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How to Thrive in the Digital Age

Written by Tom Chatfield

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Thrive in the Digital Age
Tom Chatfield

I went to the woods because I wished to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived. I did not wish to live what was not life, living is so dear; nor did I wish to practise resignation, unless it was quite necessary. I wanted to live deep and suck out all the marrow of life …
– Henry David Thoreau, *Walden*

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Introduction

We live in an age of miracles so commonplace that it can be difficult to see them as anything other than part of the daily texture of living. This is the technology writer and theorist Kevin Kelly, blogging in August 2011:

> I've had to persuade myself to believe in the impossible more often ... Twenty years ago if I had been paid to convince an audience of reasonable, educated people that in twenty years time we'd have street and satellite maps for the entire world on our personal hand held phone devices – for free – and with street views for many cities – I would not be able to do it. I could not have made an economic case for how this could come about 'for free'. It was starkly impossible back then.

The impossible facts of our age are only just beginning. Ahead of us lie new forms of collaboration and interaction whose outlines we are, perhaps, beginning to glimpse in the fact that the internet-connected phones increasingly found in every pocket are more powerful than most computers were ten years ago. In another decade's time, billions of people will have at their fingertips the kind of resources that only governments commanded twenty years ago.

The pace of these changes is another unprecedented thing. Television and radio have been with us for over a century; print for more than 500 years. Yet in just two decades, we have moved from the public opening up of the internet to its connection to more than two billion people; and it has been just three decades between the launch of the first commercial cellular-phone system and the connection of more than five billion active accounts.

This smart global network is likely, in the future, to connect not only us, but many of the objects in our lives – from cars and clothes to food and drink. Through smart chips and centralized databases, we are gaining an unprecedented kind of connection not only to each other, but to the manufactured world around us: its tools, its shared spaces, its patterns of action and reaction. And with all of this comes new information about the world, in new kinds of quantities: information about where we are, what we are doing, and what we are like.

What are we to make of this information? And, equally importantly, what is already being made of it by others – by governments; by corporations; by activists, criminals, law-enforcers and creators? Knowledge and power have always been closely entwined. Today, though, information and the infrastructure through which it flows represent not only power, but a new kind of economic and social force.

Intellectually, socially and legislatively, we are lagging years, if not decades, behind the facts of the present. Generationally, the divide between those 'natives' born into a digital era and those who grew up before it can seem a chasm across which common understandings and shared values are difficult to articulate.

This book examines the question of what it may mean for all of us not simply to exist but to thrive within a digital world; to 'live deep', in
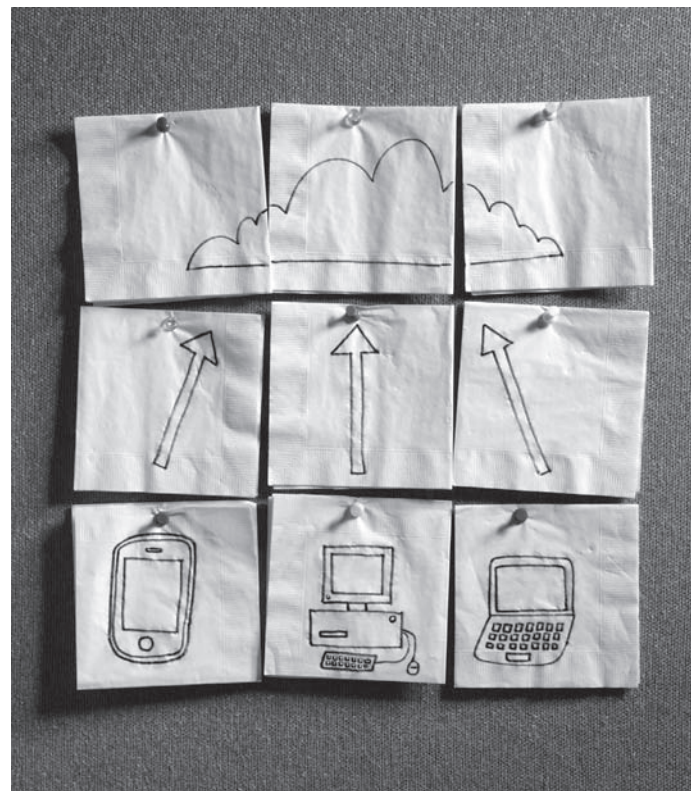
Cloud Culture – caption to follow

Thoreau's phrase, and to make the most of the unfolding possibilities of our times.

Exploring these possibilities is like exploring a new city or continent. We are entering a place where human nature remains the same, but the structures shaping it are alien. Today's digital world is not simply an idea or a set of tools, any more than a modern digital device is simply something switched on for leisure or pleasure. Rather, for an ever-increasing number of people, it is a gateway to the place where leisure and labour alike are rooted: an arena within which we seamlessly juggle friendships, media, business, shopping, research, politics, play, finance, and much else besides.

When it comes to the question of thriving, my aim is to trace two interwoven stories: first, how we as individuals can thrive in the digital world; and second, how society can help us to both realize our potential in this world, and relate to others in as fully human a way as possible.

These stories both begin in the same place, with the history of digital machines. I then go on to explore one of the most central questions of the present state of technology: what it means to be able to say 'no' as well as 'yes' to the tools in our lives, and to make the best of ourselves both by using technology and by deliberately carving out time for *not* using it.

I'll also talk about those challenges that almost all of us – whether we know it or not – grapple with every day: issues of personal identity, privacy, communication, attention, and the regulation of all the above. If there is a common thread here, it is the question of how individual experience fits into the new kind of collective life of the twenty-first century: how what 'I' am relates to what others know of me, what I share with those others, and what can remain personal and private.

The second half of this book examines the cultural and political structures encompassing these interests, and what the 'contracts' of decent digital citizenship might look like. Finally, I'll return to that most central of questions: what it means to live well in an age that holds unparalleled opportunities both for narcissism and for connection to others.

The nature of digital technology is as protean as our own, and can play many parts in our lives: facilitator, library, friend, seducer, comfort, prison. Ultimately, though, all of its shifting screens are also mirrors, in which we have the opportunity to see ourselves and each other as never before. Or, of course, we can look away.

1. From Past to Present

I.

The brief story of human interactions with digital technologies has been one of steadily increasing intimacy: of the integration, within half a century, of a startlingly new kind of tool into the heart of billions of lives.

The first electronic digital computers, developed in the 1940s, were vast and dauntingly complex machines, devised and operated by some of the world's finest minds: pioneers like Alan Turing, whose theoretical and practical work helped the British to decode encrypted German messages during the Second World War.

The next generation of computers, mainframes, arose in the late 1950s. Existing largely within academic and military institutions, mainframes still occupied entire rooms and were also the province of specialists – their inputs taking the form of highly abstracted commands, their outputs meaningless to anyone not versed in computer science.

All this began to change in the 1970s, with the rise of the microprocessor and the arrival of the first computers in ordinary homes rather than laboratories. Thomas Watson, the president of IBM, is famously reported to have said in 1943 'I think there is a world market for maybe five computers'. Whether he made this claim or not (no less an authority than Wikipedia declares there's 'scant evidence' that

he did) when the world's first personal computer was released as a kit in 1971, nobody expected the domestic market for such machines to run far beyond a few thousand enthusiasts.

Computing, however, proved an attraction far beyond anything the most ambitious academics had conceived. By the end of the 1970s, new machines by Apple, Commodore and Tandy were selling hundreds of thousands of units. The digital revolution had gone public.

Even this was only the beginning of the steady integration of human–digital interactions. Since the 1970s, our machines have grown ever more powerful, more inter-connected and easier to use. Those we use today are hundreds of thousands of times more powerful than the first domestic generation, tens of times cheaper, and immeasurably easier to use.

More important than power however, is the *experience* that these machines provide. In this, the great revolution is only just beginning. Because personal computing, in the sense of a desktop computer at home or a laptop carried in a bag, is steadily being replaced by something else: the smartphone in the hand or the tablet on the table, switched on and networked at all times.

We are, I believe, steadily moving from merely personal computing towards what might be called 'intimate computing', representing a whole new level of integration between digital technologies and life. In coffee shops and living rooms, personal digital devices are handled with a solicitude and frequency that might once have been reserved for a partner or favourite pet. For a generation of so-called digital natives, a mobile phone is the first thing you touch when you wake up in the morning and the last thing you touch when you go to bed at night.

2.

All technologies change us as we use them: 'we shape our tools, and thereafter our tools shape us', as the Canadian pioneer of media studies Marshall McLuhan put it. In releasing us from reliance on daily hunting-and-gathering, technologies, from early agriculture to refrigeration, have helped us build cities and civilizations. In changing our mobility, transportation technologies have shifted our relationships with time and space. We are technological creatures. It is in our natures to augment ourselves and our world – to exceed and adapt.

Since the invention of writing more than five millennia ago, the world has been transformed by what the American sociologist Daniel Bell called 'intellectual technologies': technologies that allow us to extend our minds in much the same way as weapons and clothing extend the power of our bodies. From maps to movies, we build tools that enhance our apprehension of the world, our capacities for learning and communication, and allow us to pass on our knowledge and inspirations.

Even among such technologies, digital computers are unique. As Alan Turing foresaw in the 1930s, in his envisioning of a Universal Turing Machine able to compute every single function it is possible to solve, computers are the first truly universal medium: mechanisms of an almost limitless flexibility.

From words to images to film, a computer is able to simulate all other media. With the correct software installed, it can reproduce sounds, video, images and text at will – and can send and receive these for the merest fraction of the cost and the time such operations have historically taken. For the first time in history, all our media and

caption to come

communications needs – indeed, all the intellectual technologies in our lives – can be provided via a single, integrated system.

I can still go to the cinema to watch films, if I wish, just as I can flick through television channels, pick up physical books, or listen to music through my CD player. In every case, though, these acts are no longer strictly necessary. Because I own an internet-connected digital device, a whole universe of sounds, words and images lies at my fingertips. Whether I'm at home or on the move, I can access everything from the latest *CSI: Miami* episode to *Moby Dick*, or endless home videos of cats. And I can also access interactive services, from games to online shopping, that no other medium has ever provided.

Through technology, we are all in control as we have never been before. And underpinning this control lie the weightless, infinitely reproducible structures of information itself: the ones and zeroes of electrical charge, from which the possibilities of this word 'digital' ultimately flow.

Throughout history, the power of mind-enhancing technologies has always been limited by the physical stuff of reality. Until the invention of printing, producing a book was a labour that demanded hundreds of hours of expert craftsmanship. Even after the printing press, the physical bulk and expense of paper restricted what could be done with written words. Recorded sounds were, for the first century of their existence, limited by what could physically be etched into a substance like wax or vinyl. Cinema and photography relied on expensive, limited physical materials – delicate, flammable reels of carefully prepared film.

All of this has now been swept away. At the time of writing, in late 2011, an estimated one hour of video footage was uploaded to the web

There are now more pages on the web than there are stars in our galaxy.

for every one minute of real time that passes. We have grown accustomed to the idea of information suffusion. Behind our resignation to the fact that there's more out there than we can ever consume, however, lies a still-steepening curve, with the world's sum total of digital information continuing to grow at an exponential rate.

By 2008, there were an estimated one trillion pages on the World Wide Web. Three years later, it makes little sense even to estimate the number, but it runs to many trillions. Around a hundred billion books have been published in the half-millennium since the invention of printing, if every language and edition is taken into account. That volume of information represents less than a month's worth of the content currently being uploaded to the net.

Most important of all, though, is the fact that digital devices are able not only to display and to reproduce information: they also have the capacity to *animate* it, breathing life into bytes and algorithms. When we program a computer, we are not simply creating an object as we do if we are writing a book, painting a picture or drawing a map. We are setting a system in motion for others to interact with and explore. We are building other worlds.

This is perhaps the central miracle of our age – and the one that best explains the continuing migration of human effort, attention, emotion, economic activity and innovation towards digital technologies. Just as cities have acted as magnets for much of the world's population over the past few hundred years, the digital realm is drawing people into its dense possibilities: into simulations that speak to us more deeply than many merely real experiences.

3.

If we are interested in living with technology in the best possible way, we must recognize that what matters above all is not the individual devices we use, but the human experiences that these create. Digital media are technologies of the mind, and of experience. If we wish to thrive in their company, the first lesson is that we can only hope constructively to comprehend them if we speak not of technology in the abstract, but of the experiences it enables.

Consider the routine of my own digital experiences. On an average day, I send and receive a couple of text messages, read and send twenty to thirty emails, Tweet a handful of times, and log between two and twelve hours at the screen of a computer, reading and writing and interacting online.

Just typing this, I'm probably asking the same question as you are, reading it: where do those two to twelve hours go? I can account for bits and pieces of them, most easily in the form of word counts for articles and books. Yet the honest answer is not only that I don't know, but that it would make little sense to tot up that activity under segments with titles like 'social networking' or 'blogging' or 'online gaming'. To do so would be like accounting for my reading habits by saying I spend two hours a day 'turning over pages'. In each case, the significance of the experience lies elsewhere.

When I'm reading a physical book, knowing what I'm reading and for how long will tell you a lot about the nature of my experience. Even though I have to determine what a book means to *me*, I'm reading the same book as everyone else, and I'm probably doing so in the same way: from start to finish. I'm not simply creating an

entirely new book as I go along, in any order that pleases me – which is exactly what happens when I use a service like Facebook.

What's more, when I'm using Facebook, I'm not acting alone. I'm entering a kind of public space, and responding from minute to minute to the people and objects I find around me. I might update my status, follow a few friends' links, then find myself drawn into a discussion around a book or film, or debating the merits of a night out. I'll almost certainly follow dozens of links elsewhere, and read these while browsing a handful of other sites, checking email, and listening to some music or talk radio.

Reporting, after an hour of this, that I've been 'using Facebook' sheds little light on either the nature or the quality of my experiences. What's needed is something that engages with the kind of encounters and interactions I've had: a measure of my feelings, my motivations, and a recognition that the reality of these is not diminished by the unreality of the arena I've been acting within. I will almost certainly have shared news and views with dozens of other people in an hour online – and how I feel about what's happened is likely to colour my impressions of the rest of the day.

This is not to say that I'm the same person online as I am in the flesh. It is, however, to say that the best criteria for judging my experience are precisely those that I would apply to most other social experiences and interactions in my life: how much I managed to learn or to communicate; how emotionally connected I felt to others; how enriched the rest of my life was by my interactions.

Some rewards are easier to find digitally than others. Getting what we want, online, is often distant from getting what we need – although both tend to happen faster. Disembodied, moving through online space, we are afforded greater ease than when we are sharing a physical environment. We are able more easily both to be altruistic and open, to deceive and cause grief – and to make our lives easier by ignoring the human realities beyond each screen.

Technology is, in this sense, a kind of amplifier applied to our natures – a realm of possibilities that, at its worse, risks reducing other people to the level of objects: presences that we turn on or off at will, and to which we owe little respect or honesty. Veiled behind ever greater complexities, we perpetually risk distancing ourselves from fully committed relationships with each other, and from fully introspective relationships with ourselves.

Yet the evidence of the last three decades of online activity is not solely of objectification or facile self-delight. When I look at the digital landscape in 2011, I see an arena desperate to extract greater depth from its public spaces – to personalize and to humanize at all costs. How else to explain our willingness to make the digital aspects of our lives ever more complex and messily human?

5.

It is individual human bonds and serendipities that matter most online; and it is these above all that will mould technology's future. A world in which every living person has the technological fluency of today's youngest generation is still hard to imagine. But it will be one in which distances of all kinds have a very different significance to today – and in which families and friends, young and old, interact far more freely and frequently across geographical and generational divides.

In many ways, it is the elderly, the socially disadvantaged and others who have traditionally been excluded who stand to gain most from the rise and rise of new technologies: grandparents who might otherwise barely have a chance to know their grandchildren; those in the developing world for whom contact with family, friends and peers elsewhere may make a transforming difference to their quality of life, or who have long been isolated by poor infrastructure, poverty and political restrictions.

Above all, today's digital realm is being swelled by the human experiences and values flowing into it. Over three-quarters of a billion people have freely uploaded much of their most intimate selves to Facebook alone in the half-decade since its public launch. Avatars and second selves in games and other social sites offer not just an escape from actuality, but a path towards others and towards new kinds of connection. Rumours, lies and hatreds abound online – but so too do remarkable new forms of trust, from the billions of strangers who trade goods on eBay to services like Alibaba.com, which allows more than sixty million people involved in small businesses to match each others' skills and needs.

It is a dizzying maelstrom – and a profoundly disturbing one at times. Yet it is still *us*, in all of our humanity, entering these new spaces and having these experiences. And it is only by speaking of these experiences in the long-established humanist vocabulary of feelings, ideas and values that we can best hope to 'live deep' in present times – and to understand a future in which technology will ever-more-intimately define us.

2. Wired and Unwired Time

I.

he August 1921 edition of the American magazine *The Wireless Age*
devoted eleven pages to a breathless account of the boxing 'battle of
the century'. This was the world heavyweight title fight that took place
the previous month in Jersey City, in which the American brawler
Jack 'The Manassa Mauler' Dempsey knocked out the French chal-
lenger Georges Carpentier in the fourth round.

It was a grand day for sport, with over a million dollars in ticket
sales taken at the doors. But this wasn't the reason *The Wireless Age*
lavished so much attention on the event. The second of July 1921 was
also a historic day in the brief history of broadcasting. For this was
the first time that the live mediated audience for a major event had
outnumbered those watching in person. Ninety thousand had packed
the Jersey City arena. But, by the magazine's estimation, 'a multitude
– not less than 300,000 persons – tense and eager' had followed the
fight from afar.

They had done so thanks to what was essentially a telephone
attached by a long wire to one of the largest wireless aerials yet built:
an antenna 680 feet long suspended above the Erie-Lackawanna
Railroad Terminal at Hoboken in New Jersey. Its wire ran all the way
to the excitable person of J. Andrew White who, as acting president
of the National Amateur Wireless Association, described events
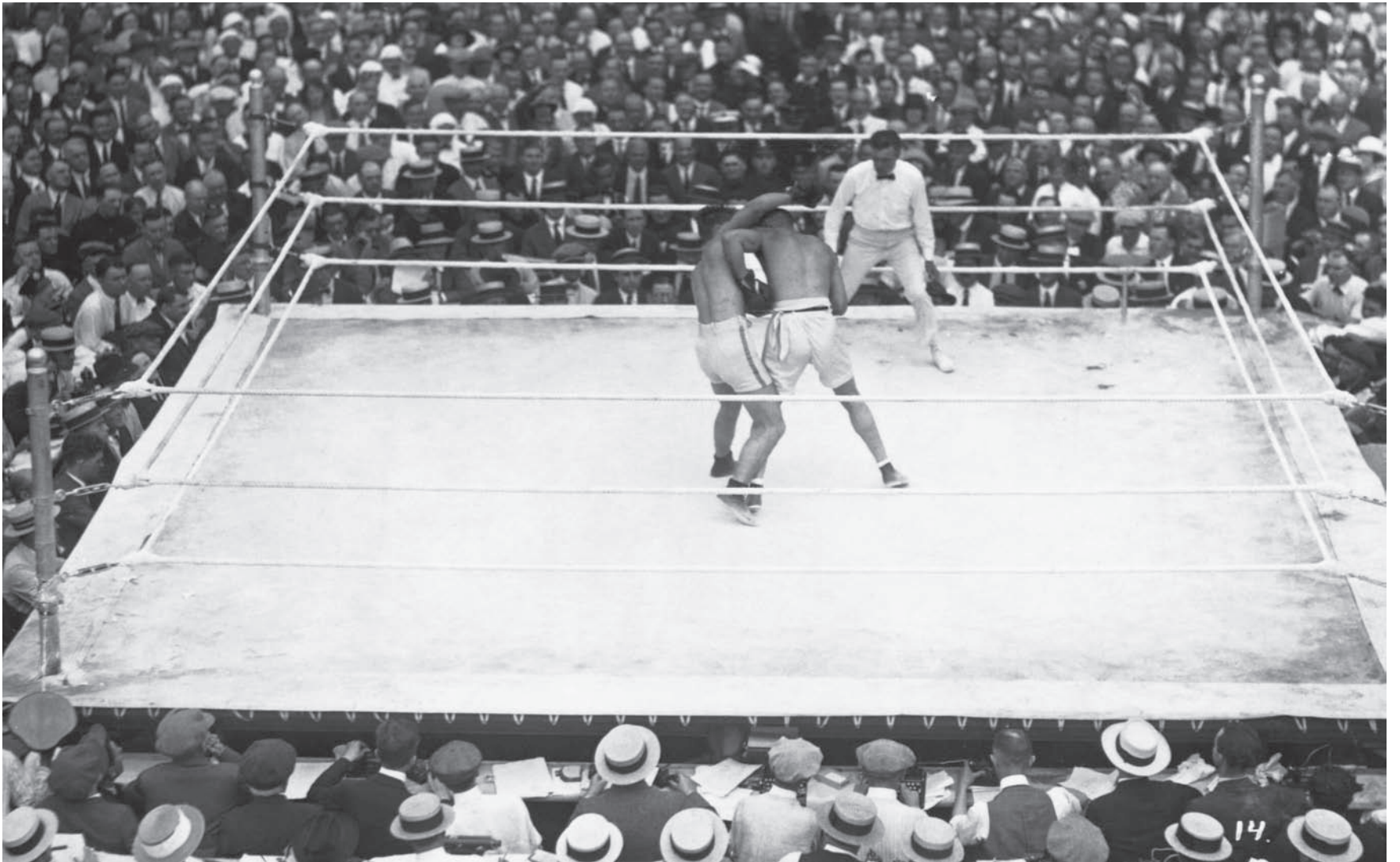
Dempsey vs. Carpentier. Caption to follow

from the ringside. In accordance with a last-minute change in plan, *The Wireless Age* somewhat sheepishly noted, White's words were repeated by a second operator at the Terminal, and it was his voice that rode the airwaves.

The magazine was fully aware of the power of the precedent being set, calling the broadcast 'A record . . . and the ushering in of a new era. For while the eyes of the world were awaiting the issuance of the time-honoured descriptive printed word to tell the story – radio told it by voice! Instantly, through the ears of an expectant public, a world event had been 'pictured' in all its thrilling details... . The appeal to the imagination is boundless. Forecasts for the future now can be made a subject for pleasant, stimulating and practically endless speculation.'

Less than a century later, it's safe to say that even the wildest of these speculations have been exceeded. Over two billion people are now connected to the internet, and more than double that number are connected to each other via mobile phones. Live audiences for news and sporting events regularly run into the hundreds of millions. Over half the people alive today are almost permanently accessible to the world via some form of 'live' digital connection.

These are numbers to gawp at. Almost unnoticed compared to these shifts, however, we have over the first decade of the present century begun to pass through another wired watershed: one to do not with raw numbers, but with time itself.

In 1999, according to a survey of over two thousand Americans aged between 8 and 18 conducted by the Kaiser Family Foundation, this age group were using media for around six hours and twenty minutes each day. Young people's lives, it noted, were close to 'satu-

ration' – that is, those analyzing the survey's results could see almost no room for more time to be spent using media.

Humanity, it seemed, was reaching an inexorable plateau in the amount of media it was possible to consume within the waking hours of a day – a conclusion supported by an aggregate increase of just two minutes in daily media consumption among the same age group when the same survey was repeated in 2004.

The Foundation conducted the same survey once again, however, in 2009, and to its surprise found that the total daily media usage of 8-to-18-year-olds had now increased by over 20 per cent, to almost seven hours and forty minutes. If the use of multiple devices was included, total media exposure rose to around ten hours and forty-five minutes daily.

This was an astonishing result. Given that young people need between eight and nine hours of sleep a night, the 2009 figures pushed media usage past half of all waking hours – even without including any media used for work at school rather than leisure. Television still dominated, as it has done for half a century, with over three hours and forty minutes daily. But by far the most important recent trend was the use of devices like iPhones to consume old and new media alike: to watch downloaded television shows on the bus to school, to send text messages and check Facebook while listening to music and checking emails.

Within just half a decade, media had moved from saturating leisure time at home to something far more significant: not so much the saturation of daily life as a complete integration into its routines and activities. As a similar report into media habits published in November 2010 by the POLIS initiative in London concluded, most

young people in the developed world are now never without access to the protective media bubbles created by devices like smartphones and tablets. A portable, personal supply of songs, videos, games, applications and social-media services is permanently on tap.

Behavioural norms are being disrupted at a pace even the rise of radio broadcasting in the 1920s and television in the 1950s did not match. Yet the most important development of all, for me, relates to a different kind of norm: not just our habits, but what we consider to be our default 'waking state'.

Today, for the first time in history, it's true to say that many people's daily default is to be 'wired' into at least one personalized form of media. Where, less than a century ago, the live wire of the radio broadcast was considered close to a miracle, it is now commonplace for the majority of our conscious hours to be spent plugged into our very own live link to the world.

The most obvious question that follows is a pragmatic one: what happens next? In the short term, the answer is likely to be still more media use, at more times and in more places. If we are to thrive in the long term, though, I believe that these trends mean we must start thinking in a new way about the different kinds of time in our lives.

Time away from digital media is not only no longer our default state; it is also something we cannot experience without explicitly aiming to do so. Consider the 'quiet carriage' signs found in most trains, or those signs in museums, restaurants and other public spaces requesting people turn off their mobile phones. These are signs of our times in the literal sense: indications that the absence of digital devices now has to be specially requested.

If we are to get the most out of both the world around us and each other, we need to recognize that we now have two fundamentally different ways of being in the world: our wired and our unwired states. Simply deploring one or the other helps nobody, for each represents a different set of possibilities for thought and action. Rather, we must learn to ask – and teach our children to ask – which aspects of a task, and of living, are best served by each. And we must find ways of effectively building each into our way of life.

2.

The greatest advantages of wired living are easily enumerated. Plugged into the world's hive-mind, we have speed, we have range; we can research and reference much of humanity's gathered knowledge – and gossip and opinion – in a matter of minutes; we are mere moments away from contact with thousands of others. We have godlike capabilities, and are increasingly adept at using them.

Consider what can be accomplished in just a few minutes of browsing Wikipedia, or searching Google's scanned repository of the world's out-of-copyright books. This is research of a range and rapidity beyond the wildest dreams of scholars just half a century ago, yet it now exists within the instant reach of almost any modern citizen. We are already as distant from that past as its readers were from the pre-Gutenberg world, where owning and reading books was restricted to an elite.

Unplugged from media's 'live' wires, however, our originality and rigour can come into play in a different and far older sense: our

capacities to delegate, to make decisions, to act on our own initiative; to think without fear of pre-emption or a constant sense of an audience breathing down our necks. We are alone with ourselves, or present with each other, in a quite different sense than during any wired moment.

This is equally true in the personal and professional realms. In February 2011, I spoke at the London School of Economics alongside the author Lionel Shriver, about the impact of new technologies on writing and thinking. She described the experience of writing 'with the crowd in your study' – that is, writing with the online reactions of your audience instantly and copiously visible – and the pressure this can create either to censor yourself or to try to please. 'I find that I need', she said, 'to protect myself from other people's opinions', and described writing a newspaper column with her husband reading over her shoulder. 'You can't write that,' he said at one point, 'just look how they reacted to *that* last time online.'

This desire to protect ourselves is almost impossible to disentangle from the idea of knowing what that 'self' worth protecting is in the first place. Much of the rest of this book is devoted to the marvellous advances in collective thought and action that the technologies of the current century are already beginning to foster. Yet, more than ever, it is clear that we all also need some time in our lives for thinking our own thoughts without pre-emption or immediate feedback, even from those people we care about the most: and that, if we are not careful in guarding and managing such time, technology may take it from us.

In an age of constant live connections, the central question of self-examination is drifting from 'who are you?' towards 'what are you doing?' Yet much as we may hunger for connection, if we are to thrive, we need to keep some sense of ourselves separate from this constant capacity to broadcast. We need tenses other than the present – other qualities of time – in our lives.

It's a point that was elegantly made by the computer scientist Jaron Lanier in a lecture at the South by Southwest conference in March 2010, during which he asked his audience to do nothing while he spoke other than listen. 'The most important reason to stop multi-tasking so much isn't to make me feel respected,' Lanier argued, 'but to make you exist. If you listen first, and write later, then whatever you write will have had time to filter through your brain, and you'll be in what you say. This is what makes you exist ...'

As Lanier's plea for half an hour of 'unplugged' attention suggests, building unwired time into our lives is not a question of moving to a cabin on a mountainside or announcing a lifetime's exile from email – although it is telling that vacationing 'off grid' has become a fashionable form of indulgence for those who can afford it. Rather, unplugged time has the most to offer us as part of our everyday living: the decision not to send emails for a morning, to turn off all phones during a meeting or meal, to set some days or hours aside for off-grid reflection, or simply to meet someone in person rather than exchanging a twenty-email chain.
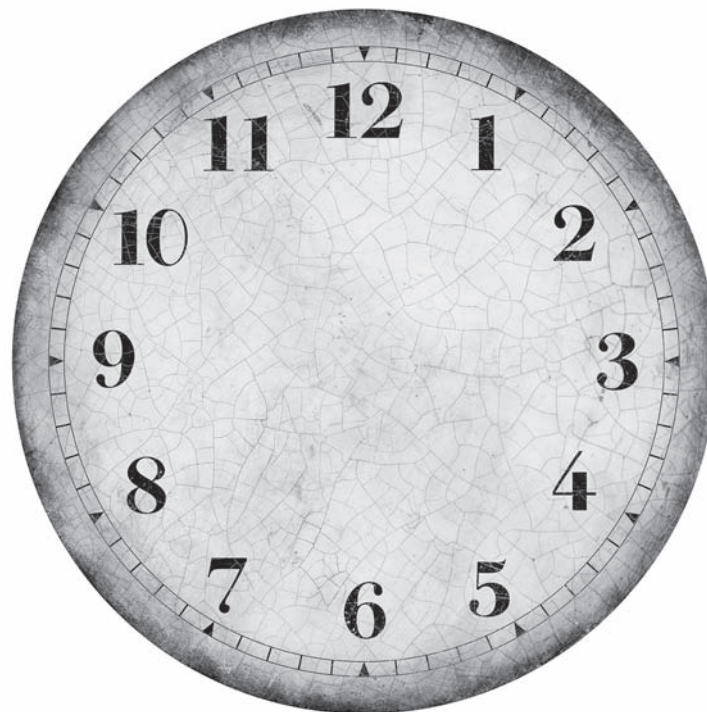
Like many of my contemporaries, I find myself increasingly trying to build units of unplugged productivity into my days: time with all my digital devices switched off, or carefully removed from my pocket. I find, too, that ease of continual contact and access has made personal meetings that much more significant. In the early 2000s, a technology conference often seemed to involve the most

forward-thinking attendees ostentatiously using mobile phones and laptops throughout. Today, while no tech event is complete without a Twitter back-channel, it's also becoming common for speakers and chairs to request a version of Lanier's 'listen first, write later' principle. Conservatism, of a kind, is the new cutting edge.

On their own, such suggestions and trends do not constitute a manifesto. But they are the beginnings of an attitude that puts digital technology in its place: that defines a role for it within our lives, rather than making its presence merely a given fact of every moment.

Thanks to the staggering informational power of new media, time is more than ever our most precious resource. It is the one quantity of which all the world's technology cannot conjure a particle more – and whose experience it can threaten to turn into what the political theorist Fredric Jameson termed a 'perpetual present', in which society itself loses 'its capacity to retain its own past'.

For some people, the suffusion of the present is increasingly attended by strain and anxiety, and a sense of lost control. I have faith that we have not lost our capacity both to push back against and adapt within these transformations in our experience of time, either as a society or as individuals; and the next chapter explores these capacities for insight and change in more detail. Above all, though, every effort on our part should begin with the knowledge that without the ability to say 'no' as well as 'yes' to technology we risk turning its miracles into snares.

Time is the one quantity of which all the world's technology cannot conjure a particle more.