossing a threshold whereby the majority of the data pulsing through the internet is no longer person-to-person communication (such as an SMS text or an email) but sensor-to-cloud (for example, the data generated by the smart components in airplanes, home security systems, and even our refrigerators). We are quickly moving to an era where the bulk of the information transmitted on the internet is data written by machines to be read by other machines.[25] It used to be that we watched our movies and read our books; now our movies watch us, and our books read us! Our smart assistants listen to our conversations, ready to do our bidding at any time. This silent and invisible transmission of data at an inconceivable pace and scale all around us is at the core of what the internet revolution is about. And VR is emerging as a new and compelling way for people to visualize and interface with these data streams.

Since the rise of digital computers in the second half of the twentieth century, we've watched as supercomputers that formerly only governments could afford have become consumer products in the span of a few decades. Thus, computers that once required the space of several tennis courts, the electricity supply of whole villages, and cost hundreds of millions of dollars have become affordable to average consumers within a generation. For example, the Cray-2 became the fastest supercomputer in the world when it was released in 1985, and Apple's iPad 2, which released in 2011, has an equivalent computing power.[26] The Frontier supercomputer, scheduled to be operational by 2021, is projected to be the world's most advanced supercomputer with the computational output of 1.5 exaflops—that is, the equivalent of the computing power of the 160 next most powerful supercomputers in the world combined.[27] If current trends continue, we could anticipate that, in the year 2050, our child or grandchild might unwrap as a Christmas present a device with technical specifications equivalent to the Frontier supercomputer. December 25, 2050, falls on a Sunday. After the festivities of opening gifts on Christmas morning, will our loved ones get in their cars and drive to a church service with this new device in their pocket? What will church services even look like then? How will the experience of worship and faith on Christmas Day of 2050 continue the tradition of the Christianity that we know?

What Is VR and Why Is It Important?

In August 2012, news outlets and technology forums were buzzing with reports of consumer VR. A new company called

"Oculus" had launched its Kickstarter campaign for a new virtual reality headset, which Oculus's founder, Palmer Luckey, called the "Rift." This Kickstarter campaign sparked hope that the dream of VR could become a consumer product in the near future. VR had been a popular theme in science fiction for some time, at least since Neal Stephenson's 1992 novel *Snow Crash*—which coined the term "Metaverse"—and the 1999 blockbuster film, *The Matrix*. In fact, VR was not merely science fiction but had been a working technology for some time, yet it was vastly too expensive and unwieldy to be made into something that people could actually buy and use at home. In 1968, while teaching at Harvard and MIT, Ivan Sutherland invented the first VR display system. The contraption was so large and menacing that they called it the "Sword of Damocles," named after the fabled sword that dangled over the head of the king in Greek mythology.

In 1984, Jaron Lanier founded VPL Research, which is generally regarded as the first company to develop and market VR products, such as VR headsets and haptic gloves. A quick review of the collection of products that Lanier developed way back in the 1980s will reveal why he is sometimes called the father of virtual reality. Not only did he coin the term "virtual reality" in 1978,[28] but the products that VPL Research created forty years ago are by and large the same as those on the market today, at least in terms of outer appearance and purpose. In the intervening years, computer processing power has accelerated significantly, so the level of detail in today's VR simulations is vastly greater and the cost of the equipment has plunged downward. VPL Research's VR systems cost millions of dollars in the 1980s, and by 2003, when Jeremy Bailenson founded the

Virtual Human Interaction Lab at Stanford University, a quality VR system cost notably less at about $100,000 per unit. Still, the basic concept of VR—that the user straps on a set of goggles in order to see stereoscopic imagery of a digitally created environment—has not changed over the past half century since Ivan Sutherland created the first VR system in a university laboratory.

Then, something rocked the tech world, something that convinced not only gamers and geeks but also investors that VR could soon become the next computing platform. In March 2014, Facebook bought Oculus for over two billion dollars. On August 17, 2015, *Time* magazine ran the cover story "The Surprising Joy of Virtual Reality: And Why It's about to Change the World."[29] In October 2017, at Facebook's developer conference, Mark Zuckerberg stood in front of a giant screen and announced his company's bold new goal: "1 billion people in VR." All of this generated a tremendous stir among creatives and those interested in emerging media. Facebook released the Oculus Quest 1 in May 2019 and the Oculus Quest 2 in October 2020. Although not the first VR headsets released by Facebook, the Oculus Quest 1 and 2 were in many ways the first headsets to deliver what enthusiasts had been hoping for all along since the initial Kickstarter campaign in 2012. The Oculus Quest 1 and 2 were stand-alone VR headsets (meaning that they did not require a desktop computer to operate, and they had no wires tethering them to any additional equipment); they were completely portable and could be configured to any room almost instantly (whereas previous systems required several hours to install and calibrate); and at the base price of $399 and $299 respectively, they were praised as affordable. In an interview in 2015, Jeremy Bailenson revealed that the VR lab

at Stanford University had switched from its proprietary VR headsets costing tens of thousands of dollars to the $350 prototype released by Oculus. "My lab is very quickly becoming, from a hardware standpoint, not as special as it was," Bailenson confessed.[30] VR was becoming, for the first time, available to everyone.

How do we define virtual reality? It's not easy to do. Jaron Lanier, who knows VR about as well as anyone, compiles no fewer than fifty-two definitions of virtual reality in his book.[31] We are not technical specialists but biblical scholars, and so, for the most part, we are content to let the industry define for us what VR is. Nevertheless, it will be helpful to identify some key features of VR at this point. VR is a computer interface (analogous to the computer screen, which has served as the primary computer interface for the past several decades) that is capable of receiving input and delivering output in three dimensions. Some call VR "spatial computing," and this is an apt name, since VR allows the user to see and respond to data in a 3D environment. Basically, VR maps data over the top of a physical space and allows users to be actors in a digitally created world by their motions and manipulations in the real world. For many people, the experience of VR is like stepping into the computer world, and one can suddenly see all around the artifacts that used to be visible only through the computer screen.

Someday in the not-too-distant future, young people will be shocked to learn that our experience of computers was once limited to rectangular windows about twelve-inches wide. While we will reserve the terminology of "virtual reality" or VR for head-mounted display systems, we will use the term "virtual" somewhat more loosely. In keeping with the way that hospitals

and schools now offer "virtual" appointments, we will speak of "virtual" technology as any internet-based platform for group communication and interaction.

At the present moment, tech companies tend to distinguish rigidly between VR and AR (augmented reality). In our view, these differences, which companies use to distinguish product lines from one another, will likely fade in the future as people begin to locate the real usefulness of the underlying technology. Some explain AR by calling it "headphones for the eyes," and this may point to a realistic vision of the future. When you walk through an airport terminal or down a busy city sidewalk today, you'll see that many people are wearing a pair of headphones or have in their ears a set of earbuds. Everyone is moving to and fro on the same walkways and in and out of the same stores and coffee shops, but everyone is engaged in their individual audio programing. In the near future, it may be that everyone will walk around wearing AR glasses, seeing and interacting with their own visual realities. Like the other technologies discussed in this book, AR has been around for some time. Augmented Reality entered public consciousness in 2012, when Google released its "Google Glass Explorer Edition" for $1,500, but the project was premature and cancelled by 2015. Nevertheless, almost all the tech giants have invested significantly in the research and development of AR and seem poised to release a panoply of AR devices in the years immediately ahead.

While we may think of AR as perhaps even more futuristic than VR, the reality is that many of us already use a primitive form of AR every day when we access the navigator app on our smartphones. When you enter an address into your smartphone and then follow the real-time driving directions that it provides

to your destination, you may not think of this as "augmented re-
ality," but it is. Your smartphone maps data over physical spaces,
and you then interpret the real world based on the instructions
that you receive. What would happen if, instead of receiving
these real-time driving directions on the screen of your smart-
phone, this information was beamed straight onto the lenses of
your glasses? This is the premise of AR. The distinction between
virtual reality and augmented reality is currently emphasized by
tech companies as they jockey for greater market share of this
emerging industry. But for the purposes of this book, we see VR
and AR as essentially the same technology. VR is emerging first,
as the technical challenges in creating VR are fewer and more
achievable than for compelling AR. In this book we will explore
how the church can apply VR technology for the purposes of
Christian ministry, knowing that AR is not far away and will
bring many of the same opportunities and challenges.

What Is New about "New Media"?

At this point, your head may be spinning. But we are now
ready to talk about what these changes mean for communica-
tion theory in general and for the communication of the gospel
specifically.

"New media" is a term that began appearing in the early
2000s to describe the potential of the internet for communica-
tion. In some ways, the internet is not a new media type at all
but simply a new way of reproducing old media types. Kevin
Kelly—founding editor of *Wired* magazine and "Geek Theo-
logian," in the words of *Christianity Today*[32]—conceptualizes
the internet as the "world's largest copy machine."[33] You input

digital information into the internet from one physical location, and the internet replicates this information instantaneously and at nearly no cost, outputting a digital copy at another physical location. In this analogy, the internet isn't really a new media type at all but a new mechanism to copy and distribute pre-existing media types. Most of the content on the internet can be represented as text, photographs, or video files, but the printing press has been around for about five centuries, photographs for about two centuries, and movies and film for about one century. So what exactly is new about "new media"?

We begin to uncover the novel communicative possibilities of the internet when we imagine converting the internet into an analog format. First of all, what would happen if we converted the text of the internet back into book form? Around the turn of the millennium, one could still find printed catalogues of the best sites on the internet. Based on the use of phonebooks at the time, people in the mid-1990s still turned to printed books in order to look up websites on the internet. Can you imagine a print directory of the contents of the internet today? In 2015, a *Washington Post* reporter attempted to calculate how many pages of paper it would require to print out the entire internet. The estimate came to just over three hundred billion pages.[34] If we were to say that an average book is three hundred pages long, then it would require one billion books to contain the internet in print form. By way of comparison, the Library of Congress in Washington, DC, which is the largest library in the United States, holds about thirty-nine million books. Quite obviously, it would be a physical impossibility to print out the entire internet.

But it is not only the sheer size of the internet that makes printing it physically impossible. Even if you could somehow

find yourself in a library that contained a paper edition of all of the webpages on the internet, it would be almost entirely useless. Have you ever printed out selections from your social media accounts? Probably not, even though it would be easy to do and you may be an avid social media user. The way that we use many kinds of text on the internet is fundamentally different from the way we used to use text in book form.

Heidi Campbell identifies several key characteristics of "new media."[35] First, "new media" is bidirectional rather than unidirectional. This means that new media content is—more often than not—generated by the users of the platform rather than the creators of the website. Think of some of the most popular websites today, such as Wikipedia (founded in 2001), Facebook (2004), or YouTube (2005). These websites are analogous to an encyclopedia, a newspaper, or the television, but with one crucial difference—the content is all created by the users. Rather than paying a professional staff to create the content, these new media companies provide a platform for exchange between users. The line between content creator and user is blurred. Second, "new media" is nonlinear, meaning that users can continue to revise content after it has been posted. New media is therefore constantly being updated and corrected, and so "new media" feels unofficial and impermanent when compared to traditional media types like encyclopedias and newspapers. Third, new media can combine traditional media types in new ways. Because the internet is the single point of access for new media, creators are not limited by traditional distribution channels. We used to go to the movie theater to see a film, to the drugstore to purchase a newspaper, and to the bookstore to purchase books and music. Now we go online to buy almost everything, which

in turn means that creators of new media have an opportunity to produce content of a dazzling, new variety.

New media is not merely a new way to access old information. By changing the way we access information, new media is changing the way we communicate and so is transforming what we communicate about and even what we believe the possibilities of communication to be. We used to hold up our phones to our ears and smilingly speak into them; now we hold our phones at arm's length and tap at them with our thumbs. The shift from telephone calling to texting illustrates how we communicate differently when we use different modes of communication.

Positive and Problematic Change

Every new technology brings positive and problematic change for the communities who adopt them. When we look to the future, it is clear that VR brings many strengths that could be applied to communicating the gospel across geographical, cultural, and linguistic borders. But how will the use of VR as a technology change the way we think about ourselves and our churches? How will VR and related technologies reshape the way that we think about God and speak about Him to the world around us?

"The medium is the message" is the mantra for which we remember Marshall McLuhan (1911–1980), the Canadian philosopher who for many years served as professor of literature and communication theory at the University of Toronto. In 1962, McLuhan published his breakout book, *The Gutenberg Galaxy: The Making of Typographic Man*, arguing that the printing press gave rise to a new mindset and a new way of seeing the world.[36] The proliferation of the printed page resulted not merely in an

increase in books but produced a new way of reading. McLuhan, always a brilliant observer of twentieth-century Western culture, began to note the pervasive influence of television and other forms of non-print media on society. In a televised interview with McLuhan in 1965, literary critic, Sir John Frank Kermode, summarized: "You argue that for a long time, without actually understanding it, we've been living in a culture in which our whole way of looking at the world has been determined by typography."[37]

McLuhan was not only a penetrating analyst but also a persuasive presenter, and he disseminated his views in an array of radio and television interviews. His stately, elegant figure and polished voice made him a winsome communicator for his ideas about media. In his interviews, McLuhan plunges forward breathlessly, his words conveying explosive intellectual energy, and his willingness to respond to questions enigmatically led many to view him as something of a prophet. McLuhan embraced this role, consulting for some of America's leading corporations. Some credit McLuhan as having predicted the internet, and while McLuhan did not foresee the technical mechanisms that make the internet possible, he did anticipate the way that electronic communication reshapes our understanding concerning the very nature of information.[38] McLuhan coined the phrase "global village" and explained that a new paradigm of society was coming, not only because people would someday be able to travel faster and farther but because information would travel instantaneously to everybody.[39] Marshall McLuhan converted to Christianity while reading the apologetic writings of G. K. Chesterton during doctoral studies at Cambridge, and he remained a devout Roman Catholic his entire life.

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McLuhan's thesis that the printing press had birthed a new way of thinking and that this way of thinking was then being superseded as typography was replaced by electronic modes of communication had echoes in the writings of other thinkers of his time. The French Jesuit philosopher and theologian, Pierre Teilhard de Chardin (1881–1955), had speculated about the "noosphere" (from the Greek word for "mind"), a term that he invented in order to speak of a collective consciousness encircling the earth that communicated the totality of human codes. Had de Chardin foreseen the faintest glimmer of the internet? Jacques Ellul (1912–1994), the Christian philosopher and sociologist whose *Technological Society* appeared in French in 1954, sounded many of the same notes as McLuhan. Walter J. Ong (1912–2003) studied under McLuhan and became perhaps his truest successor, dedicating his scholarly research as a professor of literature to the effect that the shift from orality to literacy has on culture.

Melding together many of the insights from the above-mentioned scholars, Neil Postman (1931–2003) became the best-known representative of these ideas through his popular books and academic work in founding the department of "Media Ecology" at New York University in 1971. In his most systematic book, *Technopoly: The Surrender of Culture to Technology*, Postman explains:

> Technological change is neither additive nor subtractive. It is ecological. I mean "ecological" in the same sense as the word is used by environmental scientists. One significant change generates total change. If you remove caterpillars from a given habitat, you are not

left with the same environment minus caterpillars: you have a new environment, and you have reconstituted the conditions of survival; the same is true if you add caterpillars to an environment that has had none. This is how the ecology of media works as well. A new technology does not add or subtract something. It changes everything. In the year 1500, fifty years after the printing press was invented, we did not have old Europe plus the printing press. We had a different Europe.[40]

This model of media as an ecology is, in our view, still one of the best ways to map out what is happening today with the rise of the internet and virtual reality. VR becomes not merely a new way of visualizing the internet but, in fact, produces a new world. And so the worlds that we experience inside the goggles also transform the way that we see and know the world outside the goggles.

In 1993, Postman, who was known for his warnings concerning the dangers that computers pose to education, delivered a lecture to the employees of Apple. In his address, Postman stated: "Anyone who has studied the history of technology knows that technological change is always a Faustian bargain. Technology giveth, and technology taketh away—and not always in equal measure."[41] Postman cites the invention of the mechanical clock, noting that it was invented by Benedictine monks who wished to orchestrate more precisely their times of community prayer, but in fact the mechanical clock served not principally to promote the interests of religious life but capitalism. Johannes Gutenberg was a pious Roman Catholic, and his intention in developing the printing press was to serve the

church. The earliest dated printed document that we have from Gutenberg's printing press is a papal indulgence, and the printing press at first fueled the sale of indulgences, since it made indulgences extremely inexpensive and therefore also extremely profitable for the church.[42] But the printing press also empowered the Protestant Reformation, which was sparked when Martin Luther challenged the sale of indulgences.

The Greek philosopher, Plato, recounted that his teacher, Socrates, had been suspicious of the invention of writing. Proponents of writing claimed that it would allow people to remember forever. Socrates, who left nothing in writing and dedicated himself to teaching his pupils by dialogue, on the contrary argued that writing would undo the art of memory: "For this invention will produce forgetfulness in the minds of those who learn to use it, because they will not practice their memory. . . . You have invented an elixir not of memory, but of reminding; and you offer your pupils the appearance of wisdom, not true wisdom."[43]

We can be sure that the advent of VR will create a tidal wave of unintended consequences, as the invention of every media type throughout history has also done. But simply because all media carry certain inclinations and limitations does not mean that any media type is to be rejected outright. Storytelling is the grounds of communalism; literature inspires individualism. Music speaks to the transcendent; images envelop rituals. If the mode of communication transforms the meaning of the messages thereby conveyed, as McLuhan correctly observed, then what does the advent of the internet revolution and the rise of VR mean for the church, whose commission it is to proclaim the gospel to the ends of the earth?

Racing toward Every Person on the Planet

The VR of antiquity—the *viae Romanae*, or Roman roads—brought the gospel to every corner of the empire. VR presents colossal opportunities for the proclamation of the gospel and the witness of the church in the public square in our world today. Karl Barth, the famous Swiss theologian from the twentieth century, advised throughout his life: "Take your Bible and take your newspaper, and read both. But interpret newspapers from your Bible."[44] This book is an attempt to do precisely this for our own time. This is not a simple assignment, because many of the realities that we encounter today were never mentioned in Scripture. Of course, virtual reality, the internet, teleconferencing, avatars, and going to church in your pajamas are all phenomena that the Bible does not directly address. And yet, the principles that Scripture provides represent the wisdom that we need to face even the most surprising and complex questions of the present and the future.

God alone knows the future, and what God expects from us is not foreknowledge about coming events but responsible stewardship in the present. In the parable of the talents (Matt. 25:14–30), Jesus instructs us that we are to be faithful stewards of the resources that He has entrusted to us until His return. And technology is certainly one of these resources.[45] But to deal with technology is to deal with uncertainty. There are questions to which we cannot now know the answers but which will certainly shape the realities discussed in this book. One such question is whether internet access will reach the great majority of the world's population in the future. If billions of people still do not have internet access decades from now, then VR's

deployment for the purposes of Christian ministry in general and for world evangelization in particular will be significantly curtailed. In 2020, there were over three billion people—or about four people in ten—who have no access to the internet, and by and large these are the same people who as of then have never heard the gospel.[46]

If the number of new internet users continues to climb at the same rate that it has for the past two decades, then nearly everyone in the world will have internet access by around the year 2035. However, it is currently not clear whether the number of new internet users will continue to expand worldwide at the same rate in the future as it has in the past. Several companies are in the process of devising ways to bring internet access to everyone on the planet. Facebook's method for accomplishing this is to launch a fleet of high-altitude, super-efficient, solar-powered aircraft that would return to earth only for scheduled maintenance and would relay internet communication to terrestrial transmission stations by laser beam. Google's solution to the problem is to send a flotilla of giant balloons up into the stratosphere, far above commercial airline traffic, which would then navigate to strategic locations by sailing on winds at different altitudes. Elon Musk, the South African entrepreneur behind Tesla, may have the best shot at creating internet access for everyone on the planet with his "Starlink" program from Space X. This $10 billion program, now partially underway, aims to launch 42,000 tiny satellites into space with the express purpose of providing internet access to all. From our perspective, it is probable that more or less the entire world's population will have internet access somewhere around the year 2035, but this is something that cannot be known at this point in time.

Another question which cannot be answered at this time is whether VR technology will become sufficiently inexpensive to serve the world's low-income and impoverished communities. The three billion people who currently live without internet access are, as a general rule, the world's poorest people—in the majority of instances, living on only a few dollars per day. Computing power has skyrocketed astronomically over the past seven decades, while the cost to consumers per computational unit has plunged drastically during this same period. This means that computers have become vastly more powerful while at the same time costing vastly less per measurable unit of performance. But the advances in digital computer technology do not translate to mean that personal computers are cheap.

In fact, the computers that run the programs we use every day to communicate at work and with our friends remain expensive. Nonetheless, certain technologies have demonstrated an ability to achieve adoption on a truly global scale. Mobile phones, for example, have become ubiquitous today, with the number of mobile phones on the planet surpassing the number of people sometime around 2015.[47] This would have been unthinkable even a couple of decades ago, when mobile phones were perceived as luxury goods affordable only to the world's elite. If VR becomes the primary interface for the internet of the future, then we can expect that VR will achieve an unprecedented depth in its global penetration.

Our predictions of the future virtually never turn out the way we imagine. In 1993, AT&T ran a series of television commercials ("You Will") about future technologies that the company aspired to create. These commercials are celebrated for their stunning accuracy in describing some of today's most

iconic technologies, including video calling, GPS navigation systems for automobiles, media streaming, phones that are worn as wristwatches, and home security systems that can be monitored remotely. Still, the list of things that these commercials got wrong about the future is at least as long as the list of things they got right.[48] Visions of the future quickly wear thin once the future actually arrives. If the future were predictable, we all would be flying around in jetpacks by now. Remember the Jetsons, anyone? Even in cases where cultural expectations about future technologies are basically correct in outline, we are invariably incorrect about when and how these technologies will arrive. It was not too many years ago that everyone was talking about someday owning a car phone. But when the technology that made car phones possible materialized, we discovered that we were not really interested in car phones because it was so much more convenient simply to carry our phones in our purses and pockets.

The commission of the church has been and remains: "Go therefore and make disciples of all nations, baptizing them in the name of the Father and of the Son and of the Holy Spirit, teaching them to observe all that I have commanded you" (Matt. 28:19–20 ESV). This mandate requires us to evaluate carefully the missional potential of VR and related technologies. In 2000, Walt Wilson could already see where the internet was going, and he could not contain his excitement over the possibility that the internet could be a vehicle to reach the four million people in China who were then online.[49] There are now over nine hundred million people online in China. There is no less reason today to be ecstatic over the opportunities for ministry at present and in the immediate future. The virtual world may prove to be the most fruitful mission field in the twenty-first century.

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