

The World of Electric Light

Preparing for the Oncoming Tech Tsunami

by Paul K. Chappell

“The World of Electric Light” is a newly revised and updated version of an essay from 2018, which was written as a follow-up to the essay “A New Peace Paradigm: Our Human Needs and the Tangles of Trauma.” Both essays are available for free download at peaceliteracy.org. When you see references in each essay to different chapters, these are references to chapters in a forthcoming book from which the essays are excerpted. Because “The World of Electric Light” was written to follow “A New Peace Paradigm,” the first three paragraphs from the Introduction to “A New Peace Paradigm” are reproduced below, so the essays can be read in either order.

From the Introduction to “A New Peace Paradigm: Our Human Needs and the Tangles of Trauma”

As someone working full-time for peace, I have an unusual background. I graduated from West Point in 2002, was deployed to Iraq in 2006, and left the army in 2009 as a captain. Many years before I joined the military, however, my yearning to understand peace in a realistic rather than naive way originated from my traumatic upbringing. My father fought in the Korean and Vietnam wars and suffered from war trauma. As a result, I grew up in a violent household and developed a lot of behavioral problems as a child. I was kicked out of elementary school for fighting, almost kicked out of middle school, and suspended in high school for fighting.

I also grew up with very strong feelings of alienation, because my mother is Korean, my father was Black, and I grew up in Alabama. During high school, the alienation and rage that resulted from my childhood trauma caused me to develop a mass shooter personality. Every day I fantasized about shooting the kids in my classes, and my initial interest in peace resulted from my hunger to heal the rage, alienation, and trauma that were causing me so much pain.

Because of this pain, I developed an obsession with understanding inner and outer peace. One reason I developed this obsession with understanding peace is because I wanted to discover how to protect human societies from people like me, who have suffered from severe agony and whose preferred method of expression became rage and violence.

The Seductive Glow of Electric Light

I have often been asked questions such as, “You must have had a life-changing experience that helped you heal your trauma and move from violence to peace. What was it?” When people ask me this kind of question, they usually expect me to share a single turning point in my life, when in fact I had many such experiences. In this chapter I will share three of the life-changing experiences that helped me immeasurably. But more importantly, I will discuss these three turning points in the context of a new paradigm for understanding digital technology and the human condition.

I have been fascinated with technology since my earliest memories. Among the many aspects of technology that astonished me, a particular mystery caught my interest. As a child I wondered why moths and other flying insects spend so much time hovering around and bumping into electric lights. In my childhood home, the light fixtures hanging from the ceiling were filled with insects that had died after flying toward these lights and becoming trapped. “Bug zappers” take advantage of this behavior by luring flying insects to an electric light that delivers a lethal shock when they touch it. At the very least, hovering around and bumping into electric lights seemed like a waste of time and energy for flying insects. At the very worst, it could kill them. So why were they doing this?

We are not certain why flying insects spend so much time hovering around and bumping into electric lights. One theory suggests that moths are attracted to electric lights because they use the moon to navigate at night, which they have done for millions of years. But now they live in a world where every evening in cities around the globe, countless electric lights illuminate the night. As a result, they mistake these lights, which have existed for less than two hundred years, for the moon. This confuses them, because human technological evolution has progressed faster than their biology can adapt.

The Xerces Society, a non-profit organization that promotes healthy ecosystems through insect conservation, describes some of the theories that attempt to explain why flying insects are attracted to electric lights:

Scientists still do not understand exactly why moths are attracted to lights. One theory is that the insects navigate by maintaining a constant angular relationship to bright celestial lights, such as the moon or stars. The vast distance of these objects means that their orientation to a flying moth changes very little, and thus allows moths to fly in a straight path. A flying moth’s orientation to a street light or light bulb changes rapidly, causing the moth to become disoriented and to circle the light.

Another theory is that moths confuse artificial lights for the morning sun. In preparation for daylight, they fly straight up, toward the sun, and then look downward for a suitably camouflaged location to land and hide for the day from

predators. Because in the darkness they can't find a suitable hiding place, they fly directly into the light again and again.¹

Regardless of the theory, flying insects seem attracted to electric light because they associate it with something that will benefit them, even though this light can harm them by wasting their time and energy, trapping them in a light fixture, or electrocuting them.¹ Just as insects can spend hours bound to electric lights in ways that waste their time and energy or harm them severely, the same is true for human beings. When I say that human beings can spend hours bound to electric lights, I am not referring to the streetlights and fluorescent lamps that bind flying insects. What electric lights am I referring to?

Just as a moth can spend hours upon hours bound to the electric light emitted from a streetlight or fluorescent lamp, human beings can spend hours upon hours bound to the electric light emitted from a smartphone, television, tablet, or laptop screen. The electric light emitted from these digital devices can take the form of social media platforms, television shows, video games, or internet porn, just to mention a few examples. The way people can obsessively stare at these forms of electric light for hours, even when this behavior wastes their time and energy or harms their well-being in severe ways, resembles the way flying insects can obsessively hover around an electric light for hours, even when this behavior wastes their time and energy or harms their well-being in severe ways.

Before we discuss the vast potential of electric light to empower and liberate human beings, let's first look more closely at its ability to bind and even kill us. Just as electric lights can kill flying insects by trapping them in light fixtures or electrocuting them, human beings can also die from the effects of electric light. To offer just one example, car accidents that result from texting and driving show how people can die from the allure of electric light. Every day millions of drivers stare at the seductive glow of a smartphone screen when driving, even though this could kill them and others. In an article in *Slate*, Robert Rosenberger describes the relationship between smartphones, distracted driving, and car accidents:

In its reassessment of data from 2015, the NSC [National Safety Council] estimated that cellphone usage was involved in 26 percent of all traffic accidents. A study released this year by Cambridge Mobile Telematics, a company that creates apps to monitor driving and smartphone usage for insurance purposes, similarly found that approximately a quarter of drivers involved in crashes were using their phones during or in the minute before the accidents occurred. As NSC spokesperson Maureen Vogel told *Slate*, "Based on research the council has done

¹ Flying insects can also be attracted to fire, but electric lights today are far more numerous than the use of fire in the past, and many emit light waves at higher frequencies, making them more alluring to a variety of flying insects. When fire was the primary light source at night for humans on a global scale, there were fewer than two billion people on the planet. Today, there are probably tens of billions of electric lights in use on any given night.

on the underreporting of distracted-driving crashes, we believe the number of fatal crashes that actually occur in the U.S. every year due to distraction could be double what is recorded in federal data.” . . .

The past 20 years of work in cognitive science have been showing just how dangerously distracting phone usage of almost any kind can be to drivers . . . Studies have even pointed to a level of impairment comparable to drunk driving . . . Yet drivers can’t seem to help but take their eyes off the road to respond to the pings and draws of their devices.ⁱⁱ

Why are human beings attracted to electric light? Unlike flying insects, we are not mistaking electric light for the moon or rising sun, so why is electric light so alluring to us? To answer this question, consider our nine non-physical needs.

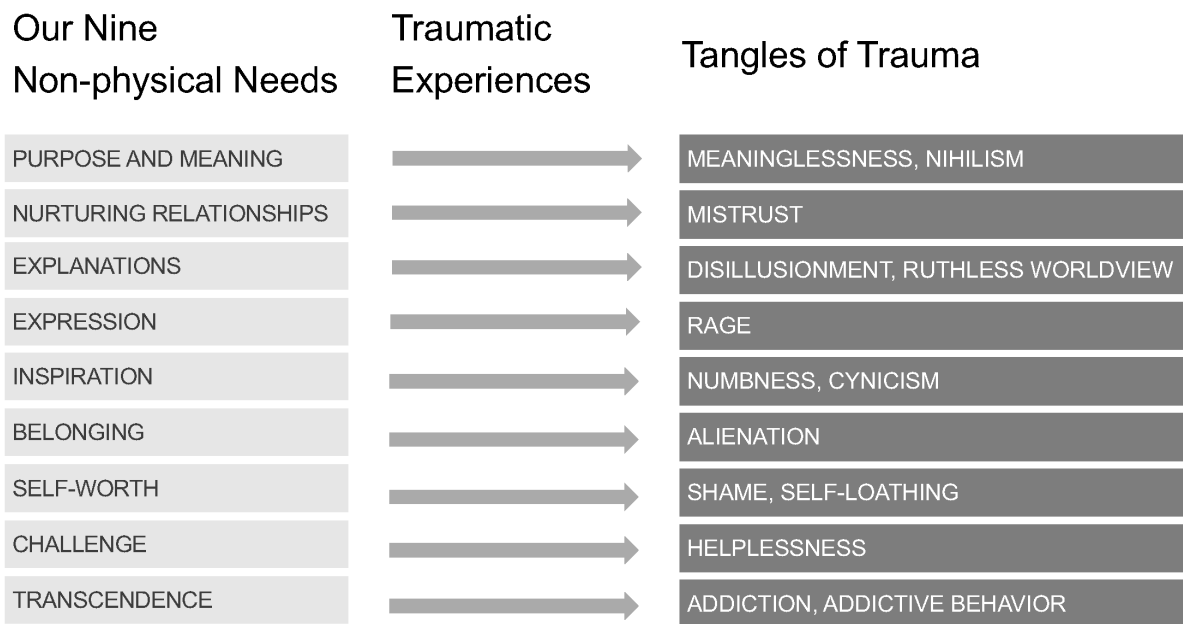


Figure 1: Our Nine Non-Physical Needs and the Tangles of Trauma

The idea that flying insects use the moon to navigate can be a metaphor for humanity, because our nine non-physical needs are basically our moon that helps us navigate through the world. Consider how our sense of *purpose and meaning*, the presence (or lack) of *nurturing relationships* in our lives, and our *explanations* for understanding reality, can drastically affect how we navigate through the world. Consider how our ability to navigate through the world is also drastically affected by how we *express* ourselves. When I learned to express myself through Peace Literacy skills, I navigated much differently than when I was expressing myself through rage.

When our non-physical need for *inspiration* is concerned, the people, ideas, and stories that inspire us can drastically affect how we navigate through the world. Our ways of seeking *belonging* and *self-worth*, along with the strength and stability of our belonging and self-worth, can also drastically affect how we navigate through the world. How we respond to *challenge*, and our ability to meet this need in healthy ways, can affect how we navigate every struggle we face in life. In chapter 1, we explored how our need to transcend our sense of time, in the form of *transcendence*, can drastically affect how we navigate our lives. How we navigate our lives can also be affected in extreme ways by all of the tangles of trauma, such as mistrust, ruthless worldview, rage, alienation, shame, helplessness, and addiction.

People can use the electric light emitted from a smartphone for simple tasks such as checking the weather or buying movie tickets. But when people stare at electric light for hours upon hours, day after day, for reasons unrelated to simple tasks, it is because this light is feeding at least one of their nine non-physical needs in some way.

To understand how electric light can feed our nine non-physical needs in both healthy and unhealthy ways, we can discuss social media as just one example. Social media platforms are alluring because they attempt to feed one or more of our nine non-physical needs. For example, social media gives people a way to feed their need for *expression* by allowing them to express themselves through words, images, or videos. Social media also gives people a way to feed their need for *belonging*, along with their need for *self-worth*. It could be argued that the primary allure of social media is that it helps people feed their needs for expression, belonging, and self-worth.

However, social media can also help people feed their need for *explanations*. This can take the form of commentaries that attempt to explain *why* certain events are happening. When people want to know what is happening in their communities and around the world, along with *why* these things are happening, they often get their information from social media platforms rather than traditional news outlets (such as newspapers or television news). Many social media platforms are flooded with inaccurate explanations posing as accurate explanations.

Social media can also help people feed their need for *inspiration*. It is common to see inspiring quotes, stories, pictures, and videos on social media. Some of the most popular social media posts offer inspiration. When our need for *nurturing relationships* is concerned, people can seek nurturing in the form of the “like button” or through deeper forms of connection, such as expressing a concern that leads to empathetic responses from those in their social media network. When people get a lot of “likes,” this can also feed their need for self-worth.

People can use social media to feed their need for *purpose and meaning* in a wide variety of ways. For example, when people have a purpose, such as running a business, engaging in activism, organizing an event, learning a new hobby, or improving their health, they can use social media to help them fulfill that purpose. Many people use social media to improve their health by

finding explanations for health problems and inspiration that motivates them to change their diet and lifestyle.

Human beings need *challenge* to become stronger physically or psychologically. When people deal with challenges, they can seek help through social media by finding explanations for problems, inspiration for overcoming these problems, and *connection with others* in the form of belonging, expression, nurturing, or a shared sense of purpose and meaning. In addition, social media platforms literally have viral trends called “challenges.”

Human beings have a need for *transcendence*, which can occur when we lose our sense of time, when we are immersed in the moment, when we experience a sense of timelessness. When people lose their sense of time while using social media and time seems to fly by, their regrets from the past and anxieties about the future can temporarily vanish. In this way, people can use social media as a distraction from their innermost struggles, and they can also use social media to “kill time” during moments of boredom and discomfort. This kind of transcendence can become a form of self-soothing.

When our tangles of trauma are concerned, people can use social media as an outlet to directly or indirectly express any tangle of trauma, such as mistrust, rage, disillusionment, cynicism, or alienation. A person can also use social media to manipulate these tangles of trauma in others, which often binds them more tightly to trauma. Social media is only one form of electric light that can bind us, causing us to stare at the seductive glow of a screen for hours upon hours, similar to insects bound to streetlights and fluorescent lamps for hours upon hours. I will discuss other forms of electric light later in this chapter.

As people seek fulfillment for their nine non-physical needs in the seductive glow of electric light, the fulfillment they find can vary in degree, quality, and depth. If we are unaware of how electric light can affect our non-physical needs, we are more likely to become bound to electric light in ways that simultaneously bind us to ignorance, distraction, disconnection, anxiety, mistrust, rage, disillusionment, or addiction. However, I have had life-changing experiences that show how electric light not only has the power to bind, but also a greater power to liberate.

The Binding and Liberating Power of Electric Light

In Greek mythology, electricity is depicted as the strongest divine weapon not because of its power to kill, but its power to *bind*. One reason Zeus rules the cosmos is because he controls electricity in the form of the lightning bolt, which he uses to bind his adversaries. The binding power of Zeus’s lightning bolt can be used as a metaphor for the binding power of electric light today. As I mentioned, electric light can bind flying insects to fluorescent lamps, and the electric light emitted from digital devices can bind human beings to social media platforms, television shows, video games, or internet porn, just to mention a few examples.

Because Zeus is the master of electricity, he can bind gods who oppose him such as Cronos, Prometheus, and Atlas. Zeus can also bind human beings with electricity.ⁱⁱⁱ Today we can interpret the electric binding of human beings literally, in the way tasers bind people by incapacitating their bodies, or metaphorically, in the way electric light can bind our minds, trapping us in distraction, addiction, or ignorance. Something that Greek gods, human beings, and flying insects have in common is that electricity can bind us in different ways. In their book *Cunning Intelligence in Greek Culture and Society*, classics scholars Marcel Detienne and Jean-Pierre Vernant discuss how lightning's greatest power in Greek mythology is its ability to bind:

To strike a god with his thunderbolt is, for [Zeus] the Master of Heaven, to bind him, to chain him up, depriving him of the vital force that previously animated him, and to relegate him, forever paralysed, to the frontiers of the world, far from the dwelling of the gods where he used to exercise his power . . . In the *Iliad*, Agamemnon [commander of the Greek army] fears that the power of Zeus "might chain up the energy and arms" of the Greeks. And bonds are again suggested by the expressions most frequently used to describe the sovereign god's power of striking with thunderbolts. In the *Theogony*, Cronos [father of Zeus] is "tamed" by the blow Zeus deals him just as, in [the writings of ancient Greek poet] Pindar, the enemy of the god is "tamed" by the thunderbolt.^{iv}

A person who is addicted to electric light, who stares at a form of electric light for hours upon hours in ways that are unhealthy, is metaphorically bound and chained, similar to how Zeus binds and chains his enemies in ways that deprive them of their "vital force." But in Greek mythology, electricity has a dual nature, because it not only has a binding power, but also a liberating power. Zeus uses lightning to help liberate himself and others from the oppressive rule of his father Cronos. How can electric light, especially in the form of digital technology, be a liberating force in our lives and the lives of others?

The first life-changing experience I will discuss, which led to my understanding of electric light as a liberating force, occurred during my sophomore year of high school. When I was fifteen, I wrote a short story for an English assignment. A few days later my English teacher Janice Vaughn said, "I really liked your story. You should think about being a writer." Sometimes a few simple words can radically change our lives. Mrs. Vaughn's words ended up saving my life. I had never thought about being a writer before, because I had never liked reading books. But I pondered what she said and realized I enjoyed writing that story. So I wrote another, and another, and another. I began writing obsessively, and at West Point I spent more time writing than doing my homework.

However, when Mrs. Vaughn encouraged me to be a writer during my sophomore year of high school in 1995, this did not mean I knew *how* to be a writer. Just because I wrote one short story that my English teacher liked did not mean I had the ability to write stories at a

professional level or write far more complex books. I wondered how I could improve my writing ability. Where could I learn to write at a much higher level? Who could teach me?

In 1995 I accessed the internet for the first time through America Online, which was an early internet service provider. During the mid-1990s, the internet was still in its early stages and felt like a new and unexplored world. When I went on America Online to see if I could find information about how to strengthen my writing ability, I had another life-changing experience that built on the life-changing experience of Mrs. Vaughn encouraging me to be a writer.

America Online offered a digital space where writers could meet and discuss writing in chat rooms and on message boards. There were even volunteer writing coaches who offered to read your stories and provide feedback for free. This all seemed revolutionary to me. When one of these writing coaches read one of my stories and helped improve my skills, I experienced the internet's power to liberate us from social isolation by connecting us with people we would not meet in our everyday life. When we want to meet people who have similar ideals and interests as us, the internet liberates us from limitations in our physical world such as distance and other barriers that restrict who we can interact with.²

Being able to connect with people on the Internet in ways that overcame distance and other barriers felt especially important to me, because I grew up as a racial outcast. My father, Paul B. Chappell, was born in 1925 and grew up in Virginia under segregation during the Great Depression. My father was a career soldier who served in the army for thirty years and retired as a command sergeant major—the highest enlisted rank. Since my childhood, my father told me that the only place in America where a Black man had a fair chance was in the army. Because he grew up before the civil rights movement, and the army had desegregated prior to the major civil rights victories, he believed that Black men were treated better in the army than in civilian society. And because of his worries about my multi-racial background, my father often told me that the military was the only place where I would ever belong or be treated fairly.

One reason my father told me this is because of skipped generations. I was born in 1980. Most African Americans born in 1980 are five generations removed from slavery, but I am only three generations removed. My father was old enough to be my grandfather when I was born, thus a generation was skipped between him and me. Furthermore, my grandfather was raised not by his parents, but his grandparents, two former slaves named Wyatt and Frances Chappell; thus another generation was skipped. Wyatt Chappell was born a slave in Alabama in 1835 and Francis Chappell was born a slave in Virginia in 1842. Trauma from this recent past, as well as fear for my future, caused my parents to pressure me into the military.

My parents pressured me to go to West Point, not only because they thought I would have limited opportunity as a result of being part Black, but also because they thought people

² Not only can digital technology liberate people by empowering them to overcome physical distance, as my story illustrates, but it can also liberate people by empowering them to overcome physical limitations, through the many ways that digital technology increases disability access.

would reject me as a racially mixed outcast. After all, white people were not the only ones who opposed interracial marriage. Marrying when interracial marriage was still controversial in many parts of the country, my parents did not feel welcome in Black or Korean communities. Many Koreans did not like that my mother had married a Black man, and many African Americans did not like that my father had married an Asian woman. When I told my mother in 2009 that I was leaving the military, she shouted, “Are you out of your mind? Nobody is going to hire you. It’s bad enough you look Asian, but you’re also part Black. Nobody is going to give a job to a Black man who looks Asian.”

I have struggled with extreme feelings of alienation for most of my life. People can feel alienated for all kinds of reasons, and alienation is far more common in our society and around the world than many of us realize. When people today feel alone or alienated in any way, the internet gives them a place to go, offering forms of connection that can be healthy, unhealthy, or a combination of both. When people feel isolated or outcast for any reason, the internet is always there for them—for better or worse—in ways that their family and local community may not be.

At West Point I learned how the internet could liberate me in other ways. In 2000, I was accepted into an internship program with the Executive Branch of the U.S. government. Before starting the internship, I was required to provide additional information on a form that had to be filled out with a typewriter. Since I did not have access to a typewriter, I called their office one afternoon and asked, “Can I fill out this form with a pen, or do you have an electronic version that I can fill out? At West Point I can’t leave campus whenever I want, and I can’t find anyone here who has a typewriter. It’s the year 2000. Where am I supposed to find a typewriter?”

They informed me that according to their policy, I had to use a typewriter, not a pen. They also said there were no electronic versions of that form. Later in the evening I was sitting in my room with three of my friends, saying how ridiculous this situation was. When I asked them if they had any ideas for finding a typewriter, one of my friends went to my computer and said, “I’m going to find an electronic version of that form on the internet.” I told him I had already searched for it on the internet and couldn’t find anything. He looked at me and confidently claimed, “Trust me, everything is on the internet.”

After searching for about twenty minutes, he found it. This was a transformative experience for me, because he found a form that people in the U.S. Government claimed did not exist. Seeing him find this form on the internet allowed me to have two important realizations. In 1995, I started using the internet to find information about writing, and in 1999, I started reading a variety of books to build the research for the Road to Peace book series I would later write. But when my friend found this form online after saying, “Trust me, everything is on the internet,” I realized that I should spend more time using the internet to find books and other sources that I needed for my research. As a research tool, the internet could be a liberating force in my journey to answer the complex questions I was exploring.

The second realization I had from watching my friend find this form online was that a person needed skill to do good research on the internet, since the form had not shown up immediately on any internet search engines, and my friend had to use skill to find it. This caused me to see the internet as a kind of world that I must learn to skillfully navigate so that I could find what I need. By this time, I already realized that misleading and false information was on the internet that could bind my mind to misinformation instead of helping to liberate me from illusion.

These three life-changing experiences—Mrs. Vaughn telling me I should be a writer, exploring the writing forum on America Online and receiving free coaching from a volunteer writing coach, and my friend at West Point using the internet to find an electronic form that wasn't supposed to exist—all involved people helping me. I would not be alive today if Mrs. Vaughn had not encouraged me to be a writer, and I had not learned how to use the liberating power of the internet to find books and other sources that helped me better understand the human condition and the tangles of trauma. To further explain why I owe my life and work to the help and kindness of others, I must first discuss the three worlds that people today must learn to skillfully navigate if humanity is going to survive and thrive in the twenty-first century.

Skillfully Navigating the Three Worlds

For most of human history, people had to inhabit two worlds: their inner world and the outer world. Our inner world consists of the conscious and unconscious aspects of our psyche, including our nine non-physical needs and any tangles of trauma we are struggling with. The outer world consists of the physical reality that surrounds us.

Our inner world affects the outer world. For example, how did Hitler's inner world, such as his unhealthy sense of purpose, meaning, belonging, and self-worth, along with tangles of trauma that he was known to suffer from such as rage and a ruthless worldview, affect the outer world? How did Martin Luther King Jr.'s inner world, such as his healthy sense of purpose and meaning, shape the outer world in American society and beyond for the better?

Our inner world can also be affected by the outer world. Aspects of our inner world, such as the health of our self-worth and our other non-physical needs, can be affected by aspects of the outer world, such as growing up in a violent household, living in a war-torn environment, having access to education (or lacking access to education), witnessing domestic violence as a child, receiving a lot of kindness and encouragement, struggling with racism or sexism, having opportunity (or lacking opportunity), not having enough food in the home, or seeing one's parents struggle with addiction. Many of these aspects of the outer world I have listed can cause us to develop tangles of trauma in our inner world.

There are countless ways that our inner world can affect the outer world, and countless ways that the outer world can affect our inner world. For example, our inner world can affect how we perceive the outer world in a wide variety of ways. Also, people can respond differently

to the intersections between these two worlds. One person may learn and grow from a painful event in ways that another person does not, and one person may appreciate and absorb an act of kindness in ways that another person does not. We live in the overlap between these two worlds, but they also overlap with another world that continues to grow and become more powerful. What is this other world?

Although human beings for most of history had to inhabit two worlds – their inner world and the outer world – a brand-new world was created in the twentieth century that never before existed. I call this new and uncharted world *the world of electric light*.

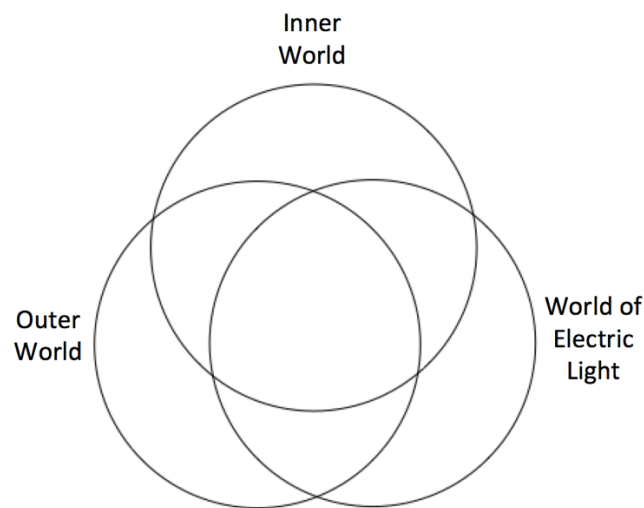


Figure 2: The Three Worlds Modern Humans Inhabit

In the nineteenth century, Thomas Edison used the term “electric light” for the light bulb. But when I discuss the world of electric light, I am not referring to the light bulb, because the original light bulb was simply a more convenient and effective way than candles, lamps, and torches to illuminate the outer world. The original light bulb did not create a new kind of world through a new form of mass media. The new world of electric light first came into existence when films and radio broadcasts *created new forms of mass media in the early twentieth century*.

When I use the term “electric light,” I am referring to various forms of light that humans produce from electric sources. Films use electric light to project images onto a large screen.³ The first movie theater in Los Angeles, which opened in 1902, was called the “Electric Theater.”^v Radio broadcasts also use electric light. Many people don’t know that radio waves are actually light waves. Our eyes cannot see radio waves or other forms of light such as microwaves and x-rays that are part of the electromagnetic spectrum, because our eyes are only able to see a tiny part of this spectrum that we call “visible light.”

³ Some early film projectors did not use electricity, but electricity became a ubiquitous part of films in the twentieth century.

Unlike early experimental films from the 1890s that were usually less than two minutes long⁴ and not widely available because the movie theater industry had not yet grown, films in the early twentieth century created a new form of mass media involving more complex stories that could communicate ideas in new ways. During the early twentieth century, radio broadcasts also created a new form of mass media that allowed people to transmit stories, ideas, news, and music through the air. Together, the first films and radio broadcasts formed a new kind of world that intersected with people's inner worlds and the outer world.

New forms of mass media such as films and radio broadcasts were only the zygote—the very beginning of the world of electric light. After early films and radio broadcasts, the world of electric light expanded to include television. Then the world of electric light expanded even further to include *interactive digital mass media* such as personal computers, video games, the internet, and social media. Today, the world of electric light is more massive than it has ever been and affects more aspects of people's inner worlds and the outer world than it ever has.

In the past, how did the world of electric light affect people's inner worlds and the outer world? To offer examples of electric light's impact in the past, we must first understand that people have been using electricity as a liberating force even before the world of electric light was created.

When Mahatma Gandhi played a central role in India's struggle for liberation, he benefited from international newspapers that helped spread his message around the world. These newspapers relied on the telegraph, which uses electric signals to quickly send messages over long distances. I do not consider the telegraph's electric signals to be part of the world of electric light, because technically they are not light waves.⁵ Also, the telegraph was not its own form of mass media the way radio stations were, but instead assisted the mass media of international newspapers.⁶

Nevertheless, the electric signals of the telegraph can still be compared to the lightning bolt of Zeus and its power to assist liberation. The electric signals of the telegraph increased the number of people who could hear about Gandhi, his ideas, and India's struggle for liberation. The telegraph also brought the world closer together by greatly reducing the amount of time needed for information to travel over long distances. According to historian Sean Scalmer:

⁴ *Roundhay Garden Scene* (1888), which many consider to be the earliest surviving "film," was two *seconds* long.

⁵ Landline telephones are similar to the telegraph in that they use electric signals. The telegraph and landline telephones, unlike radio, movies, and television, are not forms of mass media that are capable of broadcasting to large audiences simultaneously.

⁶ For most of its history, "magic lantern" technology (which first used candlelight and then lamps, limelight, and electric light bulbs to project images) did not stand on its own as a form of mass media, but was combined with oral storytelling, public speaking events, and theater performances. It can be argued that magic lanterns had started to become a form of mass media before being replaced by early films. In a similar way, photographs in the nineteenth century were not their own form of mass media, but supplemented other forms of mass media such as newspapers, books, and pamphlets.

Most, of course, met [Gandhi] not in an Eastern ashram or upon a London street corner, but at the homely breakfast table. He was “front-page top [of the newspaper]” . . . a frequent accompaniment to the Westerner’s morning tea and toast . . . The invention of the telegraph in the 1840s had made possible the transmission of news reports across continents with unaccustomed speed. Global news agencies were established in the years afterward (American Associated Press and United Press International served the USA; Reuters the UK), so that even those journals without their own foreign correspondents could provide accounts of leading events and personalities . . . By the interwar years, there was an elaborate machinery of mass reportage and reading that enmeshed the globe. Gandhi was among the many personalities caught up in its relentless circulations.^{vi}

During the civil rights movement’s struggle to liberate African Americans from various forms of injustice, many civil rights activists relied on the electric light produced by television. The civil rights movement would not have been as effective if television had not spread words, images, and ideas promoting civil rights. When national television channels showed videos of civil rights activists being viciously attacked, this also shaped public opinion in ways that benefitted the civil rights movement.

The modern internet (which includes smartphones and social media) uses electric light in the form of radio waves to transmit information, and every screen we use to access the internet emits electric light that transforms the internet into something that can be seen. Practically every movement today spreads text, audio, and video through the internet, which gives people more ways to share information and connect with each other than any form of electric light that existed earlier. Just as Zeus used lightning to help liberate himself and others from the oppressive rule of his unjust father Cronos, many people use the electric light of the internet to help advance their work against various forms of oppression and injustice.

Because of the internet, the world of electric light has grown so massive today that it affects people’s inner worlds and the outer world in more ways than ever before. In 2001 during the “dot com bubble burst,” I heard some people call the internet a fad, which sounded absurd to me back then. A massive revolution instead of a fad, the internet since 2001 has partially or fully swallowed almost every aspect of our society. To varying degrees, the internet today has absorbed newspapers, magazines, movies, television, music, books, shopping, maps, radio, education, banking systems, how people interact with their politicians and each other, how people work, how people date, the way extremist groups recruit people, the means through which people gossip, bully, and incite violence, and practically all businesses. Even the smallest businesses usually have some presence on the internet, even if it’s just listing their phone number and when they are open.

To navigate our inner world, the outer world, and the world of electric light, along with the complex intersections between these three worlds, we need current and future generations

to be *tech savvy*. When I use the term “tech savvy,” I am referring not to the mere ability to use technology, but the vitally important competency of understanding technology’s relationship to the human condition. This includes understanding why the glow of screens can be so seductive to humanity, how people can use electric light to help or harm each other, and how we can use electric light as a liberating force.

Being tech savvy means understanding our nine non-physical needs, the inner world these needs inhabit, and the way electric light can affect these needs in ways that are healthy, unhealthy, or a combination of both. This involves self-awareness. Being tech savvy also means understanding how the world of electric light can affect the outer world, which includes local communities, nations, and our global civilization. This involves societal and global awareness.

From Windows to Doorways

As massive and influential as the world of electric light seems today, this new world is still in its embryonic stage. The world of electric light is not yet born. With advancing technologies such as Virtual Reality, Augmented Reality, and Artificial Intelligence, the world of electric light will leave its embryonic stage and become fully born into our reality. The internet will become a *place* in ways that most people today do not yet understand.

The world of electric light in its embryonic stage can be metaphorically represented in three trimesters. The first trimester consisted of movie theaters and films—a new form of mass media—that spread in the early twentieth century. The first trimester also consisted of radio stations and radio broadcasts—another new form of mass media—that could transmit audio across long distances. Humans had been experimenting with moving pictures and radio waves in the nineteenth century, but these technologies did not become widely used forms of mass media until the early twentieth century. In a similar way, the first electric computers were created around the 1940s, yet personal computers and the internet did not become their own form of mass media until much later in the twentieth century.

The Birth of a Nation, a silent film released in 1915, was the first movie blockbuster. Its immense popularity and influence revealed the power of first trimester technology. As a film that glamorized the Ku Klux Klan and dehumanized Black people, *The Birth of a Nation* demonstrated how the world of electric light could intersect with people’s inner worlds and the outer world on a massive scale. An article for NPR’s *All Things Considered* tells us:

One hundred years ago Sunday [in 1915], the nascent film industry premiered what would go on to be its first blockbuster: *The Birth of a Nation*.

As the house lights dimmed and the orchestra struck up the score, a message from director D.W. Griffith flickered on the screen: “This is an historical presentation of the Civil War and Reconstruction Period, and is not meant to reflect on any race or people of today.”

But its effects on race relations were devastating, and reverberations are still felt to this day.

The Birth of a Nation is three hours of racist propaganda — starting with the Civil War and ending with the Ku Klux Klan riding in to save the South from black rule during the Reconstruction era.

“[Griffith] portrayed the emancipated slaves as heathens, as unworthy of being free, as uncivilized, as primarily concerned with passing laws so they could marry white women and prey on them,” Dick Lehr, author of *The Birth of a Nation: How a Legendary Filmmaker and a Crusading Editor Reignited America's Civil War*, tells NPR's Arun Rath.

Lehr says the film was the *Avatar* or *Star Wars* of 1915: It was a runaway hit.

After the first screening in Los Angeles, the film got a big thumbs-up. “The critics were raving. People were on their feet cheering at the climax of the film, when the Klan is seen as a healing force—restoring order to the chaos of the South during Reconstruction,” Lehr says. “They were in awe of seeing for the first time a feature film of this length. There's one critic [who] said, ‘The worst thing about *The Birth of a Nation* is how good it is.’”

Long after 1915, the silent film continued to find audiences.

Immediately after the film's release, the Ku Klux Klan experienced a surge in membership, and it continued to use the film as a recruiting tool for decades after that.

As a young journalist in the late 1970s, Lehr infiltrated the local Knights of the Ku Klux Klan for a story. He met their leader at the time, David Duke, who was there to recruit the next wave of Klansmen.

“[Duke's] idea of a meeting was to show this film, in which he stood there narrating it and adding his own very racist spin on events. And that's when it hit me: the real propaganda value for the Klan, not only way back when but here it was, like, six, seven decades later,” says Lehr.^{vii}

The second trimester of the world of electric light involved the emergence of television, which was first invented in the 1920s but became a widespread form of mass media in the 1950s. Television had an enormous influence on American society and was arguably the dominant form of mass media in the second half of the twentieth century. In 1946, only about six thousand U.S. homes had a television, but less than a decade later in 1955, over half of U.S. homes had a television. By the late 1990s, ninety-eight percent of U.S. homes had at least one television.^{viii} In comparison to the much slower spread of personal computers, by 1976 over forty thousand personal computers had been sold in the United States,^{ix} but it wasn't until over two decades later, the year 2000, when over half of U.S. homes had a personal computer.^x

The third trimester of the world of electric light involved the emergence of *interactive digital mass media*, which started with arcade and console video games, along with personal computers, in the 1970s, and continued with further developments in interactive digital mass media such as the internet, smartphones, and social media in the late twentieth and early twenty-first centuries. Just as later trimesters of human fetal development both include and expand on developments from earlier trimesters, the same is true for the world of electric light. The internet includes and expands on radio,⁷ movies, and television to varying degrees, and the technologies that will birth the world of electric light (Virtual Reality, Augmented Reality, and Artificial Intelligence) will include and expand on all three trimesters of electric light to even greater degrees.

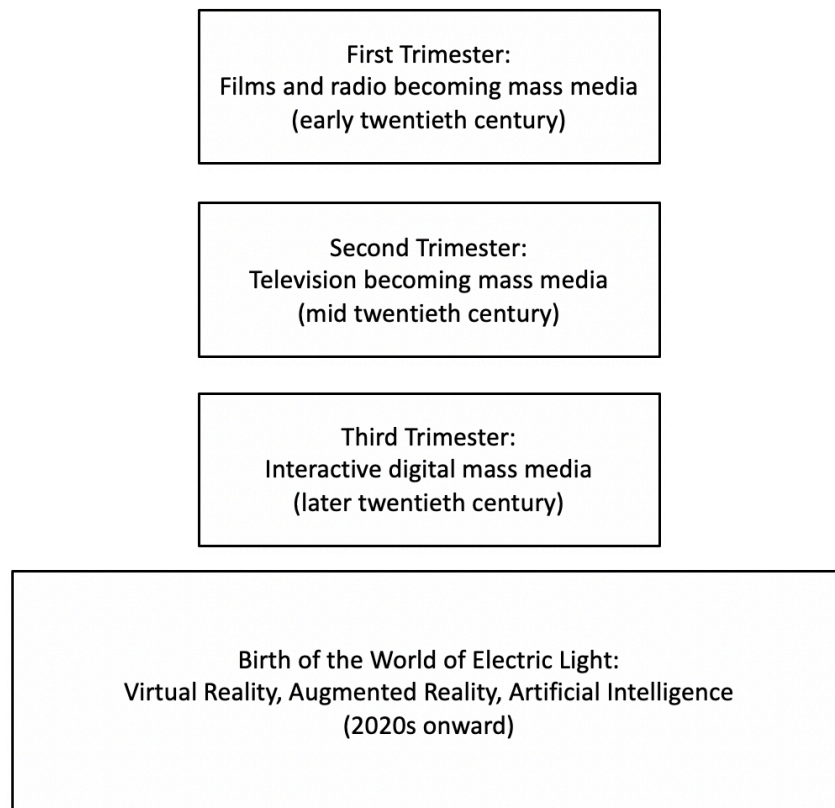


Figure 3: The Embryonic Stages and Birth of the World of Electric Light⁸

Human beings have spent many decades seeing the world of electric light through windows. These windows can take the form of a movie screen, television screen, computer screen, tablet screen, or smartphone screen. However, Virtual Reality (VR) and Augmented Reality (AR) will trick our brain in ways that make it seem like we have passed through these

⁷ Podcasts can be seen as a modern form of radio, and many radio stations can be listened to over the internet.

⁸ In a previous version of this essay, I included lower-latency and greater bandwidth network connections as part of the birth of the world of electric light. Although this is necessary, I have come to view this as part of the ongoing support structure that has been advancing for decades, similar to advancements in microprocessors.

windows and entered into the world of electric light. If people can be bound for hours by the electric light emitted from a tiny window on their smartphone, imagine how much stronger this binding potential will be when people are no longer blocked by a window, but can completely surround themselves with electric light, sculpt their face and body out of electric light, and merge their physical surroundings with digital objects in any combination they want. Imagine how much greater the seductive glow of electric light will potentially be when we can go beyond windows by walking through doorways into the world of electric light.

The trimesters follow a logical progression, in terms of the world of electric light becoming closer to people and more intertwined in their lives with each trimester. In the first trimester, the lightning bolt is far away. People have to leave their homes to see it (movie theaters), and only its sound (radios) enters their homes, like the roar of distant thunder. In the second trimester, both the sights and sounds of the lightning bolt enter people's homes through televisions, becoming closer and more intertwined in their lives. In the third trimester, the lightning bolt becomes even closer – through smartphones that people carry everywhere and can access anywhere – and even more intertwined in people's lives through the highly interactive nature of third trimester digital technology.

When the world of electric light is born, ultimate closeness is possible, because not only can we pass through doorways in order to become embodied within the world of electric light, but it can also pass through doorways in order to become embodied in our homes, streets, and entire physical reality. To better understand how we can become embodied in the world of electric light, and how it can become embodied in our physical reality – the outer world – we must discuss why Virtual Reality, Augmented Reality, and Artificial Intelligence are *convergent technologies* that will unleash a tech tsunami. We must also discuss why this tsunami will break the walls separating the inner world, outer world, and world of electric light.

The Oncoming Tech Tsunami

Many of the problems that people deal with today, such as racism, sexism, authoritarianism, pandemics, slavery, and war, have existed in some form for thousands of years. These issues are not new, and humanity has been able to make progress on many of them. But rapidly escalating digital technologies are creating new problems and unprecedented dangers that humanity has never before had to face. Children and adults will need to learn essential skills for navigating the complex societal disruptions caused not only by reality, but also by Virtual Reality, Augmented Reality, and various forms of Artificial Intelligence such as Large Language Models (LLMs).

Describing the unprecedented time in which we live, AI innovator Geoffrey Hinton said the following about ChatGPT and other LLMs, “We’re entering a time of great uncertainty, where we’re dealing with kinds of things we have never dealt with before. It’s as if aliens have landed, but we didn’t really take it in because they speak good English.”^{xi}

In the past, our societal response to disruptive digital technologies has been far too slow. In 2024, governmental and educational institutions are still trying to come to grips with the many ways in which smartphones and social media – technologies that started to become mainstream over a decade ago – impact children, civil society, and attention, along with our information ecosphere, political systems, and basic ability to trust.

In 2019, I taught a Peace Literacy workshop to a school district, and the teachers and principals asked me what they should do about the problem of smartphones in their classes. In that moment, I realized *they were asking this question thirteen years too late*.

I recalled being in the Army in 2006 when it was issuing Blackberries to soldiers. These adults found these new smartphones so compelling and hard to put down that they began calling them “Crackberries.” In fact, *Crackberry* was the Word of the Year in 2006.^{xii} Blackberries seem archaic today, relative to the technologies now available to both adults and children.

If soldiers, whom we think of as disciplined, were having addiction issues with Blackberries, what happens when over 90% of adolescents^{xiii} have access to contemporary smartphones that are a thousand times more capable than a Blackberry? Where AI, VR, and AR are concerned, we cannot afford to be thirteen years too late again.

Unfortunately, our society is at great risk of being much too late, once again. This might not seem to be the case, because there has been a lot of recent mass media attention on the dangers of AI. However, most of this attention has been reactive and unhelpful. Instead of providing the kind of forethought that can help people get several steps ahead of rapidly advancing technology, media attention often reacts to the trail that new technology leaves behind.

Consider an analogy with the development of early cell phones that preceded the iPhone. In 1994, it wasn't obvious to most people that big, clunky cellphones and newly emerging mass-market internet would end up becoming the same technology, in the form of a sleek, streamlined smartphone that greatly amplifies the power and potential of the internet. And in 2024, it isn't obvious to most people that big, clunky VR/AR headsets and newly emerging mass-market AI will end up becoming the same technology, in the form of a sleek, streamlined wearable device that greatly amplifies the power and potential of AI.

The convergence⁹ and escalating power of VR, AR, and AI will create a tech tsunami that breaks the walls separating the inner world, outer world, and world of electric light. The VR/AR/AI wearable devices that represent the very beginning of the oncoming tech tsunami will start to become mainstream at some point in the 2020s, and will become far more powerful, comfortable, and widely used in the years that follow.

⁹ Since a VR/AR headset already requires AI computer vision in order to function, it could be argued that this convergence has already happened, even though VR/AR has not yet converged in a significant way with generative AI.

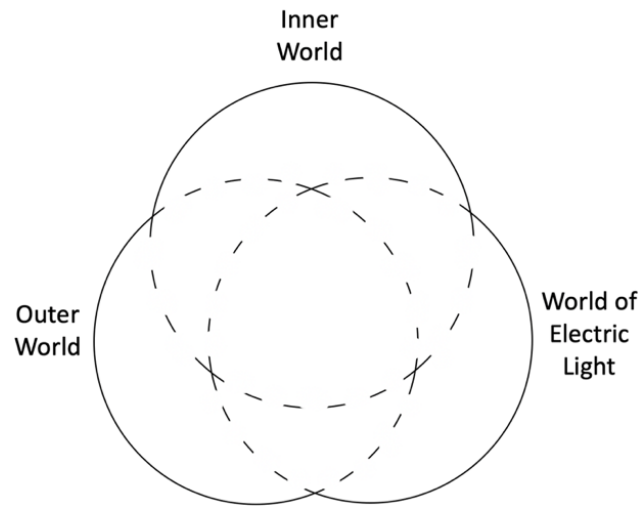


Figure 4: VR/AR/AI will break the walls separating the Three Worlds

What will happen when these walls break? To envision the broken wall between the outer world and the world of electric light, think of the animated characters you have seen in movies, television shows, and video games as manifestations of electric light. In the first, second, and third trimesters, they were locked inside the prison of conventional flat screens and unable to exist in bodies that can move through our physical reality (outer world). VR/AR/AI will obliterate these prison walls by allowing these manifestations of electric light to be embodied physically in a robot body, or as a digital entity that VR/AR devices can project into our physical surroundings. VR/AR/AI will also allow people to feel like they are digitally *teleporting* (known as “telepresence”) to a live sports game, concert, or the home of a friend who lives thousands of miles away – experiences that were previously accessible only by traveling to that place in the outer world. All of these examples, and many more, will shatter the wall that has traditionally separated the outer world from the world of electric light.

VR/AR/AI will also break the wall that has traditionally separated the inner world from the world of electric light, because AI will allow manifestations of electric light to have a kind of mind that reflects aspects of humanity’s inner world – including non-physical needs such as expression, and muscles of our humanity such as language, imagination, and reason.

It is not accurate to say that AI *is* the human psyche (our vastly complex inner world). Instead, AI *reflects* aspects of what the human mind can do, and can also reflect human misunderstandings, biases, goals, and values. AI is a mountainous mirror – vast and multifaceted like a mountain, with secrets hidden in its many caves and crevices. Just as a mirror can concentrate light, making the light seem more intense, AI can concentrate human abilities like

language in ways that seem to surpass what most humans can do.¹⁰ AI is a mountainous mirror that keeps growing larger, reaching heights that reflect human abilities, and possibly reaching heights that reflect the birth of mythological gods.¹¹

AI's ability to reflect aspects of humanity's inner world will cause more and more interactions with the world of electric light to feel like interactions with a human personality. Even without VR/AR, typing to ChatGPT in a text box feels like interacting with a person in some ways. Adding VR/AR would transform AI from a text box into a figure that can appear in your room, make eye contact with you, speak with a voice, and perceive your surroundings. When I say that VR/AR/AI will usher in the birth of the world of electric light, I mean this metaphorically, but also somewhat literally, because VR/AR/AI will cause interactions with the world of electric light to feel like interactions with a person.

The metaphorical (and somewhat literal) birth of the world of electric light will happen gradually, rather than all at once. A human birth is a process that can take hours. The birth of the world of electric light is a much more gradual process that will take many years. Unlike a water tsunami that becomes less powerful over time after it makes contact with land, the tech tsunami will become more powerful over time after it makes contact with humanity. The tech tsunami will gradually rip off more chunks of the walls separating the three worlds, resulting in more openings that function as doorways. These doorways will allow humans to pass through and feel embodied in the world of electric light, and allow manifestations of electric light to pass through and attain a kind of embodiment in our physical reality – the outer world.¹²

Why would people want to use VR/AR/AI? For the same reasons that they listen to the radio, watch movies and television, use social media and the internet, and play video games – it is highly alluring to their non-physical needs and tangles of trauma, like a street lamp that is highly alluring to a moth searching for moonlight. VR/AR/AI will be far more seductive to humans than any form of electric light that has come before, in ways that I can only begin to convey throughout this book. I think people are greatly underestimating humanity's enormous appetite for VR/AR/AI – an appetite that emerges from humanity's hungry non-physical needs and painful tangles of trauma. Most people are not taught the skills that empower them to feed their non-physical needs in healthy and fulfilling ways, heal their tangles of trauma, and create more peaceful and just societies that help them fully flourish as human beings.

¹⁰ The extent to which AI reflects the human condition, and the nature and nuances of this reflection, will be discussed further in Chapter 3. That chapter will introduce new terms such as “machine metis,” “digital eidolons,” and other reflections of our humanity that AI makes possible.

¹¹ The Peace Literacy curriculum depicts the Greek god Hephaestus, who has robots in the *Iliad*, as a metaphor for our growing god-like power to create AI and robots that reflect human abilities. The quest to create a “super-intelligent AI” that exceeds human intelligence is not seeking to merely forge the robots of Hephaestus, but to create Hephaestus himself – a digital god that greatly surpasses human abilities.

¹² A wave needs to reach a certain size to be considered a tsunami. Early VR, AR, AI, and robots from the 20th century through the 2010s can be depicted metaphorically as waves hitting land, but these technologies had not yet converged and escalated to the point where they could harness the force needed to create large breaks in the walls.

VR/AR/AI will break the wall separating the inner world and outer world, giving people new methods for bringing their unfulfilled non-physical needs and tangles of trauma into our physical reality in both constructive and extremely destructive ways. To better understand this, imagine that the outer world is above ground, and the inner world is a subterranean realm below ground. Societies often prefer for people's trauma to remain buried and hidden underground. VR/AR/AI will allow all that is buried and hidden to rise to the surface in ways that it never could before.

Even when walls separate the three worlds, this does not stop these worlds from overlapping constantly (I provided many examples earlier in this chapter). But when the oncoming tech tsunami shatters these walls, the nature of this overlap, our relationship to these worlds, and their relationships to each other, will shift in new and drastic ways. To offer just one example, VR/AR/AI will allow anything that people can imagine to be easily transformed into something that they can see, hear, touch,¹³ and share with others. The wall that used to limit people's fantasies to their imagination will no longer exist, allowing every kind of fantasy, no matter how violent, to spill into the outer world through experiences, interactions, and manifestations that were previously impossible.

Some well-intentioned people might respond with nothing but glee and excitement to the idea of any fantasy becoming possible. But if they fully understood where this road will eventually lead as the technology advances much further and more fully interacts with humanity's vast range of vulnerability, pain, and confusion, they would probably have a different response. Many factors can make it difficult for people to foresee where this road will eventually lead, causing them to sleepwalk into the future. As the oncoming tech tsunami gradually becomes more powerful and poses a greater threat to the walls that have traditionally separated the three worlds, people can respond by building flimsy cardboard walls that are incapable of protecting humanity and make it even more difficult to see the road ahead.

What do these flimsy cardboard walls symbolize? In an attempt to stop or slow the escalation of digital technology, I have seen people build a cardboard wall of cynicism by mocking this technology and the people who use it. But cynicism and mockery will be unable to stop the oncoming tech tsunami, because the tsunami's size will be proportional to the size of humanity's unfulfilled non-physical needs and neglected tangles of trauma. These unfulfilled needs and neglected wounds can be compared to a boundless ocean that is much larger than most people realize. Cynicism is a sibling of helplessness, and is powerless to empty the vast ocean of unfulfilled needs and neglected traumas that will generate so much of the mass, momentum, and force of the oncoming tech tsunami.

¹³ People will be able to touch manifestations of electric light to varying degrees, through the use of haptic gloves and other haptic devices, along with the ability of VR/AR/AI devices to overlay digital images onto physical objects (such as robots, our physical surroundings, and other people).

The ocean that will be unleashed, resulting in the oncoming tech tsunami, is not actually the technology itself, but five powerful aspects of the human condition that are explored in detail throughout this book. VR/AR/AI will simply harness these aspects of the human condition, transforming them into a shape capable of shattering the walls separating the three worlds. The preface and four chapters in this book each discuss one of the five aspects of the human condition that will comprise the mass, momentum, and force of the oncoming tech tsunami, starting with the discussion of non-physical needs and tangles of trauma in the preface. The four other aspects of the human condition are arguably as powerful as the non-physical needs and tangles of trauma, and offer even more evidence showing why cardboard walls will be powerless to stop the surging ocean of our humanity.

Denial is another cardboard wall that is a powerless response to the oncoming tech tsunami. Another cardboard wall is a common form of reactionary anti-technology sentiment that can be easily manipulated and pivoted to support unjust causes. To respond proactively and effectively to the oncoming tech tsunami, humanity will need better options than flimsy cardboard walls that are reactive expressions of helplessness. Humanity will need options that are expressions of power rather than powerlessness.

The Power of Peace Literacy

My obsession with understanding inner and outer peace brought me on a journey deep into the human condition, where I began to see that our greatest human vulnerabilities are linked to our greatest human powers. When we strengthen these powers, we become more competent at harnessing the liberating potential of electric light and defeating its binding capacity. I call this competency Peace Literacy. It is literacy in the human condition.

The birth of the world of electric light, which we can also call the oncoming tech tsunami, will affect human civilization more than any technology since the invention of agriculture. We are not psychologically ready for this future, but Peace Literacy can help us get ready. Just as insects become bound to electric lights because our technology has evolved faster than their biology could adapt, our technology has evolved faster than our competency in our own humanity has adapted. We can use Peace Literacy to escalate our competency in being human so that we can become more skilled at navigating our inner world, the outer world, and the world of electric light in both its current and future forms.

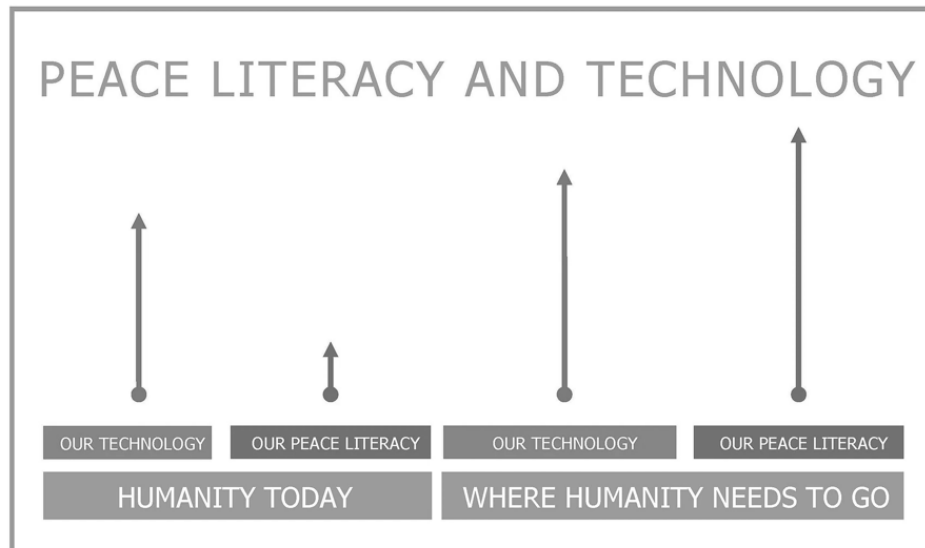


Figure 5: Escalating Our Peace Literacy Beyond Our Technology

Before the twentieth century, people did not have to deal with the world of electric light. The growth of this new world, along with the many ways in which it intersects with our inner world and the outer world, has increased the complexity of the reality that people today must navigate. Even if people today do not use any digital technology, the world of electric light still affects them because it shapes political systems and worldviews that have a lot of power over the health of our planet.

Peace Literacy is a skill-set for the twenty-first century, a new paradigm for escalating our competency in both technology and being human that allows us to navigate our inner world, the outer world, and the world of electric light in ways that increase well-being. When humanity has the technological capacity to destroy itself, human survival will depend on our skill and competency in navigating all three of these worlds. To not only survive, but to also thrive, humanity will need to confront the underlying causes of problems that have been ignored for far too long. The oncoming tech tsunami will bring these underlying causes to the surface in ways that were previously impossible, elevating the dangers of ignoring them to unprecedented levels.

VR/AR/AI will give electric light an unprecedented binding power, especially when people use this technology to manipulate and weaponize human vulnerability in new ways, but also an unprecedented liberating power, especially when people use Peace Literacy to unlock the full capacity of this technology to strengthen our humanity. Our human potential is like a seed. If we grow this seed into a gigantic tree that has incredibly deep roots, then our humanity will be so massive and strong that it will not be swept away by the oncoming tech tsunami. When we make our humanity powerful and this tsunami shatters the walls separating the three worlds, revealing an ocean of uncharted waters and a panorama of new horizons, we will be able to find greater heights of purpose, meaning, self-worth, and so much more.

AUTHOR BIO

Paul K. Chappell serves as Executive Director of the Peace Literacy Institute (peaceliteracy.org) and is the author of the *Road to Peace* book series (peacefulrevolution.com).

ⁱ The Xerces Society, ed. Deborah Burns, *Attracting Native Pollinators* (North Adams, MA: Storey Publishing, 2011), 76.

ⁱⁱ Robert Rosenberger, “Yes, Smartphone Use Is Probably Behind the Spike in Driving Deaths,” http://www.slate.com/articles/technology/future_tense/2017/12/yes_smartphone_use_is_probably_behind_the_spike_in_vehicle_related_deaths.html.

ⁱⁱⁱ The ancient Greeks did not understand the concept of “electricity” to the extent that we do today.

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^v <https://losangelestheatres.blogspot.com/2019/02/electric-theatre.html>

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^{xii} <https://www.chicagotribune.com/news/ct-xpm-2006-12-27-0612270247-story.html>

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