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Narrator: This episode of the Slice of MIT Podcast was produced alongside the MIT Alumni Association's Cardinal and Gray Society, a program that invites MIT alumni who have reached the 50th anniversary of their MIT graduation to gather for social and intellectual events between their five-year reunion festivities. For more information on the Cardinal and Gray Society and its upcoming events, visit the communities section of the MIT Alumni Association website at alum.mit.edu.

This talk by Alan Lightman, MIT Professor of the Practice of the Humanities, titled "In Praise of Wasting Time: How the Rush and Heave of Modern Life is Destroying our Inner Selves," was recorded during the society's holiday luncheon at MIT's Endicott House in December 2018.

The lecture and luncheon was jointly organized by the Cardinal and Grey Society; the Emma Rogers Society, which helps surviving spouses of MIT alumni stay connected to MIT; and the Katherine Dexter McCormick (1904) Society, which honors donors who have left planned gifts and bequests to MIT.

Alan Lightman: Not long ago, I found myself in a remote village in Cambodia. The inhabitants of this village lived in one-room huts. They don't have electricity. They don't have plumbing. They cook over open fires. And they support themselves by farming rice, and watermelons, and cucumbers.

Each morning, the women of the village ride their bicycle is down about a 10-mile red dirt road to the highway, where they purchase goods that they cannot by themselves. And, through a translator, I asked one of the women how long this trip takes, which they make every morning. And the woman got a puzzled look on her face, and said, I never thought about that. And I was startled, to hear her disinterest in time, and envious. Is that me over there?

We, in the developed countries, have created a frenzied lifestyle in which not a minute is to be wasted. A precious 24 hours of each day are dissected and carved up into 10 minute units of efficiency. We become angry and agitated if we're in the waiting room of a doctor's office, and we have to wait for more than 10 minutes. We become upset if our laser printers don't spit out at least five pages per minute, and we have to be plugged into the grid at all times.

I don't know how many of you have smartphones. The interest is noted. Anybody have a smartphone here? Almost everybody. And I imagine and your children and grandchildren have them, as well. We go through our email at restaurants. We go through our online bank accounts while we're walking in the park. And I know many young people who check their smartphones every five minutes throughout the day. After school, our children are loaded with piano lessons, and extra language lessons, and dance classes, and soccer lessons. Our university curricula are so crammed full that our young people don't have time to digest what they're learning.

And I plead guilty myself. If I take a look at what I do during a 24-hour period, if I have an extra hour I work on a book that I'm writing or an article, or prepare a class that I'm teaching. If I have an extra few minutes, I will check my email. And if I have just a few seconds, I'll answer telephone messages. I rarely goof off. I rarely follow a path that I think does not lead to some profitable ending. I rarely waste time. And I would never, ever, ever spend a couple of hours each day riding my bicycle down a red dirt road without knowing exactly how long it took or listening to an audio book on the way.

There are many aspects to today's time-driven world, our wired world. But they're all connected, and they can all be traced to improvements in technology and general prosperity. The pace of life has always been regulated by the speed of communication, and the speed of communication in turn has been increased enormously by new technology. That same technology has increased prosperity.

And when that's combined with the time equal money equation you can see that each minute becomes more and more precious, and we have a heightened awareness of the commercial and goal-oriented uses of time at the expense of more reflective time, more free-floating imagination, non-goal oriented uses of time. But I want to say that technology is only the tool. Human hands work the tool, and behind the technology is us. I believe that our entire way of thinking, our entire way of being in the world, has changed. Many of us cannot spin an unscheduled hour or sit alone in a chair for 10 minutes without external stimulation.

What exactly have we lost? If we're so crushed by our schedules, and to-do lists, and hyper-connected media, that we no longer have time to think and reflect on ourselves and the world? What have we lost? If we can't let our minds wander without any goals, what have we lost? Well, certainly—and I can address these questions to myself, because I am guilty of this syndrome.

Certainly, I have threatened my creative activities. And psychologists have known for a long time that creativity thrives on unstructured time. Gustav Mahler routinely took three or four-hour walks in the countryside after a lunch, where musical ideas would come to him. And Carl Jung, the great psychologist, did some of his best thinking when he was away from his frenzied office in Zurich, and went to his country house in Balanchine. And the writer Gertrude Stein, while she was working on an article or a book, often wondered about the countryside looking at cows. So our creativity is threatened by not having any time for reflection.

I've also endangered the needed—I'm talking about myself, because I'm guilty of this. I've endangered the needed replenishment, of mine, that comes from doing nothing in particular from taking long walks without destination, and simply finding a few moments to be away from the noise of the world. The mind needs to rest, and this needed rest was recognized thousands of years ago in the Hindu traditions of meditation and then more recently in Buddhism. But I think that I've lost even more than this. I think I've lost something of my inner self.

And by inner self I mean that part of me that dreams, that imagines—that thinks about who I am, and what's important to me, and where I want to go in my life. That inner self needs quiet, it needs solitude, it needs privacy. When I listen to my inner self, I hear the quiet breathings of my spirit. And those breaths are tiny and delicate, and they need to be protected. Without hearing that quiet voice of my spirit, my inner self, I'm a prisoner of the wired world. And by wired world—I used that phrase a few times—I mean not only the hyper connectedness to the internet, but I mean also our frenzied pace of life.

I wanted to show you the cover of an issue in November 2016 of TIME magazine, and only a few of you will be able to see it. But I'll describe it. There's a picture of a young woman, a teenager maybe 16 years old. She's got dark hair. She's wearing a purple blouse, and she looks like all the life has been sucked out of her. She looks like she has no hope. And for those of you who have children and grandchildren-- and I have children and grandchildren myself—you hope that your children never look like that.

And the title of this issue of TIME magazine, written right here, is "Anxiety, Depression, and the American Adolescent." And what is documented in this issue of TIME magazine is that, over the last 15 years, there has been a trend of increasing depression among young people. According to the National Institute of Mental Health from 2010 to 2015, the fraction of young people who reported being depressed in the previous year—that fraction went up by 50%, and of course

there are many factors leading to the increased depression among young people. And I've talked to some friends in China, and they've told me that it's the same there.

There are many factors, but sociologists and psychologists think that one of the major factors is the massive pervasive presence of the internet, the digital grid. With little opportunity or desire to disconnect, the grid replaces in-the-flesh reality with virtual reality. It can drown out the rest of the life. Janis Whitlock, who is an expert in mental health and director of the Cornell research program on self injury and recovery, says that our young people, quote, "are in a cauldron of stimulus they can't get away from, or don't want to get away from, or don't know how to get away from," end quote. A recent Pew survey shows that the average teenager sends or receives 110 text messages a day on their smartphones.

So what's the problem with non-stop stimulation? Is there any problem with this? Well, I have a friend, Ross Peterson, a psychiatrist who used to work in Carlisle. And he has dozens of teenage patients. And I talked to him about this, and he told me that he thinks that a major cause of increased anxiety and depression among young people is their terror of aloneness-- their fear of being alone. And this terror, in turn, is intimately connected with the hyper-connected social media world of today.

Modern teenagers live on the virtual planet of Facebook, and Snapchat, and Instagram. And they're probably several more of them now that I haven't been able to keep up with. They're always connected. And Peterson mentioned, to me, the acronym FOMO, which stands for Fear Of Missing Out. And these young people are afraid that they're missing out on all of the activity of their friends, because they're able to see what they're doing nonstop every couple of minutes, and they're afraid they're going to miss out. So they can't be alone. They can't be away from their smartphones.

They sleep with their smartphones under their pillow or next to their beds. It's the first thing that they look at when they sleep with their smartphones under their pillow or next to their beds. It's the first thing that they look at when they wake up in the morning. It's an addiction—an addiction. You can get another hit just by pushing a button. And like any drug addiction, there's never enough. We become addicted to external stimulation. It's impossible for most of us to sit quietly in a room for 10 minutes without external stimulation. I think probably many of you can do that, but younger people have trouble doing that. You should try it.

And a few years ago, some sociologist, at Harvard and the University of Virginia, did an experiment to see how long young people could sit without external stimulation. They got a

bunch of Harvard and University of Virginia undergraduates, and they asked each one of them to sit alone in a room. They had to leave all of their digital devices, even their wristwatches, behind. And the only thing in the room besides a chair was a little table with a buzzer on it. And if you pressed the button of the buzzer, you got a terrible electric shock. So one by one they let each of the people just try this out to see how it worked. And all of them reported that it was very unpleasant, and they would never want to do that.

So then, they started the experiment. So one by one, each person was put in the room. The door was closed—no smart phones, no computers. They didn't know exactly how long they were going to be there, but most of them were there for about 10 or 15 minutes. And the results were that 65% of the males and 25% of the females pressed the button. They would rather have a painful electric shock than no stimulation at all for 10 or 15 minutes. I mean, it's absolutely incredible.

One of the most disturbing effects of the wired world is its impact on the creativity of our young people. There was a researcher at the School of Education of William & Mary who recently did an experiment—recently looked at the data of the Torrance test for creativity, which is a test of creativity that's been given for about 40 years. And she found, that since the mid 1990s around the emergence of the internet and the smartphone, that creativity among young people has been going down, as measured by this test. And I mentioned that there are many aspects to the wired world, and one of them is just the pace of life.

There were some other experimenters at the British Council and a collaboration with the University of Hertfordshire, who studied the walking speed of people in 35 cities around the world. And they found that, over the last 10 years, the walking speed of people has increased by 10%--the walking speed. So we're rushing around faster and faster. All of this, of course, is brought about by the speed of communication. The speed of human communication regulates the speed of life.

So how did we get here? How do we arrive at this point in history? I described some of the dangers and some of the documentation. Well, I think I mentioned earlier that the speed of life has always been regulated by the speed of business, and the speed of business has always been regulated by the speed of communication.

Well, a century ago in the mid-19th century, the telegraph was our communication device, and that could send about 3 bits per second. In the mid-1980s when the internet came along, that could send 1,000 bits per second. Today, the internet can send 1 billion bits per second. So if

you graphed that on a curve, you can see that the curve is just going like this up, and up, and up. A lot of this has to do with the speed in the workplace. And 50 years ago there was an economist, named Gary Becker, who did a study of the cost of time in which he put all uses of time, both leisure and business, on the same footing.

And he found a not-surprising result that people will spend less time in their leisure activities when their work time, their paid time, becomes more profitable—a not-surprising result. And according to the Bureau of Labor, the productivity has increased by a factor of five since 1950—the amount of production in one hour by a worker. And when you combine that—how much more profitable work time has become—with the time equal money equation in Becker's analysis, you can see that people are reducing their leisure time—their time to reflect—because they can have increased productivity with their smartphones, and so on. The Harvard Business Review recently found that people who carry smartphones are connected to their jobs 13.5 hours a day and five hours on the weekend, which is a 72-hour workweek. So the irony here is that technology and economic progress, instead of increasing more leisure time, have done just the opposite.

I wonder whether people in the other room can hear me. Yes. Well, I hope maybe they're taking a nap, which would be a good way to waste time.

I wanted to say one more personal thing before I move to my conclusion. When I was in grade school and high school-- and I'm not as young as I look. I grew up in the 1950s and early 1960s. I was a budding scientist, and I did experiments.

One of the projects I did was I built a rocket with a lizard passenger, and I thought that unmanned spaceflight was just too boring. So I had a lizard passenger. And I built it, so that when the rocket got to its maximum height and was about to turn over there was some mercury that slid in a tube and made an electrical connection, and a little gunpowder charge blew the lizard out on a parachute. And the lizard would come down. And I used to do things like this and projects like this, and I didn't do them because they were assigned in school. I didn't do them because my parents had told me to do these projects.

I recognize now that these things that I did for fun and the long afternoons after school were part of the development of my imagination. I had these stretches of unscheduled time, and I did these things to develop my imagination. And it was not the world of my parents or my teachers. It was a world of my own. And I think that, in various ways, the escape from structure and schedule, the willingness to experience space without time, the development of one's inner

world, the full release of the imagination, these are all connected. And they're connected to our creativity and to our inner lives, and the lack of these things is why this teenager is looking so depressed.

In 2016, the Harvard biologist and naturalist EO Wilson published a little book titled *Half the Earth* in which he proposed that we devote half of our planet to environmental protection, and he was addressing the environmental destruction of the last 50 years. Of course, I don't think that there's any-- there wasn't any single individual who—or even the society—who intentionally set out to destroy the natural world. I think it has been an unintended consequence of population growth, the desire to have more comfortable lives, and the energy required to do that. I think that we are destroying our inner world now via the wired world.

It's more subtle. It's not as obvious, but we're beginning to document the bad effects of our frenzied hyperconnected lifestyle. I mentioned a few studies to you. I think that the situation is dire. I think, in some ways, it is just as serious as the destruction of our environment even though it's partly invisible, and we may already be at the point of no return, just as we are with global warming. We're losing our ability to know who we are and what's important to us.

So is there anything that we can do? Somehow, we need to create a new habit of mind, both as individuals and as a society. We need a new mental attitude that values our inner reflection, values stillness, values privacy, values personal reflection—that honors the inner self. And so, I want to end with a few recommendations, and some of these may apply to your grandchildren. For K through 12 students, I think that each school day should have a 10- minute period of silence, and it could be during homeroom period. There have been a few schools that have experimented with things like this, but this is just the beginning of developing a habit of mine.

I think, for college students, that every department should have what you might call an introspective course that lowers the amount of reading but gives students more time to reflect on what they're reading, and to digest what they're reading. I think, in the workplace, that every business office should have a quiet room, where employees are encouraged to go for 30 minutes during the day. It's not part of the lunch hour. Leave their cell phones behind and just spend 30 minutes in quiet reflection or meditation. For families, I think that the evening meal, it should be unplugged. We should turn off our TV'S, turn off the phones, turn off our smart phones. And just have a quiet hour of conversation.

And I think that the individuals should figure out a way to put 20 or 30 minutes into their day of just maybe sitting quietly, taking a walk outside, without your digital devices. And at the societal

level, I think that there should be screen-free zones, just as there are no-smoking zones, where people are not allowed to have their smartphones. I don't know about you, but many times I've gone into restaurants, and I've seen people on their smartphone. And it actually disturbs my eating, my dining experience, just like secondary smoke inhalation. I'll end with one scene, and that is I drove down from Concord today—Concord, Mass., which is where Henry David Thoreau lived, and Walden Pond is there. I imagine that most of you have gone to Concord at some point. And some days, I managed to pry myself away from all of my tasks, and I take a couple of hours to walk around Walden Pond. It actually doesn't take a whole hour to walk around, but I might go around twice. It's a winding dirt trail. It's more narrow than the red-dirt road that the Cambodian women traveled to get to the highway, and in the winter the air is very sharp and crisp. In the summer, it's soft and aromatic. And I just walk around the pond without my smartphone.

Henry David Thoreau wrote, "Our life is frittered away by detail, simplicity, simplicity, simplicity." And as I'm walking—if it's the summer time—I listen to the blackbirds, and the chickadees, and the kingfishers, and the redtailed hawks. And if it's the winter time, I listen to the crunch of my boots in the snow. I want to recover what I've lost. I want to live in the slow world. I want to be free, and yet I feel this invisible cage. Even as I'm walking around the pond by myself with no one else there, the electromagnetic waves of the internet are going through my body.

Technology is both a blessing and a curse. In Thoreau's day, the new technology was the railroad. "We don't ride the railroad," Thoreau wrote. "The railroad rides us." So I think about what he said. And I ask myself, can I escape? Can I find stillness? And then a leaf falls from a tree. Slowly, slowly, I watch it stop time. Thank you.

Narrator: Thank you for listening to this episode of the Slice of MIT Podcast. Share your thoughts on this talk by Alan Lightman on Twitter at [@mit_alumni](https://twitter.com/mit_alumni). And if you want to hear more surprising, quirky, and insightful stories about MIT, subscribe to the Slice of MIT Podcast on iTunes. Please rate the podcast and leave a review. Tell us what you liked and didn't like about this episode. Thank you to the MIT Cardinal and Gray society for the audio of this podcast. And for more information the MIT Cardinal and Grey Society, and the many other communities available to MIT alumni and friends, visit alum.mit.edu/communities. Thank you for listening to the Slice of MIT Podcast.