

Phases in Spacetime Place-Event

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Editorial Appraisals:

Some qualified reviewers offer their own brief evaluation of the book. Otherwise most of our content represents the authors'-editors' own words as a preview to their approach to the subject, their style and point-of-view. <>

THE TINY MESS: RECIPES AND STORIES FROM SMALL KITCHENS by Maddie Gordon, Mary Gonzalez [Ten Speed Press, 9780399582738]

A lushly photographed cookbook featuring more than 40 recipes from tiny kitchens, *The Tiny Mess* is a whimsical combination of stories, recipes, culinary adventure, and of course, petite and inspiring cooking spaces that prove constraints are nothing but an invitation for creativity.

From sailboats and trailers, to treehouses, cottages, and converted railcars, *The Tiny Mess* is alive with stories of tiny houses, the people who live in them, and the meals they love the most. The book offers full-flavored recipes for kitchens of any size, featuring gorgeous photographs of intimate kitchens; the fresh, colorful food they produce; and the artisans, cooks, anglers, and farmers who own and work in them. A range of inventive dishes includes options for breakfast, lunch, dinner, and even cocktail hour, such as Sourdough Pancakes, Kitchen Sink Quiche, Nopal Cactus Salad, Slow-Stewed Rabbit Tacos, Blueberry and Lime Pie, and Rosemary-Honey Gin and Tonic. In addition to the recipes, the book includes narratives about the contributors, including their tips and tricks for essential equipment, pantry items, and small kitchen hacks.

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Excerpt: The Evolution of the Kitchen

Writing *The Tiny Mess* got us all thinking about the evolution of our own little kitchens. We haven't always lived in teeny, tiny, unconventional homes, so adapting to a life of less space has most certainly been an evolution for the three of us. We have come a long way from our big, old, cluttered spaces full of useless junk to our small, cluttered spaces full of wonderfully useful junk.

Perhaps you and your living space have had a similar journey into the abyss of extreme downsizing. Perhaps it went something like this:

You started with about eight plates, a dozen mugs, pots and pans in every size, and a plethora of tools and gadgets. You thought you would really need that apple corer, egg slicer, and avocado keeper. There'd be room for them, you said. You had already gotten rid of so much stuff, you said. But then you spent that first month in your new home—navigating your way around your new micronized kitchen, organizing Tupperware like Tetris blocks, and realizing all over again, every single day, that you still have too ... much ... shit.

So for your next move, you gutted the kitchen and tossed everything that doesn't fold, stack, stow, or nest. You knocked out some built-ins or ripped out a wall and added some extra countertop. You reanalyzed your inventory and decided to keep only two of everything you eat on or with. Nothing more. You decided you'll be making cowboy coffee from now on. No need for that electric coffeemaker, pointless! Cowboy coffee it is.

Finally, you have space. Real room to breathe. Unfortunately, your kitchen now looks like the inside of a camping store. You want to have friends over, but they'd have to eat with sporks, so you get a couple more plate settings, ditch the enamel mugs that burn your lips, and buy a pour-over coffeemaker because good

coffee is something you are unwilling to sacrifice. You acquire a cast-iron skillet because it does nearly everything you could ever ask a pan to do, and like a well-seasoned pair of old Levi's, it doesn't really need washing. That sleek multitool utility knife contraption goes back into your camping kit and instead you find yourself one decent, sharp knife that cuts anything. You part with the color-coded cutting boards and replace them with a lone burly wood board, one that will get funkier and funkier with each meal and fits perfectly over your sink.

Substance over style. Function as a part of form. Simpler. Slower. You are getting the hang of it now.

Perhaps the hardest thing of all during this process is learning how to accept various gifts from well-meaning parents, family, and friends. You know—those completely incompetent small versions of normal tools or some gimmicky ceramic measuring cups that don't even say the damn measurements on them. The people in your life are so excited for you and want to support you, so in the end, you wind up with a special place somewhere in your tiny home for all these mostly pointless gifts because you love the folks who gifted them to you. Sound familiar?

Well, that's because we have been there, too. The three of us have all gone mad with the work of trying to live smaller so that we can lead bigger, more enriching lives. We've plotted and planned, reworked, reconfigured, and redone things a thousand times in our pursuit of a better kitchen, easier cooking, and tastier food. It hasn't been easy, but it has made us wildly more efficient, creative cooks who continue to grow with every obstacle.

Our pantries are filled with food, not appliances. Our cupboards are full of spices and sketchy condiments that most everyone else refrigerates. Our fridges might technically be coolers, but they are packed exclusively with perishables because that's all we have room for. Our counters are stained with stories of meals gone by and roads long since traveled.

And you know what? These are good things. These are things that we are proud of. These are things we continue to work on every day. What we lack in physical space we can gain in peace of mind. At some point, the passing on of unwanted or unneeded goods becomes almost spiritual in feeling. The evolution is endless, as the effort becomes part of the fun. The challenges become part of your charm.

Make no mistake, this book is gritty, grimy, and grubby. It is the real deal from the front lines of the tiny home realization. Other than a few minimally styled food photos, *The Tiny Mess* is a raw account of all the blissful and chaotic cooking currently going on in small kitchens everywhere. Inside you will find stained linens, dirty dishes, works-in-progress, and cheap beer, but with them come soulful meals, tender moments, and deeply nourishing traditions. Sure, elbow room may be hard to come by, but tasty and healthy food most definitely is not.

This book is as much about food as it is about kitchens, and it is as much about kitchens as it is about people. It is those people, their homes, and their favorite recipes that you will meet in the pages ahead. They are but the tiniest selection of all the resourceful and talented cooks out there doing big and delicious things with humble means.

About The Tiny Mess

Every recipe in *The Tiny Mess* is accompanied by a short profile about the person or people who created it. We visited each contributor in their home and had them cook their favorite recipe for us in their tiny kitchen. We took the recipes home with us, busted them out in our own little kitchens, and tested them meticulously until they were just right for the purposes of this book. This was a crucial step, as many of the contributors, just like us, are intuitive and versatile cooks who are more inclined to wing it than to follow some rigid recipe. Through careful reverse engineering, trial and error, and, of course, tasting—lots of tasting—we translated each dish into a real-life, easy-to-follow method. You will find credit for the published recipes at the end of their descriptions.

Before we ever made our first kitchen visit, we knew we wanted *The Tiny Mess* to be something that cooks of all experience levels could use and interpret as they see fit. After all, we rarely follow recipes ourselves. This isn't

because we are antirecipe but because we rarely, if ever, have all the ingredients on hand. We also like to switch out the occasional ingredient for a flavor that we prefer. We hope this book encourages you to do the same.

On the pages ahead you will find recipes woven into each other, creating culinary trails for you to follow. You might find yourself making Carie's Kitchen Sink Quiche and read that Lindsey's piecrust would make the perfect quiche crust. Or perhaps you're making Trevor and Maddie's Sourdough Pancakes and think that Zachary's blackberry simple syrup would make an excellent topping. You get the gist. This book is a jumping-off point, not a destination. Let this be your invitation to get even more creative, no matter the size of your kitchen! <>

ARTIFICIAL INTELLIGENCE: RISE OF THE LIGHTSPEED LEARNERS by Charles Jennings [Rowman & Littlefield Publishers, 9781538116807]

Self-learning machines called AIs are popping up all around us. They're real, and really important. They're affecting our lives—as workers, consumers, investors, citizens, patients and students. AIs bring huge promise, but also existential risk. The biggest risk isn't killer robots—it's the renegade leaders, despots, and unrestrained hackers everywhere we should worry about.

Charles Jennings' insightful new book, [*Artificial Intelligence: The Rise of the Lightspeed Learners*](#) presents sides of AI most people have never even considered before. That surprises are a main product of AIs. That AI cybersecurity is much more critical than traditional IT security. That, as Vladimir Putin put it, "the country that leads in AI will control the world." Jennings blends insights into Silicon Valley, Washington D.C., and Beijing with insider AI stories, irreverent humor and strong opinions. He explores the global AI ecosystem from Cambridge to Beijing; and provides a stark assessment of AI activity in China—where he lived for two years working with senior government officials. He claims that the U.S. and China are in an AI horserace that will be the most important technology contest ever, with the outcome still very much in doubt.

Consisting of stories, musings, interviews, and more, it provides a timely and accessible explanation of AI and its key issues to the general reading public.

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An Uncanny Ability to Learn

"The only thing we know about the future is that it will be different." —Peter Drucker

Excerpt: After decades of academic captivity, AIs have escaped their lab cages and are swarming out into the real world. With consequences for all of us. Artificial intelligence (AI) comes in many forms, sizes, and algorithms. Today, you'll find AIs in factories, schools, hospitals, banks, police stations, and the chip in your

iPhone. They're the eyes of self-driving cars, the speech of Siri and Alexa, the brains of autonomous drone warfighters. They're the wizards behind weather forecasts, the intelligence that guides robotic hands assisting in colon surgery.' AIs handle real-time scheduling for the multibillion-dollar vacation rental market and do the matchmaking at Match.com. The hottest new online games have AI players always available as a clever opponent, 24/7. An AI has written a Grimm's-style fairy tale (*The Princess and the Fox*), and the first AI-enabled toothbrushes clean teeth intelligently. The business plan for Elon Musk's next company, after PayPal, Tesla, SpaceX et al., is to embed AI chips in humans. For medical purposes only—at least for now.

On NASA's Mars 2020 mission, advanced AIs will autonomously pilot four rovers exploring lava tubes on Mars.' An AI-led mission to Alpha Centauri is planned for 2069. Astrophysicists even talk of AIs exploring virtually the entire cosmos. 2001: A Space Odyssey's HAL computer would be proud.

As a high-tech industry, artificial intelligence couldn't be hotter. AI tops all current venture capital (VC) investment categories and leads corporate research and development (R&D) spending. Amazon, Microsoft, Google, Facebook, Intel, Apple, and IBM all have big internal AI groups, and each is in the same elite, clubby AI alliance.' On Silicon Valley résumés, AI gigs are the sexiest bullets. AI engineers are in such demand that tech giants are buying premarket AI startups just for their employees—paying up to \$10 million per head—not per engineer but per employee, from CEO to front desk receptionist. And this is just in the United States. If anything, China is making even more aggressive investments in AI start-ups.

AIs are flying high, but with serious baggage. For example, some very smart people believe that an AI might someday become the next Joseph Stalin. Investment bankers (Goldman Sachs) and consulting firms (Deloitte, PWC, McKinsey) are predicting that one-third of the current American workforce will lose their jobs to AIs in the decade ahead. And why are China and Russia suddenly so gung-ho on AI, and what should we be doing about it?

Don't look now, but there are many fewer people these days working in auto factories, lettuce fields, stock exchanges, distribution warehouses, call centers, air-traffic-control towers, clerical desks, customer support centers, and most retail big box stores. Have you noticed? It's not that some strange force has called these workers to another world. They've being replaced by AIs.

Amazon Go—the world's first fully automated grocery store—is up and running in Seattle, with no human salesclerks. Shoppers download an Amazon Go app, hop an Uber, fill out their list in the car, arrive, gather up their groceries, and leave Quoting an Amazon Go ad, "No lines. No checkout. Just grab and go." Not good news for retail clerks.

The trend of machines taking human jobs is not just going to continue; it's going to explode, like mortars across Kabul, causing nasty disruptions and leaving real victims. The people losing jobs this time will not only drive trucks and work in factories, but they'll also practice law, prepare tax returns, manage personal wealth portfolios, teach university classes, and even practice certain kinds of medicine. Expect to see radiologists, actuaries, commodities traders, paralegals, marketing consultants, professors, pharmacists, and more as collateral carnage (economically speaking) lying by the roadside.

An AI-driven job-market disruption is coming; the only question is when. If the job losses described here are spread out over two generations, no one will much notice. If they're in full swing by 2025, as most I-banks and consulting companies predict, Western economies will be rocked to the core. Robots taking over auto workers' jobs in America, slowly over two decades, was a big deal. It caused an economic disruption in the upper Midwest that helped Donald Trump get elected president of the United States. Who knows what would happen if AIs replace half of all lawyers and accountants?

Part of the problem is that Silicon Valley culture has long regarded lost jobs as wet garbage. "Move fast and break things" is its near-official motto—a sentiment that does not lead to much empathy when new tech kills a job category. I can't tell you how many times in the valley I've heard some variation of "Those bookstore owners

(or travel agents or cab drivers) should have seen it coming," which provides the justification for the standard Silicon Valley response when new tech creates job losses: "Hey, deal with it." This time, with AI, the technology community must do better. This time we must all do better.

This book is less about the future moral and philosophical implications of artificial intelligence—a favorite publishing theme of late—than it is about the fact that AIs are here to stay. Multitudes of them of various kinds, swarming everywhere. AIs are part of an unprecedented disruption, the invasion of new forms of intelligence on earth. This book is largely an attempt to make sense of this invasion, in social, political, and economic terms.

Unlike most AI books, this one comes with neither neat equations nor definitive solutions to artificial intelligence issues. Rather, it is a series of stories, explorations, and questions—even a bit of humor and poetry. My task as narrator, as I see it, is not only to introduce you to this new species, to these machines that can learn with such extraordinary speed and power, but also to get you thinking about them, as if they really do matter, now, in your life. My goal is to encourage you to act, as a worker, as a consumer, and as a citizen, in ways that will help shape AI's future, and your own.

There is debate about the number of new jobs AI will create but almost none about the tremendous number it will kill. Over time, every task that can be routinized will be, even if it involves higher-order cognition. Predicting the timing of specific job market disruptions is always tricky, as I show in chapter 4, "Truckin' in Flip-Flops," about self-driving trucks. But the job losses will keep on coming. One interesting hit already has come to Goldman Sachs' currency trading division, where human employment is down 99 percent since 2010 and where AIs and computers now do almost all the work (see chapter 10, "The AI Casino").

Many AI experts believe jobs will not be the only things AIs take from us. AI may become, as James Barrat titled his important 2013 book on artificial intelligence, "our final invention"—not the last invention on Earth; just the final one invented solely by humans. In 2017, Google's CEO Sundar Pichai announced that his company's AutoML unit had successfully taught its machine-learning software how to program new machine-learning software on its own, and it does so better than humans do in some cases.¹ The machines-programming-machines era of AI development has begun and will no doubt gain strength dramatically in the decade ahead. When it comes to invention, today's AIs are like teenagers with learning permits, teens who soon will become the young adult drivers of innovation.

But the notion of AIs someday supplanting all human innovation is, in my opinion, as unlikely as it is dreary. We humans are and will remain indispensable to the civilization we have created and built, so long as we have the will to do so and so long as we exercise a modicum of control over these new AI creatures. Still, I worry about the rise of these mathsects, as I sometimes like to think of them. I worry that they are spinning us faster and faster toward some chaos we cannot control. But I also believe it is equally possible that AIs might emerge as a kind of technological superhero, fighting at our side for truth, justice, and the American way. I have been an entrepreneur all my life, so optimism runs in my veins.

My wife is a beekeeper, and I help her a bit. We've kept bees in our meadow alongside Cedar Mill Creek outside Portland, Oregon, for about a decade now. AIs are like smart bees that feed on ones and zeros, on data. When well-fed, they have the potential to produce the sweetest honey and most nutritious royal jelly—or sting you like a pissed-off scorpion.

I entered the AI industry (sans bee suit) in 2014. I had what in Zen is called beginner's mind; in Silicon Valley lingo, a blank whiteboard—not necessarily a compliment. The first two things I learned were:

AIs today are a primitive, immature species, but even so, they are learning at rates orders of magnitude faster than we humans ever have.

Just like bees, once AIs start swarming, no one can say for certain where they're going to land.

Als are the most important technology of my lifetime. I say this having witnessed the rise of the Internet firsthand as the founder of two Internet companies in the 1990s. But the Internet is small change compared to having these lightspeed learners buzzing around.

Artificial intelligence is not a thing; it's an ingredient in everything. Or, more properly, it's a class of things that have this in common: an uncanny ability to learn. Hence the lightspeed learner designation in the title of this book, a term I coined to underscore the amazing learning capabilities of Als. Over the past several years, the latest generation of Als—the ones doing odd things like deep learning, Monte Carlo tree searches, tensor processing, and so forth—have been absorbing knowledge and acquiring skills in record time. Chapter 2, "Not Your Father's Als," explores how these latest Als learn, but meanwhile, consider the case of DeepMind versus Go.

DeepMind is an AI research arm in Google's Alphabet soup; Go is the oldest and most popular board game in the world, invented 2,500 years ago in China. The DeepMind team built various versions of a game-playing computing system over the course of several years. The first version, AlphaGo, was supervised and trained by humans, and after six months of digesting rules, studying expert moves, and playing human opponents, it was able to beat the best Go player in Europe. Three months later, it beat a prominent Korean Go master in front of a huge audience watching on Asian television.

Then, in December 2017, the DeepMind team launched a variant called AlphaZero, which taught itself to play Go, as well as chess and shogi, in a couple of days.¹ It did this by digesting the rules of these games and then playing itself over and over. Without any human-supervised training, AlphaZero was able to beat AlphaGo and every other top game-playing computer in all three games. AlphaZero surpassed sixty-plus years' playing of computer chess from scratch in less than a day.

The performance improvement from AlphaGo in 2016 to AlphaZero in 2017—accomplished in reduced training time with nearly complete machine autonomy—is emblematic of the progress Als are making in many fields right now. Als are not just learning; they are also learning at ever faster rates. This undisputed fact has sparked a furious global debate.

Bout of the Heavyweights

In one corner, such icons as Elon Musk and Bill Gates issue doomsday warnings. The late Stephen Hawking in 2014 said, "Success in creating AI would be the biggest event in human history. Unfortunately, it might also be the last." He also said, "[T]he development of full artificial intelligence could spell the end of the human race."² Musk has said that AI could become an "immortal dictator from which we never escape."³ Even Sergey Brin, cofounder of Google and current president of Alphabet, Google's parent company, says, "We are on a path [with AI] that we must tread with deep responsibility, care, and humility."⁴ In the other corner, Ray Kurzweil, Jeff Bezos, Mark Zuckerberg, and most rank-and-file AI engineers insist that artificial intelligence is the greatest invention since fire, it will be a tremendous boon to humanity, and there really is nothing we should worry our pretty little heads about. The one thing both camps agree on is that Als will soon become much more powerful than they are today.⁵

The People's Republic of China (PRC), too, is suddenly swarming with Als. Artificial intelligence has become the PRC's number 1 economic and technological priority. In a national campaign modeled after its hugely successful high-speed rail program, the Chinese government is funding AI studies in universities, launching AI research labs, and orchestrating investments in private AI companies. It also has an important initiative to bring its AI companies into government R&D programs, including for military defense and homeland security. SenseTime, a Beijing AI computer vision start-up with several Americans in its senior ranks, received more than \$500 million in PRC investment its first two years. One of China's hottest TV shows is a poker tournament where humans play against an AI program known as Old Poker Master. Old Poker Master always wins.

Rumors abound of American AI engineers getting offers of \$500,000 a year or more to work in China. Chairman Xi Jinping wants and expects China to become the AI world leader. Given Xi's resolve—and the unbelievable amount of personal data the Chinese state controls without privacy constraints—I wouldn't necessarily bet against the People's Republic becoming the AI leader by 2030, which is Xi Jinping's oft-stated goal (see chapter 7, "Uncle Sam versus Red Star"). Meanwhile, Vladimir Putin keeps shouting, "Whoever leads in AI will rule the world!" Russia is not a major AI player, except in defense, space, and election hacking.

Today, North America is AI's clear epicenter. Of the top one hundred AI experts in the world, ninety-five are citizens of the United States or Canada. The US economy still spends far more on AI research than any other, and American-owned companies continue to set all the global performance benchmarks.

France, under the leadership of Field Prize—winning mathematician Cedric Villani (known as the Lady Gaga of math for his eccentric attire), has recently embarked on a compelling—if as yet underfunded—new national AI strategy. This strategy, called AI for Humanity, could become a model of government policy for AI development and governance around the world.

Militarily, the United States leads, but China is gaining on us, with both an aggressive government commitment to AI and robust support from its commercial high-tech companies. Russia, with little commercial high tech, does have excellent math education and is committed to huge military spending for AI research and development. Israel, France, the United Kingdom, and ninety other countries have some form of military AI testing and training underway. The plan for most of these armies is to relegate the most dangerous missions to AIs and robots. It's still early in what will almost certainly become a full-fledged AI arms race, but we can soon expect to see autonomous drones executing sophisticated (J)ODA loops against each other in military engagements without a human in sight. Hopefully, this will be just in joint military exercises, but perhaps in actual combat.

Today's AIs can see, speak, learn, and (with some robots) think on their feet. Stunning AI performance breakthroughs are reported monthly. As I write, the United States—through the efforts of such stalwarts as DARPA, MIT, Caltech, and IBM, along with new kids like Google, Amazon, and Facebook—is responsible for most breakthroughs. Canada is the center of much progress in the powerful deep-learning wing of AI, and Cambridge, England, home of Google's DeepMind, would also get a star on any AI world map.

However, unlike France, China, and Russia and despite its continued dominance in the field, the United States has no national AI policy and no AI laws or regulations (outside of vertical domain rules, such as for flying drones). The fact that the United States still, late into the second decade of the twenty-first century, has no national plan for AI is both remarkable and negligent. Perhaps neither the leaders of American government nor most of the people who elect them are aware that a highly disruptive AI storm is headed their way. And they certainly must not be considering what it would mean if the United States were no longer the dominant force behind this storm.

Writing in the 1990s, British author David Ellis observed the beginnings of an epic battle between man and machine, with the latter emerging as a new intelligent species, one that would eventually compete with humans for what Ellis called the "stewardship of Earth." He dubbed this new species *Machin sapiens*, the thinking machine. Twenty years later, when searching for terms that give these new kinds of machines their due, *Machin sapiens* still works.

A century from now, the upcoming 2020s will likely be known as the period in history when *Machin sapiens* gained a foothold on planet Earth. No matter that we humans gave rise to this invasion, the important point is that somehow, out of the global noosphere, a new species arose with an intelligence to rival our own. This species is already beating us at our own games (chess, Jeopardy, and Go); managing our most sophisticated global financial exchanges; flying autonomously through the air; and doing amazing backflips on land.

One of this species, a three-hundred-pound, cone-shaped robot on wheels working as a security guard at a Georgetown shopping mall, recently committed suicide, if you believe the social media meme. What's

indisputable is that a robot mall cop rolled into a fountain and "drowned"—drowning in this case being a synonym for "shorted out its electrical circuits."

Of course, this robot did not take its own life. Actually, it is important we not fall into the Hollywood trap of anthropomorphizing AIs. AIs are not evil monsters (Terminator), subtle lovers (Her), or cuddly garbage collectors (Wall-E). They are—so far—idiot savants with a real talent for crunching data. Multiplying two eight-figure numbers in their "heads" takes a nanosecond; solving a quadrennial equation takes a tad longer. What matters is not that AIs can do math; it's what they can do with it. They use mathematics—the formulas in their little "algo" heads—to learn.

I knew none of this back in 2014, when I signed up as CEO of a new AI company. The idea for the company came from Caltech and the Jet Propulsion Lab (JPL). These actual rocket scientists had some AI patents and a bit of experimental software left over from the Mars rover program and were looking for an "engineer/executive" who could commercialize this tech and take it to market. Instead, they found me.

I'm no engineer. I do not have a PhD in math, physics, or computer science—not even close. Aside from reading Arthur C. Clarke, William Gibson, and Ray Kurzweil, I knew nothing about AI, but I've founded and led a few software companies and have written several books on technology. Somehow, I passed muster with Caltech, and we got into the AI business together.

I was not looking for a job. I was living my version of the good life in my hometown of Portland, Oregon. I was doing a little consulting; serving on a few boards; helping my wife with the garden and her bees; and teaching my tall, stocky grandson how to use his butt to rebound like Charles Barkley. Then a good friend from Los Angeles called.

"I need your help," he said. He explained that he was helping a Caltech professor commercialize AI computer vision intellectual property (IP) developed at JPL. The AI part intrigued me. Ultimately, I jumped back into the saddle of another high-tech start-up, this time, for the first time, in the emerging AI industry. I had to learn as much as I could as quickly as possible about the science and technology of artificial intelligence. Fortunately, I had good teachers:

During my AI studies, I discovered that AIs can become immensely powerful, even powerful enough (theoretically) to destroy Earth—and not just Earth, by the way, but also the entire universe. In a famous thought experiment, a superintelligent AI is programmed to optimize the production of paper clips. Its *raison d'être* is to make more and more paper clips by any and all means necessary. Because it is superintelligent, this AI understands chemistry, biology, physics, finance, and human behavior. It knows how to accumulate money and uses the new wealth it acquires to build ever more paper clip factories. Eventually, this AI realizes that atoms of all kinds can be turned into paper clips. Spoiler alert: The experiment doesn't end well for the universe.

My main tasks as CEO of this AI company were to raise money and recruit a team to build a practical image-recognition platform based on four JPL artificial intelligence patents. The methodology of these patents was a type of computer vision that emulated the jerky saccadic sight we humans use. One key benefit of this method is that it enables pattern recognition without laborious training and huge data training sets. As such, our tech was a part of cutting-edge AI methodology called "unsupervised learning." A number of experts, including notably Yann LeCun at Facebook, feel that unsupervised learning is the future of the commercial AI market. In the end, unsupervised learning provided a compelling vision, but it proved a difficult assignment technologically, especially for a start-up competing with Google and the like.

While attempting to commercialize the Caltech IP, I learned that AIs are smart but far from perfect. The algorithms that provide the basis of AI surprised me, both with their brilliance and their stupidity. After two decades working in the enterprise software industry, I was absolutely shocked at their small size. The JPL algorithm we used for face recognition consisted of only 1,000 lines of code! The hero application at my last software company had 400,000 lines. Yet, the Caltech algorithm was clearly more intelligent.

I learned that with artificial neural networks (ANNs)—the most common platform for machine learning—what matters is not the number of lines of code but the quality of neural operations, such as curating data effectively, then feeding these data to the AI, and conducting statistical analysis on the results; implementing feed-forward and feedback loops; and tweaking an ANN in the way a NASCAR mechanic might, dozens of times, before a big race.

AI isn't just the next PC, Internet, smartphone, or cloud. It's all these rolled together and then some—the mother of all tech disruptions.

I like to think of the difference between software and AI this way: In traditional enterprise software development, you design a blueprint; write code; and, except for whatever bugs are found, safely predict the results. With machine learning, the first result of the development process is the ability to start testing new hypotheses for process improvement. Even with highly experienced AI researchers, approximately 90 percent of their hypotheses fail to create any improvement. Sometimes improvement comes more by accident than design. In traditional software, development proceeds until reaching a finish line called "code freeze." In our AI lab, the testing and quality analysis (QA) process never stopped. I got the feeling that ANNs were not so much programmed as organically grown. And in a very real sense, the most common outputs of an ANN are surprises.

As I got to know the AI industry better over several years, certain other things became clear:

- AI is accelerating rapidly. AIs are prime examples of the law of accelerating returns, popularized by AI impresario Ray Kurzweil, which states: Not only is technology changing quickly, the rate of technology change is also accelerating. Yesterday's powerful new tech is being used to build tomorrow's even more powerful new tech. The cherry on top of all this acceleration is AI. With deep learning and other new machine learning methods, powerful FPGA semiconductors designed especially for AI, cloud data centers offering extraordinary parallelization and scalability, and sensors collecting more data in a massively connected Internet of Things, we are now entering a perfect AI storm. Technology change is ever faster, racing like Usain Bolt, and meanwhile, the techno-geek financial industrial complex, from Google to GE to Goldman Sachs, is in full hype-cycle mode, heralding the imminent arrival of the biggest tech boom in history. And it's all just getting started.
- No one knows exactly where AI is headed. The AI community is surprisingly and refreshingly open and collaborative. AI experts agree on a great deal, notably that current AI is far from the "general intelligence" we humans have. But there is much internal debate, as well. How will humans and AIs work together in future? Will AI be a job destroyer or a job creator? Will we reach the tipping point, called the technological singularity, when machines gain human-style intelligence? And if so, when? Could AIs become an existential threat to humanity? There are no consensus answers to these questions among scientists and engineers.
- We can all agree AI will be huge. Except to call AI huge is to miss the point. AI isn't just the next PC, Internet, smartphone, or cloud. It's all these rolled together and then some—the mother of all tech disruptions. In recent human history, the closest things to AI were the discovery of electricity and the subsequent electrification of America in the late nineteenth and early twentieth centuries. The discovery of nuclear energy and development of nuclear weapons and nuclear energy comes close, but ultimately, nuclear is a much narrower technology than AI and, with any luck, one whose role on Earth will remain far less significant.
- AI will affect all of us. You, me, and Bobby McGee, billions of Chinese, restaurant owners in France, teenagers in India and Africa, elderly in rest homes, children in day care, women executives in Shanghai, transgender bloggers in Chicago, heads of state, kick-ass surgeons, social network divas, you who are reading this book, and I who am writing it. By 2030, AIs will be like ants at a summer picnic the day the honey spilled. They will be everywhere, affecting everyone.

There are real risks in all this. I examine the most prominent of these risks throughout the course of this book. One risk seldom discussed is that of leaving all ethical and public policy decisions about AI to my friends and colleagues in the high-tech industry, to us techies.

AI is a unique and powerful force, and we techies love unique and powerful forces. May the force be with you. This love of cool tech warps our vision, which is why AI needs the "force" of American democracy and culture to be programmed into its algorithms, optimization protocols, and reward functions—but that's getting ahead of our story.

In the 1990s, I started two Internet security companies and got a chance to study encryption, online privacy, and cybersecurity from inside the business world. It became clear to me that, unless security began to be designed into Internet systems at the development stage, our entire IT infrastructure would become highly vulnerable to cyberattacks. I cowrote a book based on this theory, published in 2000. In it, much space was devoted to giving consumers detailed instructions on how to protect themselves from cyberattacks and identity theft. The rest of the book was a call for high-tech industry and government leaders to build more privacy and security assurance into tech products and services. In this latter effort, my coauthor and I were spectacularly unsuccessful. There are still not enough security controls being built into network systems, nearly twenty years later.

Cybersecurity is a pernicious problem today because twenty-five years ago, when we were building all our exciting Internet and enterprise IT systems, safety was an afterthought. Security controls were either bolted on after installation or patched in after a breach. We knew enough, technologically, in the late 1990s to have greatly reduced the cyberthreat to our systems in the future, but security never became a priority—not really. This failure to build cybersecurity protection and enforceable opt-in privacy policies into our core Internet and IT systems has led to enormous data losses now, twenty years later.

The decade from 2020 to 2030 will be to AI safety and security what the 1990s were to cybersecurity. Can we, this time, get it right? Will we prioritize safety and security from the beginning or just attempt once again to install chains on the gates once the AIs are out of the barn? Will we insist that *Machin sapiens* have human-style ethics? Can we keep even cybersecure AIs from running amok, out of control? Big questions we all must ask—and ones we absolutely cannot leave merely to scientists, engineers, venture capitalists, and CEOs.

Though the rise of the Internet in the 1990s in some ways parallels the rise of AI today, this twenty-first-century AI revolution is unlike any previous technology upheaval. For the first time, we humans are not the only ones building and operating the cool new tools. The fact that machines, at least some of the time, will learn, work, and reproduce on their own changes everything.

The timing of this latest tech disruption is hardly ideal. Global warming, North Korea, Brexit, stateless refugees, the ongoing Russian hack-a-thon, the opioid crisis, global terrorism, white supremacy, species extinctions, identity theft, and a score of other first-class problems compete daily for the attention of fair-minded believers in science and human progress. In light of the great many global problems we face, managing machine intelligence can seem well down the priority list. Yet AIs could become crucial new tools in confronting climate change, diagnosing chronic disease, and solving a myriad of other problems. They could also become dangerous weapons in the hands of rogue states and terrorists. In several worst-case scenarios, AI machines themselves could become apex predators and eliminate humans altogether, which is why it is so crucial that the general public—especially those who still believe in science and respect facts—learn as much as possible about AI as quickly as possible.

In the decade ahead, we all will be riding in AI-driven cars, visiting AI doctors, talking to AI sales reps, and negotiating mortgages with AI bankers. We'll be educating our children and ourselves in classes taught by expert AIs. Career decisions will be shaped by the giant sucking sound of AI automation replacing human jobs. Small businesses will obtain a decisive competitive edge by being AI savvy—or fail because a competitor mastered AI first. We'll be choosing between different AI information services and will want to know a great

deal about the privacy and security implications of each (see chapter 8, "The Porn Star's Deepfake and Other Security Paradoxes").

Als will find cures for more types of cancers and routinely enable paraplegics to walk with the aid of exoskeletal robots. Als and their holographic and augmented reality friends will create new immersive worlds of sound and vision. Als will be trading stocks and managing supersmart, industry-specific cryptocurrencies on the blockchain. They will even be settling factual disputes in Congress and in courts and perhaps play major new roles in democratic governments.

Technology, especially AI technology, is racing ahead of laws, social norms, school curricula, and the comprehension of the great majority of people on earth. This is healthy neither for the high-tech industry nor for the general population. Als are speeding downhill ahead of their skis, and the black diamond runs are just beginning.

- Ready or not, Als are invading our world. As a result of this invasion, a host of new social, economic, and ethical questions are finding their way onto center stage in modern life, including:
- What can Western democracies do to prevent a global AI arms race?
- How do we prevent the subversion of journalism by extremists using Als to create deepfakes and other patently false "news" stories?"
- How much should Als know about us?
- What are the consequences if an autonomous AI breaks the law—and who pays?
- Do we need an AI regulatory commission, of the kind established by President Truman to manage nuclear weapons?
- How do we manage AI today so that it doesn't get out of control in the future?

These are not easy questions. I certainly don't have all the answers. I'm not in the Elon Musk, Stephen Hawking, Als-could-kill-us-all camp, at least not yet, and I believe Als can still become powerful tools for good. But I am absolutely convinced the only way AI can become a boon and not some deadly I-bomb is if we start working together, all of us, on the challenge of safely integrating this powerful new technology into our society and our lives.

The truth is, the engineers building this stuff, the smartest of them, don't want the responsibility of making social and political decisions about AI on their own. As one said to me at an AI conference, "Citizens are our most important demographic." It is crucial that the general public learn about AI and become familiar with the pressing and sometimes troubling issues AI is raising, which is why I wrote this book, and with a sense of urgency. It's also why my grandson will have to wait until next basketball season to learn the art of the Karl Malone elbow.

We in America must either engage together and control AI or watch as the Chinese—or out-of-control machines do it for us. And we must engage in the old-fashioned way: as citizens in a democracy, working together, with government in charge.

This book has been written with the United States of America as a focus for two reasons. First, what happens in America will have great impact on what happens with AI everywhere. Second, as an American who has spent years living and traveling outside America, I have the expat's love of the homeland. Hard as it has been recently, I remain optimistic about America and convinced that the United States can—even must—play an essential role in the ongoing AI invasion.

Once Americans understand that a new national policy for AI is essential to preserving jobs, continuing economic prosperity, and saving our collective human asses, we will again raise the flag and make it clear that getting Als under better national management is essential for national security. I fully expect an AI-focused political movement will follow—perhaps a modest one, maybe something larger. Maybe this movement can even use the

forces of science and technology to create friendly political AIs—AIs that bring the power of unbiased truth seeking to our political commons, to strengthen we the people and reclarify our national purpose (see chapter 9, "AIs in the Government Henhouse").

Regardless of what happens nationally or globally, we all must go on living our lives, lives that increasingly will have AIs—those pesky, brilliant little mathsects—popping up like fireflies in an Ozark summer. At the end of this book, I suggest a few specific strategies for survival in the age of AI. Some of these are personal strategies; others are for businesses, nonprofits, and political groups. My objective in writing these strategies is to get you thinking about how to put AIs to work in your life—without having to learn how to write machine learning code.

Political and strategic suggestions aside, this book is mostly about my journey into the mysterious world of artificial intelligence and my reflections on what I discovered. The writer in me hopes you find it a good read.

As I said, I'm no AI expert, just a concerned citizen who has seen AI up close and who, as a result, hopes that my stories and insights can make a contribution to the great global AI debate. My bias is toward the American government playing a major role in keeping AI safe and humane—starting with state and city governments, not federal agencies (see, "The Way Forward"). Perhaps we can even put AIs to work for us in the urgent need to remake America herself, in the spirit of liberty and justice for all, without regard for race, color, creed, or algorithmic orientation. <>

THE WEATHER MACHINE: A JOURNEY INSIDE THE FORECAST by Andrew Blum [Ecco, 9780062368614]

From the acclaimed author of *Tubes*, a lively and surprising tour of the infrastructure behind the weather forecast, the people who built it, and what it reveals about our climate and our planet. The weather is the foundation of our daily lives. It's a staple of small talk, the app on our smartphones, and often the first thing we check each morning. Yet behind these quotidian interactions is one of the most expansive machines human beings have ever constructed—a triumph of science, technology and global cooperation. But what is this 'weather machine' and who created it?

In [The Weather Machine](#), Andrew Blum takes readers on a fascinating journey through an everyday miracle. In a quest to understand how the forecast works, he visits old weather stations and watches new satellites blast off. He follows the dogged efforts of scientists to create a supercomputer model of the atmosphere and traces the surprising history of the algorithms that power their work. He discovers that we have quietly entered a golden age of meteorology—our tools allow us to predict weather more accurately than ever, and yet we haven't learned to trust them, nor can we guarantee the fragile international alliances that allow our modern weather machine to exist.

Written with the sharp wit and infectious curiosity Andrew Blum is known for, *The Weather Machine* pulls back the curtain on a universal part of our everyday lives, illuminating our relationships with technology, the planet, and the global community.

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The Whether of Weather

In October 2012, my son was an infant. I had been counting time carefully, weighing the weeks and days. I was also spending a lot of time on Twitter. I would sit holding him in a rocking chair, the world scrolling by beneath my thumb. It was in that pose, on a Sunday afternoon, that I watched as meteorologists went into a tizzy. The latest run of something called "the European model" had just arrived, and it was sending them into paroxysms. "An organized low-pressure system hasn't even formed yet in the Caribbean, so a LOT can happen," wrote Bryan Norcross, one of the world's most renowned hurricane forecasters, that afternoon. "But because the scenario is so dramatic, it's going to require our attention." The sky outside was clear, and it would be for a week. But the sky on the screen was filled with a storm that didn't yet exist.

Over the next eight days, Superstorm Sandy dumped flooding rains in the Caribbean, headed north across the warm ocean, soaking up energy, then took an extraordinary left turn toward the East Coast, toward New York City, toward us. We pulled down the shades as far as they would go and filled the bathtub with water. The storm came with fury, making the walls restless and twisting the windows in their frames. The lights flickered, and my screen flashed with strange images: the glass carousel on the Brooklyn waterfront floating in the river like a magical barge, downtown streets turned to canals, lampposts sparkling into fireballs. Not far away, the ocean rose up against the land, rushing through living rooms, flooding power stations and corroding the subways' delicate machinery. Neighborhoods along the shore were devastated and Lower Manhattan went dark, a disaster film come to life. At the hospital in which my son had been born, nurses and doctors carried twenty-one infants down unlighted stairways, tangled in battery-powered monitors. Across the region, 147 people died during Sandy, 650,000 homes were damaged or destroyed, and total losses exceeded \$50 billion. The city felt fragile. I had the sense that our luck had run out.

New York wasn't the first city to get a storm like this, and it wouldn't be the last. In 2005, Hurricane Katrina startled me not merely with its physical destruction but by the way in which its damage exacerbated inequalities, creating ripple effects throughout society. In 2011, Hurricane Irene gave the Northeast its first experience with what felt like a new kind of storm, whose impacts came less from the wind and more from the rain, which fell for longer periods and in greater quantities than before, raising waters to heights no one could remember. Locally and globally, these storms piled up in a way that made them impossible to ignore. There was scientific debate about the link between these storms and broader climate change, but there was also the bald reality of experience. I had the growing recognition that this was real life now, a new era for earth: record-breaking heat and cold, seasons that stretched in strange directions, weather that in all ways was bigger than before. All as foreseen.

And all as predicted. These storms were different, but so was their anticipation. Something had changed in the weather forecast. The hype was louder and longer, leaving time to pick the bread aisles clean and close schools before the skies had even clouded. Cable television and then social media each created a new and relentless rhythm. But even accounting for that increase in volume, the storms really were bigger, and we certainly knew about them sooner.

The extent of this startled me with Sandy. Norcross's first warning was different not only in degree but in kind. "It's going to require our attention," he wrote a full eight days before, like a forecast for his forecast. His broader concern was, as usual, with the track of the storm and its potential impacts. But his more immediate

concern was with the outputs of the computer models. "The most accurate computer forecast models are in amazing agreement today," he pointed out on Sunday. "It's not often that credible forecast models consistently forecast a historic event," he wrote on Tuesday. By Thursday, Norcross was at Defcon 1 and far from alone there. "The strong evidence we have that a significant, maybe historic, storm is going to hit the East Coast is that EVERY reliable computer forecast model now says it's going to happen." Norcross and his colleagues had a view into the evolution of the atmosphere at the spatial scale of hemispheres and the temporal scale of days. This was a long way past merely watching Sandy's development through the space-based camera of a satellite, extrapolating its next move. It was a simulation of the global atmosphere, capable of running ahead of time. Amid a lifetime of weather, it all added up to an improbable, nearly inconceivable, prognostication. I understood that we use computer simulations for weather forecasting. But when had they gotten so good?

In the weeks after Sandy the weather models had a moment of celebrity. They were not new but they were newly powerful. Meteorologists use the word "skill" to judge the accuracy of their predictions, and it has a specific definition: the measure of their ability to forecast the weather better than climatology, meaning the historical average for the place and date. If the average high temperature in New York on March 1 is 45 degrees, any forecast has to be right more often than those climatological averages to count as "skillful." Generally speaking, with each passing decade meteorologists have been able to make that claim one day farther into the future. That means a six-day forecast today is as good as a five-day forecast was a decade ago; a five-day forecast today is as good as a three-day forecast two decades ago; and, most dramatically, today's six-day forecast is as good as a two-day forecast in the 1970s. All of that improvement is thanks to the weather models. It is often credited to "faster supercomputers" or "better satellites." But I suspected it wasn't as simple as that (as if supercomputers and satellites were ever simple). The models were a black box. How did they work? Why were some reliable (and some not)? Who ran them, and who built them? I wanted a look inside.

In my previous book about the physical infrastructure of the Internet—all the data centers and undersea cables and tubes filled with light—I discovered that even the most complex systems are still built by people; they exist in real places and evolve according to some human intention. I learned the most while moving slowly, planting my feet and examining the object in front of me, and talking with the people who built it. I could tell that the source of today's weather forecast was a similar kind of story: complex, ubiquitous and urgent. I knew that if I examined the systems that forecasted the weather with patience and rigor—if I stopped looking up at the sky and instead looked down at the machines that watched it—I might understand this new way of seeing into the future. I wanted to know how the exceptional forecast for Sandy came to be, and what it might tell me about the exceptional forecasts still to come. But I was also curious about the banal, quotidian weather forecasts I looked at every day—like the ones that said it would rain at four o'clock three days from now and often shocked me by being right.

Sandy revealed a paradigm shift in weather forecasting, which now depends less on the day-to-day insights of any human and more on the year-by-year advancements in computer simulations. These prescient weather forecasts were possible not because we had developed a remarkable new skill, but because we had a remarkable new tool. Knowing the weather is one of our oldest desires. After millennia of wishing, we had wired up the earth: with satellites and instrumented balloons; with thermometers, barometers and anemometers; with supercomputers and a purpose-built telecommunications system to tie it all together, in order to see ahead of time.

This global infrastructure of observation and prediction, this weather machine, has many parts and pieces. It has been conceived and constantly improved upon by a group of people few know exist—not the "weathermen" on television but their less visible counterparts: atmospheric scientists, data theorists, satellite makers and diplomats. Notably, it has not been the achievement of a single government agency or corporation but an international construction, a carefully conceived and continuously running system of systems, tuned to an endless loop of observing the weather, predicting the weather, and observing it all over again. The weather machine relies on

nearly every major invention of the last three centuries, foremost among them Newtonian physics, telecommunications, spaceflight and computing. It depends on the omnipresent communications system we essentially live inside. It sparkles with computation, of computers' power to consider more variables than any human ever. We touch its technological components every day; it is the umbrella emoji and the forecast high. And we feel its physical analogue in the fresh breeze and the soaking rain.

The weather machine is a wonder we treat as a banality. We look to it every day, turn its outputs into small talk and make judgments about its performance. It marks a high point of science and technology's aspirations for society, but like a lot of things these days, its complex inner workings are not only mysterious but hidden beneath a veneer of simplicity. The forecast is more accurate and more necessary than ever before, while its provenance is harder to discern. We have constructed a tool that we haven't yet learned to trust.

This book is the story of where the weather machine comes from and how it got this way. It is about the protagonists of this superpower: the people who created this window to the future, the people who keep extending its view farther forward in time and the people who might help us better understand the complexity of the world today, in which machines are constantly examining the world, talking to each other and telling us what to do. The ability to forecast the weather is among humanity's greatest adaptations to life on earth. And there was so much to learn about how it all works. <>

THE DREAMT LAND: CHASING WATER AND DUST ACROSS CALIFORNIA by Mark Arax [Knopf, 9781101875209]

"[An] exhaustive, deeply reported account . . . Few other journalists could have written a book as personal and authoritative . . . As Arax makes plain in this important book, it's been the same story in California for almost two centuries now: When it comes to water, 'the resource is finite. The greed isn't.'" --Gary Krist, The New York Times Book Review

A vivid, searching journey into California's capture of water and soil--the epic story of a people's defiance of nature and the wonders, and ruin, it has wrought

Mark Arax is from a family of Central Valley farmers, a writer with deep ties to the land who has watched the battles over water intensify even as California lurches from drought to flood and back again. In [The Dreamt Land](#), he travels the state to explore the one-of-a-kind distribution system, built in the 1940s, '50s and '60s, that is straining to keep up with California's relentless growth.

This is a heartfelt, beautifully written book about the land and the people who have worked it--from gold miners to wheat ranchers to small fruit farmers and today's Big Ag. Since the beginning, Californians have redirected rivers, drilled ever-deeper wells and built higher dams, pushing the water supply past its limit.

[The Dreamt Land](#) weaves reportage, history and memoir to confront the "Golden State" myth in riveting fashion. No other chronicler of the West has so deeply delved into the empires of agriculture that drink so much of the water. The nation's biggest farmers--the nut king, grape king and citrus queen--tell their story here for the first time.

This is a tale of politics and hubris in the arid West, of imported workers left behind in the sun and the fatigued earth that is made to give more even while it keeps sinking. But when drought turns to flood once again, all is forgotten as the farmers plant more nuts and the developers build more houses.

Arax, the native son, is persistent and tough as he treks from desert to delta, mountain to valley. What he finds is hard earned, awe-inspiring, tragic and revelatory. In the end, his compassion for the land becomes an elegy to the dream that created California and now threatens to undo it.

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Excerpt: On a summer day in the San Joaquin Valley, in the shade, I merge onto Highway 99 past downtown Fresno and steer through the vibrations of heat. I'm headed to the valley's deep south, to a little farmworker town in a far corner of Kern County called Lost Hills. This is where the biggest farmer in America—the one whose mad plantings of almonds and pistachios have triggered California's nut rush—keeps on growing, no matter drought or flood. He doesn't live in Lost Hills. He lives in Beverly Hills. How has he managed to outwit nature for so long?

The GPS tells me to take Interstate 5, the fastest route through the belly of the state, but I'm partial to Highway 99, the old road that brought the Okies and Mexicans to the fields and deposited a twang on my Armenian tongue. Ninety-nine runs two lanes here, three lanes there, through miles of agriculture broken every twenty minutes by fast food, gas station and cheap motel. Tracts of houses, California's last affordable dream, civilize three or four exits, and then it's back to the open road splattered with the guts and feathers of chickens that jumped ship on the slaughterhouse drive. Pink and white oleanders divide the highway, and every third vehicle that whooshes by is a big rig. More often than not, it is hauling away some piece of the valley's unbroken bounty. The harvest begins in January with one type of mandarin and ends in December with another type of mandarin, and in between comes everything in your supermarket produce and dairy aisles except for bananas and mangoes, though the farmers here are working on the tropical, too.

I stick to the left lane and stay ahead of the pack. The big-rig drivers are cranky two ways, and the farmworkers in their last-leg vans are half asleep. Ninety-nine is the deadliest highway in America. Deadly in

the rush of harvest, deadly in the quiet of fog, deadly in the blur of Saturday nights when the fieldwork is done and the beer drinking becomes a second humiliation. Twenty miles outside Fresno, I cross the Kings, the river that irrigates more farmland than any other river here. The Kings is bone-dry as usual. To find its flow, I'd have to go looking in a thousand irrigation ditches in the fields beyond.

There's a mountain range to my left and a mountain range to my right and in between a plain flatter than Kansas where crop and sky meet. One of the most dramatic alterations of the earth's surface in human history took place here. The hillocks that existed back in Yokut Indian days were flattened by a hunk of metal called the Fresno Scraper. Every river busting out of the Sierra was bent sideways, if not backward, by a bulwark of ditches, levees, canals and dams. The farmer corralled the snowmelt and erased the valley, its desert and marsh. He leveled its hog wallows, denuded its salt brush and killed the last of its mustang, antelope and tule elk. He emptied the sky of tens of millions of geese and drained the eight hundred square miles of Tulare Lake dry.

He did this first in the name of wheat, then beef, milk, raisins, cotton and nuts. Once he finished grabbing the flow of the five rivers that ran across the plain, he used his turbine pumps to seize the water beneath the ground. As he bled the aquifer dry, he called on the government to bring him an even mightier river from afar. Down the great aqueduct, by freight of politics and gravity, came the excess waters of the Sacramento River. The farmer commanded the distant flow. The more water he took, the more crops he planted, and the more crops he planted, the more water he needed to plant more crops, and on and on. One million acres of the valley floor, greater than the size of Rhode Island, are now covered in almond trees.

I pity the outsider trying to make sense of it. My grandfather, a survivor of the Armenian Genocide, traveled seven thousand miles by ship and train in 1920 to find out if his uncle's exhortation—"The grapes here are the size of jade eggs"—was true. My father, born in a vineyard outside Fresno, was a raisin grower before he became a bar owner. I grew up in the suburbs where our playgrounds were named after the pioneers of fruit and irrigation canals shot through our neighborhoods to farms we did not know. For half my life, I never stopped to wonder: How much was magic? How much was plunder?

I'm going to Kern County, just shy of the Tehachapi Mountains, to figure out how the big farmers, led by the biggest one of them all, are not only keeping alive their orchards and vineyards during the worst drought in California's recorded history but planting more almonds (79,000 acres), more pistachios (73,000 acres), more grapes (35,000 acres) and more mandarin oranges (13,000 acres). It's a July day in 2016, five years into the dry spell, and the delirium that has gripped the growers, by far the biggest users of water in the state, shows no sign of letting go. Even as the supplies of federal and state water have dropped to zero one year and near zero the next year, agriculture in Kern County keeps chugging along, growing more intensive. The new plantings aren't cotton, alfalfa or carrots, the crops a farmer can decide not to seed when water becomes scarce. These are trees and vines cultivated in nurseries and put into the ground at a cost of ten thousand dollars an acre to satisfy the world's growing appetite for nuts and fruits.

Agriculture in the south valley has extended so far beyond the provisions of its one river, the Kern, that local farmers are raising nearly one million acres of crops. Fewer than half these acres are irrigated with flows from the Kern. The river is nothing if not fickle. One year, it delivers 900,000 acre-feet of snowmelt; the next year, it delivers 300,000 acre-feet. To grow, Big Ag needed a larger and more dependable supply. So beginning in the 1940s, Kern farmers went out and grabbed a share of not one distant river but two: the San Joaquin to the north and the Sacramento to the north of that. The imported flow arrives by way of the Central Valley Project and State Water Project, the one-of-a-kind hydraulic system built by the feds and the state to remedy God's uneven design of California. The water sent to Kern County—1.4 million acrefeet a year—has doubled the acres of cropland. But not even the two projects working in perfect tandem can defy drought. When nature bites down hard, and the outside flow gets reduced to a trickle, growers in Kern turn on their pumps and reach deeper into the earth.

The aquifer, a sea of water beneath the clay, isn't bottomless. It can be squeezed only so much. As the growers punch more holes into the ground chasing a vanishing resource, the earth is sinking. The choices for the Kern farmer now come down to two: He can reach into his pocket and purchase high-priced water from an irrigation district with surplus supplies. Or he can devise a scheme to steal water from a neighbor up the road. I now hear whispers of water belonging to farmers two counties away being pumped out of the ground and hijacked in the dead of night to irrigate the nuts of Lost Hills.

I roll past Tulare, where every February they stage the biggest tractor show in the world, even bigger than the one in Paris, France. Past Delano and the first vineyards that Cesar Chavez marched against. Past McFarland and the Mexican boy runners who won five state championships in a row in the 1990s. Past Oildale and the boxcar where Merle Haggard grew up. Past Bakersfield and the high school football stadium where Frank Gifford and Les Richter, two future NFL Hall of Famers, squared off in the Valley Championship in 1947 in the driving rain. And then it hits me when I reach the road to Weedpatch, where my grandfather's story in America—a poet on his hands and knees picking potatoes—began. I've gone too far. The wide-open middle of California did its lullaby on me again.

I turn back around and find Route 46, the road that killed James Dean. I steer past Wasco to the dust-blowing orchards and vineyards that rise out of the desert in Kern County, the densest planting of almonds, pistachios, pomegranates and grapes on earth. Down this road are the baronies of Marko Zaninovich, who once was and may still be the nation's largest table grape grower, and the Assemi brothers, Farid and Farshid and Darius, who plant cherries and nuts when they're not planting houses, and Freddy Franzia, who grows and bottles more wine grapes than anyone except the Gallos. His most popular brand, 450 million bottles and counting, is Charles Shaw, "Two-Buck Chuck," which sells for \$1.99 at Trader Joe's. Up ahead is the kingdom of Stewart Resnick, the richest farmer in the country and maybe the most peculiar one, too, whose 120,000-acre empire of fruits and nuts is called Wonderful. His story is the one I've been carting around in my notebook for the past few decades, sure I was ready to write it after five years or ten years, only to learn of another twist that would lead me down another road.

I park the car and start walking. The sun's brutal beat reminds me of my grandfather pouring salt on his watermelon, an old farmworker trick to ward off sunstroke. I keep walking until I find myself straddling one of those divides that happen in the West, and maybe only in the West. Behind me, the hard line of agriculture ends. In front of me, the hard line of desert begins. In between wends the concrete vein that funnels the snowmelt from one end of California to the other. I have found Lost Hills, it would seem, but like so many other optical illusions I've followed along the thousand-mile path of bent water and reborn dust, the hills are not hills.

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GHOSTS OF GOLD MOUNTAIN: THE EPIC STORY OF THE CHINESE WHO BUILT THE TRANSCONTINENTAL RAILROAD by Gordon H. Chang [Houghton Mifflin Harcourt, 9781328618573]

“Gripping... Chang has accomplished the seemingly impossible... he has written a remarkably rich, human and compelling story of the railroad Chinese.”—Peter Cozzens, Wall Street Journal

A groundbreaking, breathtaking history of the Chinese workers who built the Transcontinental Railroad, helping to forge modern America only to disappear into the shadows of history until now.

From across the sea, they came by the thousands, escaping war and poverty in southern China to seek their fortunes in America. Converging on the enormous western worksite of the Transcontinental Railroad, the migrants spent years dynamiting tunnels through the snow-packed cliffs of the Sierra Nevada and laying tracks across the burning Utah desert. Their sweat and blood fueled the ascent of an interlinked, industrial United States. But

those of them who survived this perilous effort would suffer a different kind of death—a historical one, as they were pushed first to the margins of American life and then to the fringes of public memory.

In this groundbreaking account, award-winning scholar Gordon H. Chang draws on unprecedented research to recover the Chinese railroad workers' stories and celebrate their role in remaking America. An invaluable correction of a great historical injustice, [Ghosts of Gold Mountain](#) returns these “silent spikes” to their rightful place in our national saga.

“The lived experience of the Railroad Chinese has long been elusive... Chang’s book is a moving effort to recover their stories and honor their indispensable contribution to the building of modern America.”—The New York Times

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The Human Perspective

Excerpt: Hung Wah stepped up into the private train car of James Strobridge, the field construction boss of the Central Pacific Railroad Company (CPRR). The wagon's well-appointed interior must have seemed a dark, cool oasis for the seasoned Chinese worker, offering a bit of welcome relief from both the blistering afternoon heat in the Utah desert and the bleak, monotonous scenery.

Hung Wah and Strobridge had come to know each other well over the previous five years during the construction of the Pacific Railway, or the Transcontinental Railroad, as it was popularly known. Two competing railroad companies had led the project: the CPRR, which began its work in Sacramento, California, and built eastward, and the Union Pacific (UP), which started in Omaha, Nebraska, and built westward. Their completed work, linked to already established rail lines in the East, forged a continuous road of iron across the entire country, making possible travel unprecedented in scale and speed. Now the two men were coming together at Promontory Summit, Utah, where a grand celebration had just concluded to mark the formal end of work.

The date—May 10, 1869—has been immortalized by one of the most famous photographs of nineteenth-century America: two massive steam engines, representing the CPRR and UP, meet head-to-head in “East and West Shaking Hands” (below). The photographer, Andrew J. Russell, wanted to highlight the train's bonding of vast geographic space. Others at the time saw the rail connection as transformative not just for the nation but for civilization itself. Only Christopher Columbus's discovery of the New World, an energetic observer declared, surpassed the completion of the rail line in historic importance.

After the camera shots and public events, Strobridge gathered journalists, military officers, and other notables to mark the occasion in a quieter way over drinks and food in his personal railroad car. In what must have

seemed a magnanimous gesture at the time, he invited Hung Wah, who brought several other Chinese with him to share the special moment, representing the thousands of Chinese who had toiled for the CPRR and made possible what many had once claimed was an insurmountable construction challenge.

Upwards of twenty thousand Chinese, 90 percent of the CPRR construction labor force, had built almost the entire western half of the Pacific Railway. The UP relied largely on Irish and other European immigrants and both black and white Civil War veterans for its labor force. While the CPRR's leg of the railway ran to a little over half the length of the Union Pacific's portion—690 miles compared to 1,086—building the western section posed a considerably greater challenge. The majority of the Union Pacific's line extended over relatively open, even countryside, beginning in Omaha, where the country's existing rail network ended. The CPRR, by contrast, faced a shorter but much more arduous journey. Beginning in Sacramento, roughly at sea level, it ascended almost immediately into the foothills of the Sierra Nevada mountain range, climbing higher and higher until it reached elevations of over seven thousand feet. To reach those heights, the workers of the CPRR had to blast and dig their way through expanses of solid granite and brave some of the most dangerous working conditions imaginable. Chinese workers did what was widely considered at the time to be impossible. They endured scorching summer heat in the high altitudes, dirt and choking dust, smoke, and fumes from the constant use of explosives. They survived isolation, desiccating winds and thin air, winter blizzards and freezing temperatures, as well as the ever-present dangers of accidental explosions, falling trees, snowslides, avalanches, cave-ins, illness, broken limbs, and plain exhaustion—all to realize the federal government's great ambition of uniting the American continent with a central artery. These workers, in no short order, helped solidify the westward future of the United States.

As a reflection of this herculean feat, the engravings on the legendary and ceremonial "Golden Spike" that symbolically united the rails of the Central Pacific and Union Pacific railroads hailed the Transcontinental for bridging the Atlantic and Pacific oceans—reducing to one week what had been a perilous three-to-six-month journey—and healing the wounded nation. The Civil War had ended four years earlier, practically to the day, leaving a trail of destruction and a fractured Union in its wake. "May God continue the unity of our Country," read the engraving on one side of the Golden Spike, "as this Railroad unites the two great Oceans of the world." The Chinese had played a heroic and indispensable role in this achievement—and Strobridge, who had played a leading role of his own in the project, now honored them for their enormous contribution.

Strobridge had come far—not just in distance from Sacramento, where the CPRR's work began, but in his attitudes as well. Five years earlier he had strenuously opposed the proposal to hire Chinese workers. He argued with his boss, Charles Crocker, one of the so-called "Big Four," along with Leland Stanford, Collis Huntington, and Mark Hopkins, who served as directors of the CPRR, that the Chinese were not fit physically or temperamentally for the demanding work. Strobridge eventually relented, and Chinese, a few at first and then by the thousands, joined the construction effort. Proving themselves not just entirely capable but vital, in time they caused Strobridge to correct his error and drop his prejudice.

Hung Wah, for his part, had begun working for the CPRR in January 1864 after traveling to America from thousands of miles away in southern China. At Promontory he was in his mid-thirties, slightly older than most of the other Chinese, who were in their teens and twenties during construction, prime working ages for physical labor. He had received some education before coming to the United States and had a head for business, not to mention ambition: before Chinese were hired on to the CPRR, he was a prominent figure in Auburn, a town in the heart of the California gold country in the Sierra Nevada foothills. Agents of the CPRR turned to him to recruit workers, and he eventually became the leading Chinese "headman" over hundreds, and possibly thousands, of his compatriots working for the railroad. He handled their pay, living arrangements, and relations with the company. He had also survived years of personal difficulty and dangerous work, all the way through to the end.

Strobridge's invitation to Hung Wah at Promontory suggests they had developed a mutually respectful relationship—but it had not been easily forged. Strobridge was a demanding and intimidating supervisor who had earned a reputation for being especially tough on Chinese. He was as ferocious in appearance as in temperament: an errant explosion early in the construction effort had taken out one of his eyes, and an ominous black eye patch now covered an ugly scar. The Chinese railroad workers, in their lingo, called him "one-eyed bossy man."

Now Hung Wah and several other Chinese workers -- possibly Ging Cui, Wong Fook, and Lee Shao, who had been part of the crew that had laid the last ties and length of track earlier in the day—found themselves not only inside Strobridge's personal car but also, probably for the first time in their lives, in close proximity to important white men. Perhaps Strobridge hoped that including the Chinese in his private event would make up for their absence in the public activities. Chinese had not been invited to attend the official proceedings, pose for Russell's historic photograph, or join the elite reception in the train car of Leland Stanford, the CPRR president.

The Chinese were weathered workmen. They were slight of build, sinewy after laboring for years clearing the land, cutting through dense stands of forest, putting down the roadbed, shoveling snow, blasting tunnels through granite, and laying track over the Sierra Nevada mountains in winter and across the vast deserts and plateaus of Nevada and Utah in the summer. They were dark brown in complexion, their skin leathered from living and working in recent months under the relentless desert sun. Their clothes, if they had not been able to change after work, would have been tattered, patched, and threadbare. We can see their shabby attire in other photos taken earlier that day. Their cotton tunics and baggy pants were blousy and designed for demanding physical labor in oven-like heat. Heavy American-made leather boots protected their feet. They wore soft, wide-brimmed cotton hats, not the woven-palm headgear from China they used elsewhere in other work. They dressed uniformly, like soldiers in an army.

Strobridge introduced Hung Wah and his co-workers to his other guests and brought Hung Wah to the head of the dining table. Standing, Strobridge warmly praised the contributions of the Chinese and expressed his appreciation for the essential role they had played in the project. The assembled all then also stood and gave three rousing cheers to the workers—no doubt the first time that these Chinese laborers had been toasted by a crowd of white people. This moment was the symbolic high point in acknowledging and honoring their contribution to completing the rail line.

The news article about the gathering nicely captured its significance for the Chinese, who were so often publicly disrespected, when it offered simply in a heading: "Chinese Laborers at Table." On no other occasion had the Chinese railroad workers personally received as sincere and spirited an appreciation of their long, dangerous toil.

The journalist who recorded the event does not mention whether Hung Wah responded to Strobridge's compliments or uttered any re-marks at all. We do not know if he spoke. The news report rendered him mute, emblematic of the way Chinese in America were commonly presented then: Chinese railroad workers were acknowledged as ubiquitous and indispensable, but they were accorded no voice, literally or figuratively. We cannot hear what they said, thought, or felt. They were "silent spikes" or "nameless builders," evocative terms recently coined by scholars seeking to recover the experiences and identities of those Chinese who built the Transcontinental.

As with the news reports of the day, written history in the years afterward gives no voice or identity to the many thousands of these workers. In all of the many pages of serious writing about the construction of the Transcontinental Railroad, authors might describe the enormous efforts of the Chinese. They name but a few, however, let alone tell us something about them as living beings. The identities of Chinese in nineteenth-century America were elusive, and trying to recover them poses daunting challenges. The absence of documentation,

mainstream unfamiliarity with Chinese life in America, and deprecation of their presence in the history of the country have rendered these workers all but invisible.

While the dearth of extant documentation from the Chinese workers can explain their shadowy presence in written history to a certain degree, prejudice through the years has relegated them to the margins of American life and memory in a more elemental way. Chinese were not deemed sufficiently important or interesting to include in sweeping narratives about the rise of the nation. In fact, in some instances Chinese are written out of the story altogether. At the 1969 centennial commemoration of the events at Promontory Summit, for example, Secretary of the Interior John Volpe extolled the Transcontinental as a monumental construction achievement of epic importance to the country. Only the vigor of "Americans" made it possible, he boasted. "Who else but Americans could drill tunnels in mountains 30 feet deep in snow?" Nowhere did he mention the Chinese, prohibited from becoming citizens by federal law and assuredly not embraced by his myopic vision of America. Nationalist celebration made no room for the alien Chinese, no matter how pivotal their role in the history of the nation itself.

Ghosts of Gold Mountain is the first book to attempt to fully address the inadequacy, amnesia, and insults that, for a century and a half, have relegated Chinese workers to the margins of history. It seeks to present a full account of the thousands who worked on the Transcontinental and their story as lived experience. The Chinese are presented not as voiceless objects of interest or as docile human tools, but as vital, living, and feeling human beings who made history. They were laborers, foremen, contractors, masons, cooks, medical practitioners, carpenters, interpreters, and teamsters. Thousands more Chinese associated with them as friends and relatives, as part of the immense supply chain that provisioned them for years, and, away from the track in their off-time, as gamblers, opium smokers, prostitutes, and devout worshippers of the gods and spirits who watched over them in their perilous work. Collectively they were the "Railroad Chinese," a wonderfully evocative term coined by "Lily," an immigrant from China whose great-grandfather worked on the Transcontinental, that captures their unique ethnic and class identity.

For five years, from 1864 to 1869, Chinese constituted by far the largest single workforce in American industry to that date, not surpassed in numbers until the Industrial Revolution in the late nineteenth century. Their massed presence along the construction route astonished journalists and travelers who witnessed them living and toiling under the most difficult of conditions. Writers described encampments of hundreds of tents, massed armies of workers, and thundering explosions of black powder and dynamite that recalled the cannon blasts of the Civil War. The Reverend John Todd, who delivered the benediction at the Promontory event, honored the central importance of the Railroad Chinese when he declared, "The road could never have been built without the Chinamen."

"The road," in turn, transformed America. The Transcontinental meant that travel across the country was dramatically reduced in time, expense, danger, and discomfort. Regional agricultural bounty gained access to the entire national market and to the great ports of the eastern seaboard and San Francisco on the Pacific. Exploitation of the immense coal, iron ore, timber, and other natural resources of the Rocky Mountain region became possible. The United States became the only advanced capitalist country in the world that enjoyed year-round direct access to both the Atlantic and the Pacific. Regional rail projects boomed post-Promontory, creating an even more efficient transportation infrastructure. Politically, the iron rails bound the United States as never before, while socially, the railroad made the Far West accessible to populations from the East, and in turn the Midwest and East now lay easily within reach for those from California, including Chinese. All this came at great cost, however, especially to Native peoples. The railroad invasion furthered the violent suppression of their autonomy and ways of life.

Despite their critical role in American history, the Railroad Chinese remain silent spikes to this day. No text generated by any Chinese railroad worker on the Transcontinental line in Chinese or English has ever been found, whether in the United States, China, or elsewhere. This is not because the Railroad Chinese were illiterate:

a remarkable number, like Hung Wah himself, did read and write in their own language, an ability that many observers at the time noted. Many, including Hung Wah, also spoke some English. They were far from being meek and quiet, moreover; they could be a garrulous and disputatious lot, and they remained faithful and connected to family and village in China. Tens of thousands of letters traveled back and forth across the Pacific in the mid- to late nineteenth century. The Pacific Mail Steamship Company, the main American carrier in the Pacific, reported that in the single year 1876 alone, its ships carried more than 250,000 letters between China, Japan, and the United States. Yet remarkably, not a single message from or to a Railroad Chinese in this vigorous traffic has been located despite the most strenuous research efforts. Today there is nothing extant in their own words about their experiences.

What happened to these many words written long ago? Arson, pillaging, and the willful destruction of Chinese belongings by hostile nineteenth-century mobs in America help explain the absence of an archive, as do losses during these immigrants' many forced moves, ruin from earthquakes and fires such as at San Francisco in 1906, and the cruel devastation wrought by the many wars, civil upheavals, and revolutions in their land of ancestry. The habitual belittlement of their lives, and thus their archive, also deprived us of much of their record. Few, except perhaps their descendants and the exceptionally curious, wanted to know about the lives of Chinese laborers in America during the decades that have elapsed between their time and ours.

This presents a formidable challenge to the historian today: How does one give voice to the voiceless? How does one recover a sense of lived experience if there is nothing from the central actors themselves?

As a Chinese American, I had wanted to know about the Chinese builders of the Transcontinental ever since I was a youngster, but it was not until recently that I had the opportunity to engage in a sustained effort to recover their history. An international research project at Stanford that I helped establish and then co-direct took up these challenges and for more than six years conducted the most thorough study to date of the experience of Chinese road workers in North America. Scholars in North America and Asia and from disciplines ranging from history and American studies to archaeology, anthropology, and cultural studies scoured archives, family collections and memorabilia, government records, business papers, and archaeological reports, in English, Chinese, and other languages, to locate as much relevant material as possible. We also conducted oral histories with living descendants of railroad workers to learn about memory within families. This book draws significantly from the tremendous efforts of scores of scholars, students, and researchers around the world.

Though difficult, a recovery of a lost past is possible if imaginative efforts are made to understand the rich and expansive historical materials that do exist. Nineteenth-century writers wrote extensively about the Chinese, and their observations can be read in ways that move the Railroad Chinese from being objects for journalistic observation into the active center of the story. Years of dedicated research have also revealed substantial new documentation and sources in archives and libraries. Some of this rich material had simply been ignored as insignificant or bypassed as too challenging to use. Previous writers interested in the railroad had little or no familiarity with the history of Chinese American life and the wide array of sources from other dimensions of Chinese history in America that could be used to understand the railroad experience. There is Chinese-language material here and in China that was never consulted in any previous railroad book published in the United States. For example, poetry and folk songs express hopes, dreams, fears, and tragedy and offer insight into emotions and feelings. Railroad Chinese closely associated with other Chinese in California who wrote about their own lives, and this material provides further texture and context. Stories about the trials and tribulations of railroad workers circulated widely among the Chinese and, through repeated telling within families and community, have come down through the years to us today.

There is extensive business documentation, including payroll records and private correspondence and notes among the railroad magnates. From these we learn names, job categories, pay rates, labor organization, and the relationship of Railroad Chinese with the CPRR. We learn about working conditions and developments as

the line pushed forward. We have photographs of the railroad's construction and can see actual images of the workers. Furthermore, in recent years, professional archaeologists have gathered an enormous amount of material culture left behind by the workers, which provides fascinating insight into their quotidian lives and the larger networks of their existence that connected them to their home villages and Chinese settlements throughout America.

Being attentive to the physical world of the Railroad Chinese—geographic location, terrain, weather conditions, and the natural and built environment—helps to capture a plausible sense of what the Railroad Chinese saw, felt, and experienced. While building the Central Pacific Railroad, they toiled outdoors, moving from the lush Central Valley of California, through the forests and canyons of Gold Country in the foothills of the Sierra Nevada, up into the high country of indomitable granite mountains, and then into the high deserts that seemed to stretch toward eternity in Nevada and Utah. Though long separated from them by the passage of time, we can recover a bit of what they encountered in the rural towns and wilds of California and what they felt out in the open during frigid winters and broiling summers, if we make the effort and use our empathetic imaginations.

The variety of historical materials that we do have, pieced together and used in creative ways, helps us reconstruct the story of the Railroad Chinese. Above all else, though, appreciating their elusive history begins with our placing ourselves in their position, at the very center of the telling, and trying to see the world from their points of view. Only by doing so can we begin to fully respect, and honor, their profound humanity.

This effort to recover their history begins with the origins of the Railroad Chinese in distant rural villages located in the Pearl River delta near Guangzhou (Canton) in southern China. They were "Cantonese" (a term commonly used to refer to an array of different regional and ethnic groups in southern China), who engaged in one of the great diasporas in human history. Numbering in the millions, they traveled across vast oceans to destinations in South America, the Caribbean, the Pacific, Southeast Asia, and North America, where, beginning in the early 1850s, one stream of this great migration became miners, farmers, fishermen, merchants, and railroad workers throughout California—or Gold Mountain, as they called it—and the entire American West.

The story then moves to the early experiences of Chinese in California, and to their lives and labor during the years they worked for the CPRR. This forms the core of the book. From the booming port city of San Francisco, where the vast majority of the Railroad Chinese disembarked, we will follow them across California's Central Valley to Sacramento, where the first tracks of the Central Pacific were laid, and then to Auburn, nestled in the foothills of the Sierra Nevada mountain range, where Chinese began to work for the railroad company en masse. Their numbers grew steadily as the line pushed farther east, deeper and higher into the Sierra. By the literal and figurative climax of the CPRR's journey over the Sierra, the completion of the Summit Tunnel near Lake Donner and Lake Tahoe, the Chinese formed roughly 90 percent of the company's workforce. It is no exaggeration to say that the effort could not have been completed without them. They labored—and died—among the peaks of the Sierra in some of the most extreme conditions imaginable. And when the work there was done, they continued eastward, into the tumbling hills of Nevada and the flat, baking expanse of Utah. By the time the CPRR united with the UP at Promontory Summit, hundreds—perhaps even thousands—of Chinese had died over the five years of the construction effort. Their industry, sacrifice, and contribution attracted great national attention, and for a moment it appeared that Chinese might be allowed to establish their place in the American family. Through the rest of the nineteenth century, thousands of Railroad Chinese dispersed throughout the United States and Canada, including for work on scores of other railroad construction projects. They began to settle in large cities and small towns throughout the United States. The moment of possibility for them, however, was short-lived. Chinese came to be seen as racial inferiors and competitors for work. Terrible violence and expulsion from America would be the bitter reward for their labor.

Thousands were driven out of the country and went elsewhere in the world for work and survival. Many returned to their homes in what became known as "railroad villages" because of their connection to the work of railroad construction. Those who stayed here helped establish the foundation for what we now call Chinese

America. They built communities wherever the railroad could take them, opening the way for their compatriots who followed them across the country. Descendants of the Railroad Chinese are found everywhere here and around the world today.

Who were the Railroad Chinese? What did they do on the Transcontinental line? What were their ways of work and life? *Ghosts of Gold Mountain* speaks to these basic questions, as well as to more specific questions that have long intrigued those interested in the Railroad Chinese: How many toiled on the line? What kinds of work did they do? Did they actually suspend themselves in woven reed baskets down sheer cliffs to blast open the roadbed around mountains? What did it take to tunnel through the Sierra Nevada? What about the legendary strike of 1867, when three thousand Chinese put down their tools and confronted the railroad barons? Why did they strike, and what was the result of their collective action? How many Railroad Chinese died: several score, hundreds, thousands? How did America treat them after the rail line was completed? What is their place, and legacy, in the sweep of American history?

Central to this examination is the role of chance in the lives of the Railroad Chinese. Their lives were replete with choice, circumstance, accident, and luck, both good and bad. They may have believed in fate, as humans are wont to do, but their lives were filled with the unknown, including high risk to life and limb. They went out from their homes in south China seeking a livelihood, and even good fortune, but they also knew that life was precarious. Tragedy, injury, and violent death in the nineteenth-century Pacific and western United States were commonplace. Disease and mistreatment on the high seas in transit took many lives, as did villains in California who despised Chinese and targeted them for plunder and sport. Avalanches and snowslides swept countless Chinese down into Sierra canyons, and nitroglycerine accidental explosions could vaporize them. Political demagogues, after the work was done, campaigned for the exclusion and expulsion of Chinese from the nation, and scores of Chinese died in mob lynchings, arsons, and shootings. A high possibility of being killed by nature or at human hands was an assumed risk for the Railroad Chinese. Though they did not use the term, they constantly faced "a Chinaman's chance," a well-known phrase in the American racial lexicon that spoke to the precarity of Chinese life here.

Yet thousands upon thousands of the Railroad Chinese persevered. While most did not find their personal Gold Mountain, many did forge meaningful and productive lives in America. Some prospered and returned to China as heroes. One was the great-grandfather of Lily, who coined the term "Railroad Chinese," who brought a non-Chinese bride back with him from America. Many years later, Lily herself, of mixed racial heritage, emigrated to America, a place her family still called "home" after more than three generations of separation. Others prospered and stayed in the United States, where they helped form the beginnings of Chinese America. Recognition of their achievements is long overdue: their legacies should be honored and their spirits propitiated. The lost souls of those who died during the construction of the railroad, and the neglected lives and experiences of those who survived deserve nothing less. For while theirs is the story of ghosts past, in the present it is also an experience that resonates very much with the living. It is an epic story of dreams, courage, accomplishment, tragedy, and extraordinary determination. <>

Fifteen Things You Need to Know (But Don't Know) About the People Who Built the Transcontinental Railroad

1. 90 percent of the workers involved in the construction of the western portion of the Transcontinental Railroad were Chinese.
2. An estimated 20,000 Chinese laborers worked on the line for over five years.
3. Although the completion of the Transcontinental Railroad relied on the Chinese workers, federal law prohibited them from obtaining American citizenship.
4. In the late 1800's, the Chinese workers constituted the largest workforce for a private enterprise in American history.

5. Most of the Chinese workers spoke English and were literate. They wrote letters to and corresponded with their families back in China.
6. In 1867, 3,000 Chinese laborers in the Sierra Nevada conducted the largest workers strike in American history at that time. They demanded wage parity with white workers and an eight-hour working day.
7. Working conditions were treacherous. An account mentions men working from woven reed baskets hung down the side of mountains to blast out the railway bed. A factor that has caused controversy surrounding the history of the Transcontinental Railroad.
8. Post construction, many of the men married and settled down in America, building families that formed the foundation of today's Chinese American community.
9. Names of hundreds of Chinese railroad workers have been identified using payroll records, allowing families today to construct genealogies.
10. May 10, 2019 will mark the 150th anniversary of the "Golden Spike," which celebrates the end of construction of the Transcontinental Railroad in Promontory Summit, Utah.
11. The Chinese laborers brought many different skills and abilities to the rail line: they were miners, blacksmiths, masons, teamsters, cooks, labor contractors, laborers, and interpreters.
12. Hundreds, if not thousands of Chinese workers likely died in the construction effort. The exact number will never be known because the railroad company kept no records.
13. The railroad laborers helped create the fabulous fortunes of the Big Four: Leland Stanford, Collis Huntington, Charles Crocker, and Mark Hopkins. Hundreds of Chinese continued to work for Stanford on his many estates, including Stanford University.
14. Chinese railroad workers are finally receiving their due recognition. They have been honored by the Department of Labor and by leaders of the United States and China, setting the foundation for an agreeable relationship between these two countries.
15. Chinese laborers continued to work on railroads across the United States decades after the completion of the transcontinental road. They worked on rail lines throughout the East, South, Midwest, Southwest, and the Plains. <>

[Control Culture: Foucault and Deleuze after Discipline](#) edited by Frida Beckman [Edinburgh University Press, 9781474436755]

Is control the cultural logic of the 21st century?

Starting from Deleuze's brief but influential work on control, the 11 essays in this book focus on how control mechanisms influence, and are influenced by, cultural expression today. They also collectively re-evaluate Foucault and Deleuze's theories of discipline and control in light of the continued development of biopolitics.

Written by an impressive line-up of contemporary scholars of philosophy, politics and culture the essays cover the particularity of control in relation to various fields and modes of expression including literature, cinema, television, music and philosophy.

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Control of What? by Frida Beckman

The world, Gilles Deleuze says in a conversation with Antonio Negri in the spring of 1990, has 'been taken from us'. It has been taken from us because we have lost our belief in it and without belief, we have closed down the potential to spawn 'new space—times', to make space for even the most modest events that evade control (Deleuze 1995: 176). Strikingly, but not unusually within the framework of Deleuze's oeuvre and in particular within his more political writings, this statement is at once bleak and constructive. In the same breath as it states that we have lost belief and thus the world, it offers at least the beginning of a suggestion of how to regain it. Deleuze notes the loss of belief but also reminds us that if we could only summon up the tiniest bit of it, this would enable us to 'precipitate events' and engender 'new space—times, however small their surface or volume' (Deleuze 1995: 176). Art plays a crucial part in such claims to hope. As he writes in his second cinema book; exactly because the world has turned into 'a bad cinema, in which we no longer believe', true cinema may be able to help us restore 'our belief in the world'. It is now three decades since Deleuze started flagging questions of control — in presentations such as 'Having an Idea in Cinema/What is a Creative Act?' in 1987 and 'What is a Dispositif?' in 1988, the conversation between Deleuze and Antonio Negri entitled 'Control and Becoming', published in *Futur Antérieur* in 1990, which is also the same year in which Deleuze's short but seminal article 'Postscript on Control Societies' was first published in *L'Autre* journal. During the decades that have passed since then, the shifts away from disciplinary society that Michel Foucault had already predicted and that Deleuze articulated in these brief engagements have escalated in ways and on a scale that neither of them could have possibly imagined. So what is the status of our belief today? And what is the role of artistic and cultural expression in relation to it?

When Foucault stated in one of his lectures at Collège de France in 1979 that 'control is no longer just the counterweight to freedom, as in the case of panopticism: it becomes its mainspring' and Deleuze pointed to 'the widespread progressive introduction of a new system of domination' based on continuous modulations and codes in 1990, few would have imagined that it would be possible, and, indeed, common practice to trace people's movements with the help of their smartphones, or that people would voluntarily wear watches that monitor the nature of their physical activities during the day and every minute of their sleep during the night, or that social media would use algorithms to individualise not only advertisements but also information and political messages. Perhaps few would also have been able to imagine a speed of technological development which makes you realise that even as you write down the most recent examples in a book manuscript, they will most likely already seem out of date once the book is published. But even if they could not, of course, foresee the details or speed of this development, Foucault and Deleuze, did, it seems, in some sense pre-empt the conditions that would enable such technologies to flourish, the transformative effects this would have on disciplinary modes of power, the accelerating consequences on the continued development of biopolitics, and the ensuing emergence of the complexities of control society.

There will be reason, in this introduction as well as in the various chapters of this book, to revisit and reevaluate Foucault's and Deleuze's theories of discipline and control in the light of these more recent developments. Indeed, and while Deleuze's conception of control constitutes a key starting point for this volume, this conception should be considered as a necessarily specific and historical attempt to map an emerging dispositif. A dispositif, in brief, and as Deleuze traces it via Foucault, is 'a tangle', a composition of lines of different nature, lines that

'do not just make up the social apparatus but run through it and pull at it' (Deleuze 1992b: 159). A *dispositif* shapes visibility, enunciation, knowledge, subjects, a *dispositif* is made up of concrete, if always potentially transformable components, a *dispositif* constitutes a machine 'which make[s] one see and speak'. Working with the notion of the *dispositif* is a way of acknowledging the specific components and coordinates of power at any one time while simultaneously recognising how such components and coordinates are variable and also invariably under transformation. 'In each apparatus [*dispositif*]', as Deleuze puts it, 'it is necessary to distinguish what we are (what we are already no longer), and what we are in the process of becoming'. Underlined here, and this takes us back to the 'new space—times' that Deleuze hopes we will summon up in the face of control, each *dispositif* should be assessed also in its ability to 'break down' and make way for 'a future apparatus'. It may be possible to trace 'paths of creation, which are continually aborting, but then restarting, in a modified way, until the former apparatus is broken'.

However, and while a *dispositif* necessarily builds on variable lines and coordinates, these lines and coordinates may be hard, rigid and solid and thus difficult to break. And at the moment, control, in all its suppleness, seems increasingly hard, rigid and solid. Perhaps it is because of its all-encompassing tendencies that we are struggling to envision its breaking point, perhaps it is because neither Foucault nor Deleuze lived long enough to develop their theories or to respond to the conditions they pre-empted, but it may also be because we are too close to it — because we are as yet unable to 'distinguish what we are (what we are already no longer), and what we are in the process of becoming'. But exactly because of these concerns, it seems important to map and interrogate some of those lines and paths. 'Our ability to resist control, or our submission to it', Deleuze writes in his 'Postscript', 'has to be assessed at the level of our every move'. This is what this volume hopes to do, or at least aspires towards. It aims high as it hopes to contribute to ways of assessing our submission to control as well as our ability to resist it across a large number of discourses and modes of expression. It hopes to be able to do so, not just by discussing and identifying control mechanisms more generally but also, and more specifically, by examining the specificities of a broad range of cultural expression and the ways in which control functions or is resisted in different modes and media.

The chapters in this volume explore control in relation to philosophy, music, cinema, television, contemporary fiction, the history of the novel, early modern essayist traditions, poetry and digital technologies, and they offer a number of unique takes on what the various modulations of control might look like as actualised through differing formal, generic and contextual conditions. On the one hand they look at how in control society 'nothing's left alone for long', and on the other at how different modes of expression construct what Deleuze calls 'war-machines', that is 'a particular way of occupying, taking up, space—time, or inventing new space—times'. This way, the chapters simultaneously contribute to more area-specific studies pertaining to the particular status of different disciplines in the present and to analyses that broaden, deepen, historicise, actualise and problematise conceptions of control. Control can and has been conceptualised in many ways and the different contributors will interrogate or expand on different facets of this concept. The conception of control that is most central to the book as a whole is that which emerges from Foucault and Deleuze so, first, let me just briefly outline these core ideas.

Foucault's and Deleuze's theories also constitute an important starting point for Hardt's and Negri's theorisation of empire during the first decade of the twenty-first century. Through their theories, Hardt and Negri gain the tools to explore 'the material functioning of imperial rule' and develop their analysis of the mechanisms of biopolitical production on a geopolitical scale. Analysing the decline in the power of institutions and autonomy of nation states that has occurred as a result of an increasingly globalised capitalist production, they integrate and develop theories of the transition between discipline and control to account for what they see as 'a new global form of sovereignty' — empire. Biopolitical production is key to this new paradigm, and they understand it as 'the production of social life itself, in which the economic, the political, and the cultural increasingly overlap and invest one another' (Hardt and Negri 2000: xiii). Hardt and Negri make a useful comparison between theories of discipline and control and the better-known Marxist theory of the transition between formal and real

subsumption and the Frankfurt School development of these theories in relation to culture and social relations. This comparison — which Franklin picks up on in his chapter in the present volume — points to the similarity between the theories, while also emphasising a crucial difference that exists already with Foucault but that becomes more explicit in Deleuze. While the Marxist and Frankfurt School theories of real subsumption rely on unidimensional processes, Foucault and Deleuze bring out the plurality and multiplicity of subsumption. This is an extension of real subsumption beyond its economic and social dimensions to include also 'the social bios itself', that is, all dimensions of living and of life itself.

Increasingly also, and here we approach the more direct context of the present collection, control is being theorised or used as a way of understanding the cultural logic of the present. Franklin argues, in his book-length study on the matter, that while the link between digital technologies and control continues to account for a significant amount of its 'conceptual and explanatory power', it is crucial that we explore control also as a cultural logic. By proposing control as the cultural logic of the present, Franklin finds a Jamesonian way of addressing the problem of periodisation. Jameson, we may recall, resolved the problem of periodising and thereby potentially obliterating the many differences inherent in postmodernism by positioning it as a cultural dominant 'a conception which allows for the presence and coexistence of a range of very different, yet subordinate, features' (Jameson 1991: 4). True to Jameson, Franklin notes that understanding the political implications of a cultural object requires looking not only at the explicitly political in terms of content but also at 'the specific technical objects, economic practices, industrial formations, political ideals, and organizational diagrams' surrounding it. Thus, for example, he addresses Jameson's classic elaboration on the concept of cognitive mapping in the 1980s as well as Galloway's and Wendy Hui Kyong Chun's problematisation of this method in relation to network culture in the twenty-first century. Franklin wants to develop a model capable also of teasing out the material implications — 'the socioeconomic and cultural costs' — of representation under control. 'The mode of cultural analysis that control necessitates', he writes, 'is thus one that takes the monolithic historical dimension of algorithmic or networked logic [...] as inseparable from the formations of sense and subjectivity that produce cultural forms'.

Paying close attention to the cultural forms and the cultural logic of control is crucial as what is repeated and underlined in writings on contemporary control is the way in which it implicates itself into every aspect of life and on all levels of being. If disciplinary control still comes with at least some degree of possibility of identifying the locus of power, control has become so subtle and pervasive and so integral to our every move that it has become hard even to identify it. Bernard E. Harcourt suggests that control has become so integrated into our pleasures and desires that we accept it with open arms. Although we are at least vaguely aware of the ways in which our increasingly, and increasingly inescapable, digital existence makes it possible to monitor, mine and profile our behaviour and desires everywhere and all the time, that very immediacy itself — 'the stimulating distractions and sensual pleasures of the new digital age' — sidetracks us from this fact. But it is not the dulling and distracting and forgetting which are the most central mechanisms but rather the ways in which the workings and constituents of our digital life speak to, encourage and manipulate our desires that constitute the key element of contemporary power structures. These power structures, he argues, are different from those of disciplinary society exactly in that there is no real need to enforce discipline or to make a distinction between our regular lives and correctional facilities. Because 'coercive surveillance technology is now woven into the very fabric of our pleasure and fantasies', it has become impossible, today, to separate between pleasure and punish.

Many concepts have been proposed to understand the structure of this new logic. Mentioned here have been Galloway's 'protocol', Rouvroy's 'algorithmic governmentality', Hardt's 'post-civil society', Massumi's 'capitalist super-system', Hardt and Negri's 'empire', and there are also what Harcourt calls 'expository society', Poster the 'superpanopticon', and Bratton 'the Stack'. What these concepts have in common is the sense of the all-encompassing nature of contemporary control. However, they all to a differing extent also stress the importance as well as the possibility of resistance. And importantly, this resistance is necessarily located within control

society itself. Massumi proposes 'productive interference patterns' that introduce excess, deficiency, humour — anything that does not resonate with this system. For Hardt, it is essential that we investigate the ways in which the form as well as the very nature of labour but also of social practices has changed, in order to identify 'the germs for a new movement, with new forms of contestation and new conceptions of liberation'. Galloway sees how the regime of control through protocol requires abandoning any ambition to transcend the immanent workings of control but also that 'it is through protocol that one must guide one's efforts, not against it'. In the face of the power of the 'superpanopticon' to fix the self, Poster suggests, we 'might search for new configurations of selfhood that keep open spaces of resistance', spaces that we will find 'especially in the human—machine mediascapes of networked computing' (Poster 2006: 115). Bratton's Stack model is global but not immutable'. The intrinsic modularity that gives it its power is the same modularity that makes it 'a platform, and an interface event, for the redesign and replacement of the Stack-we-have with a Stack-we-want (or perhaps with the Stack-we-want-the-least)' (Bratton 2015: xviii). The potential for change via the multitude in Hardt and Negri's *Empire* has been highlighted by them as well as other theorists of control such as Terranova, who underlines how her understanding of information comes with 'a specific reorientation of forms of power and modes of resistance' (Terranova 2004: 37). And the final task that Harcourt sets himself in his analysis of 'expository society', is 'To explore how to resist and disobey'.

So what about art and culture and their role in understanding or resisting control culture? As I underlined at the beginning of this Introduction, Deleuze identifies art as key to such projects. The present collection builds on the work that has already been done in the field of biopolitics while marking the grounds for a variable but sustained engagement with the relation between different art forms, modes of cultural expression and control. Beginning with an approach from a sceptical perspective, the first chapter, by Gregg Lambert, offers a report of an investigation into Deleuze's conception of control and what Lambert argues to be its all too prevailing and mythic influence in discussions of biopolitics. In his 'Notes from an Investigation of "Control Society"', he argues that Deleuze's observations — which he regards as a mutation of Foucault's analysis of the *dispositif* of discipline — include an element of science fiction that spoils its capacity to function as the teleology of contemporary political and social transformations. Reading Deleuze's piece alongside Ray Bradbury's short story 'The Pedestrian', linking it to Deleuze and Guattari's *Anti-Oedipus* and *A Thousand Plateaus*, as well as comparing the latter to Foucault's notes in *The Birth of Biopolitics*, Lambert's investigation not only questions philosophy as a tool of prognostication more generally but also points to an 'inflationary and paranoid style' shaping this part of Deleuze and Guattari's work. Situating the control essays in the context of the historical as well as personal turbulence from which they were conceived, Lambert does suggest that some aspects of Deleuze's mutation can and should be pursued while ultimately putting Deleuze out of a job.

Lambert's chapter opens up a critical intuition that begins to define a perspective further illuminated in the following set of chapters, which is that Deleuze's elaboration on Foucault is useful in some ways but that it needs to be problematised or expanded to be of much help. Lambert stresses the importance of beginning the work of developing 'different conventions for establishing our contemporary relationship between power and knowledge', and in Chapter 2 Neel Ahuja pursues race accordingly as a severely underexplored potential of Deleuze's work on control. Such missing explorations are, perhaps, unsurprising considering the missing articulation of race in Deleuze's own work, but in 'Post-Mortem on Race and Control', Ahuja investigates the usefulness of Deleuzian control theory for critical race studies. Apart from the lack of an explicit relation to race in Deleuze's own work on control, the understanding of the development of control as a devaluation of the institutions of Foucauldian discipline and especially the prison marks another reason why the interest in Deleuze's conception of control has been limited within the field of critical race studies, which has strongly disputed claims that state violence, including incarceration and torture, has declined. However, Ahuja shows, there are ways in which Deleuzian theories of control can be used productively within this field, especially as a means of elucidating the relation between the long history of racial violence and the plasticity of contemporary biopolitics of race. Indeed, and as he notes, these theories have already been put to use by key scholars in the field, such as Jasbir Puar. Control theories, he concludes, do need to be rethought 'from the inside out', but if and when

they are, they can be of importance to understanding race in a context of a contemporary, posthuman landscape.

In Chapter 3, 'Periodising (with) Control', Seb Franklin notes that while Deleuze's different writings on control are often seen to provide us with a relatively linear and historically determinable distinction between discipline and control, taking on longer-term formations such as race, class, gender, sex and disability quickly problematises any clear successive relation between the two. Addressing the role of cultural production, he insists that 'a cultural logic of control' must extend beyond its more obvious applications such as computer technology, post-industrial labour forms and science fictional projections of high-tech futures. To exemplify this, Franklin reads M. NourbeSe Philip's cycle of poems — ZONG! — from 2008, which is based on the massacre of enslaved Africans to collect insurance money in 1783. This poem, he argues, illuminates several mechanisms customarily associated with societies of control and it thereby reminds us not to be too near-sighted when it comes to periodising control. Such a wider focus as regards the periodising of control is pursued also by Carin Franzén in Chapter 4, 'Subjects of Sovereign Control and the Art of Critique in the Early Modern Period', where she suggests that contemporary societies of control share similarities with societies of sovereignty. Reminding us of Deleuze's suggestion that modes of control from sovereign societies may indeed reappear, Franzén identifies, explores and excavates such similarities in terms of the ambiguity of control as simultaneously enslaving and liberating. Following Foucault while conducting a careful reading of the form and function of genres developed in the wake of Montaigne, such as fables, letter writing and maxims, Franzén points to ways in which such discursive and aesthetic practices functioned as a subtle but integral mode of critique of contemporary sovereign modes of control. Style is crucial to such practices as they constitute the means of negotiating sovereign modes of power, including docility as well as human sovereignty. Adding to Foucault's thinking of stylisation and critique, Judith Butler's notion of 'virtue' and Catherine Malabou's conception of plasticity, she shows how libertine subjects made cultural practices into an 'art of critique'. Perhaps, she argues, we can learn something from them in encountering and negotiating control society; perhaps a contemporary critique of neoliberal rationality can find use of such 'potential of artistry'.

Another type of near-sightedness is identified and interrogated in Cary Wolfe's chapter, 'Posthumanism, Social Complexity, and the Political: A Genealogy for Foucault's *The Birth of Biopolitics*', in which he explores the possibilities for a posthumanist conception of control. Critically interrogating Wendy Brown's recent suggestion that Foucault's antagonism towards Marxist theories renders his work unable to take on board the mechanisms of a contemporary neoliberal society, Wolfe argues that Foucault does have a relation to Marxism — but one that is less humanist than that sought by Brown. Wolfe thereby sheds light on a conception of the political that he sees as better suited to the political mechanisms of the present. By bringing out theories of social complexity articulated by Foucault in his analyses of transitions between disciplinary societies and governmentality, by Deleuze in his essays on control society, and by Niklas Luhmann, Wolfe argues that the sphere of the political is not on the wane, as Brown insists, but, quite on the contrary, that we in a true Foucauldian fashion need to challenge our assumptions about 'what the political is and how it operates' and then to recognise that everything has become more political.

Where the first set of chapters thus interrogates conceptions of discipline and control from different perspectives, the second set of chapters puts these conceptions to work looking specifically at different modes of cultural expression — music, cinema, television, literature and philosophy — and also more directly at the intensification of control after the post-World War II period that Deleuze describes. Thus, in Chapter 6, 'That Path is for Your Steps Alone': Popular Music, Neoliberalism and Biopolitics', Jeffrey T. Nealon argues that popular music constitutes a prime 'operating system' of biopower in the present. Naturally, other art forms too are implicated in biopower, but unlike say poetry, novels, or art, the ever-presence of music in our contemporary everyday lives makes it a privileged example of what Guattari calls 'machinic enslavement'. As such, Nealon underlines, it constitutes an ideal target for mapping the development of biopolitics and control as well as a supreme place to look for Deleuze's 'new weapons'. Tracing the function of popular music from the

counterculture to the present, he shows how notions of the individual and authenticity as well as of freedom and resistance have to be rethought. A clear shift during these decades is that the ideas of self-realisation that were intended to position subjects outside societal institutions and norms in the 1960s have become an imperative in a present that thrives exactly on constant updates and modulations. As such, we can no longer neither rely on Adornian rejections of popular music as meaningless distraction from more authentic concerns nor on countercultural celebrations of music's potential for transgressive authenticity, but we have to find alternative ways of understanding the role of music as well as its potential for resistance.

In Chapter 7, Gregory Flaxman explores control and cinema. Deleuze's work on control emerges around the same time as his two cinema books and in the latter, Flaxman notes, we can find an investigation of control society *avant la lettre*. In 'Cinema in the Age of Control', Flaxman takes off from ways in which the critical and cartographic dimensions of cinema carry a correspondence to disciplinary society and compares this to what he observes as contemporary Hollywood cinema's preoccupation with the notion of being 'off the grid'. Exploring *The Bourne Identity* and its successors as paradigmatic of this preoccupation — which may be traced exactly to its current and seeming vanishing point — he notes that such films repeatedly return to the fantasy of escaping off the grid. Being both symptomatic as well as diagnostic, the film evinces a set of elaborations of the grid that also can be seen as aspects of control society and thus as useful to understandings of control. At the same time, and as the hero of these films repeatedly succeeds by tricking an increasingly digitalised and all-encompassing control system by means of old-school tactics, thus seemingly suggesting that the weapons are to be found in the lingering elements of disciplinary society, Bourne's preternaturally gifted character also makes clear that only those who are more than human may succeed in such endeavours.

Control and contemporary television programming is investigated in Chapter 8, Colin Gardner's 'Towards a "Minor" Fascism: Panoptic Control and Resistant Multiplicity in TV's Spooks'. Gardner takes a look at the television series *Spooks* and the way it both thematically and formally presents the fluidity of a surveillance culture that includes MI5 and the CIA as well as their Russian counterparts and traditional enemies. Elucidating the fluid relationships between these supposedly very different agencies and showing how the series uses the television medium to parallel this fluidity and make the viewer complicit in this modulatory surveillance culture, Gardner maps the dispositif of what he calls a 'velvet fascism'. This concept he arrives at by adapting Deleuze and Guattari's concept of a minor literature to account for what, through the series, emerges as a 'minor fascism', which becomes a useful way for him to account for the connecting non-hierarchical and deterritorialising lines of the control culture portrayed in the series. Like Flaxman, Gardner draws up connections with Deleuze's *Cinema II: The Time-Image* and in particular with Deleuze's analysis of false movements. In *Spooks*, however, such movements do not open towards a 'people yet to come', but rather — and as the progressive or revolutionary is replaced by the multiplicity, and this multiplicity becomes the driving force of the dispositif of surveillance culture — *Spooks* makes us part of an abstract machine in which a minor fascism is the only mode of negotiation.

A short story is in focus in Chapter 9, 'Species States: Animal Control in Phil Klay's 'Redeployment'', where Colleen Glenney Boggs shows how Klay's eponymous story opens up for a way of theorising control as an object in and of itself. This key feature of the intensification of control, she notes, is difficult to theorise and Klay's story is therefore useful in that it provides concrete ways of reading this recession of a separation between control and the objects of control. Boggs' analysis, which positions Foucauldian theories of biopower in relation to contemporary cartoons as well as Locke's conception of education, shows how the redeployed soldier in Klay's story finds himself simultaneously unable to maintain or break species borders, and is also unable to distinguish himself from the control structures of which he is part. As control becomes its own object, conceptions of subjects and objects, humans and animals, home and war are put at stake.

Chapter 10, 'Control and a Minor Literature', explores potential implications of theories and mechanisms of control on our reading of the novel as a literary form. As I note in this chapter, the modern Western novel is shaped largely alongside the emergence of modern industrialisation and thus with the consolidation of

disciplinary society in the late eighteenth and early nineteenth centuries. The novel, as well as theories thereof, has been strongly influenced by the centrality of the individual subject to such power structures. If it is correct that the intensification of control comes with a shift from the individual to the dividual, I ponder, will this mean that the novel changes or that our readings of it will? Picking up on Deleuze's brief reference to Kafka in his 'Postscript', I take this back to Deleuze and Guattari's analysis of the particularities of the novel form in their study of Kafka and suggest that this can help us think about the relation between literature and control.

In the eleventh and final chapter, simply titled 'Philosophy and Control', we return to philosophy with Paul Patton who maps out how transitions between discipline and control are visible in the changing role of universities in general, and in the discipline of philosophy in particular. Patton traces the disciplinary moulds shaping an earlier history of philosophy both in terms of institutional mechanisms and in terms of what Deleuze calls the Image of Thought and sees how this assemblage, in Deleuzian terms, or apparatus in a Foucauldian sense, has shaped philosophical thinking. In societies of control, he notes, such assemblages are challenged by the neoliberal university's role as a service provider to extra-academic fields. This comes with increasing demands on philosophers to be of relevance to real-world policy and economic and political issues. The changing roles of institutions which Deleuze points towards is thus clearly visible, he notes, in a neoliberal present that puts pressure on philosophy to become a useful tool for achieving various entrepreneurial and practical ends. Patton picks up on the conceptualisation of 'field philosophy' as a means to respond to this situation. Noting the similarities between such postdisciplinary philosophy and Deleuze's conception of experimental philosophy, he notes that both can be seen as producing a 'rhizomatic Image of Thought', a concept which should be useful to us in further analysis of the relation between control culture and philosophy today. <>

EMPTY PLANET: THE SHOCK OF GLOBAL POPULATION DECLINE by Darrell Bricker and John Ibbitson [Crown, 9781984823212]

An award-winning journalist and leading international social researcher make the provocative argument that the global population will soon begin to decline, dramatically reshaping the social, political, and economic landscape

"An ambitious reimagining of our demographic future."—The New York Times Book Review

For half a century, statisticians, pundits, and politicians have warned that a burgeoning population will soon overwhelm the earth's resources. But a growing number of experts are sounding a different alarm. Rather than continuing to increase exponentially, they argue, the global population is headed for a steep decline—and in many countries, that decline has already begun.

In *Empty Planet*, John Ibbitson and Darrell Bricker find that a smaller global population will bring with it many benefits: fewer workers will command higher wages; the environment will improve; the risk of famine will wane; and falling birthrates in the developing world will bring greater affluence and autonomy for women.

But enormous disruption lies ahead, too. We can already see the effects in Europe and parts of Asia, as aging populations and worker shortages weaken the economy and impose crippling demands on healthcare and social security. The United States and Canada are well-positioned to successfully navigate these coming demographic shifts--that is, unless growing isolationism leads us to close ourselves off just as openness becomes more critical to our survival than ever.

Rigorously researched and deeply compelling, *Empty Planet* offers a vision of a future that we can no longer prevent--but one that we can shape, if we choose.

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Excerpt: It was a girl.

On Sunday, October 30, 2011, just before midnight, Danica May Camacho entered the world in a crowded Manila hospital, bringing the human population of our planet to seven billion. Actually, the scales could have tipped a few hours later, in a village in Uttar Pradesh, India, with the arrival of Nargis Kumar. Or it might have been a boy, Pyotr Nikolayeva, born in Kaliningrad, Russia.'

Of course, it was none of them. The birth that took us to seven billion people was attended by no cameras and ceremonial speeches because we can never know where or when the event occurred. We can only know that, according to the United Nations' best estimates, we reached seven billion sometime around October 31 of that year. Different countries designated certain births to symbolize this landmark in history, and Danica, Nargis, and Pyotr were among those chosen.

For many, there was no reason to celebrate. Indian health minister Ghulam Nabi Azad declared that a global population of seven billion was "not a matter of great joy, but a great worry.... For us a matter of joy will be when the population stabilizes" Many share Azad's gloom. They warn of a global population crisis. Homo sapiens is reproducing unchecked, straining our ability to feed, house, and clothe the 130 million or more new babies that UNICEF estimates arrive each year. As humans crowd the planet, forests disappear, species become extinct, the atmosphere warms.

Unless humankind defuses this population bomb, these prophets proclaim, we face a future of increasing poverty, food shortages, conflict, and environmental degradation. As one modern Malthus put it, "Barring a dramatic decline in population growth, a rapid decrease in greenhouse gas emissions, or a global outbreak of vegetarianism—all of which are trending in the opposite direction at the moment—we're facing nothing less than the end of plenty for the majority of the earth's people."

All of this is completely, utterly wrong.

The great defining event of the twenty-first century—one of the great defining events in human history—will occur in three decades, give or take, when the global population starts to decline. Once that decline begins, it will never end. We do not face the challenge of a population bomb but of a population bust—a relentless, generation-after-generation culling of the human herd. Nothing like this has ever happened before.

If you find this news shocking, that's not surprising. The United Nations forecasts that our population will grow from seven billion to eleven billion in this century before leveling off after 2100. But an increasing number of

demographers around the world believe the UN estimates are far too high. More likely, they say, the planet's population will peak at around nine billion sometime between 2040 and 2060, and then start to decline, perhaps prompting the UN to designate a symbolic death to mark the occasion. By the end of this century, we could be back to where we are right now, and steadily growing fewer.

Populations are already declining in about two dozen states around the world; by 2050 the number will have climbed to three dozen. Some of the richest places on earth are shedding people every year: Japan, Korea, Spain, Italy, much of Eastern Europe. "We are a dying country," Italy's health minister, Beatrice Lorenzin, lamented in 2015.

But this isn't the big news. The big news is that the largest developing nations are also about to grow smaller, as their own fertility rates come down. China will begin losing people in a few years. By the middle of this century, Brazil and Indonesia will follow suit. Even India, soon to become the most populous nation on earth, will see its numbers stabilize in about a generation and then start to decline. Fertility rates remain sky-high in sub-Saharan Africa and parts of the Middle East. Even here, though, things are changing as young women obtain access to education and birth control. Africa is likely to end its unchecked baby boom much sooner than the UN'S demographers think.

Some of the indications of an accelerating decline in fertility can be found in scholarly research and government reports; others can only be found by talking to people on the street. And so we did. To gather research for this book, we traveled to cities on six continents: to Brussels and Seoul, Nairobi and São Paulo, Mumbai and Beijing, Palm Springs and Canberra and Vienna. There were other stops as well. We talked to academics and public officials, but more important, we talked to young people: on university campuses and at research institutes and in favelas and slums. We wanted to know what they were thinking about the most important decision they will ever make: whether and when to have a baby.

Population decline isn't a good thing or a bad thing. But it is a big thing. A child born today will reach middle age in a world in which conditions and expectations are very different from our own. She will find the planet more urban, with less crime, environmentally healthier but with many more old people. She won't have trouble finding a job, but she may struggle to make ends meet, as taxes to pay for health care and pensions for all those seniors eat into her salary. There won't be as many schools, because there won't be as many children.

But we won't have to wait thirty or forty years to feel the impact of population decline. We're feeling it today, in developed nations from Japan to Bulgaria that struggle to grow their economies even as the cohort of young workers and consumers diminishes, making it harder to provide social services or sell refrigerators. We see it in urbanizing Latin America and even Africa, where women are increasingly taking charge of their own destinies. We see it in every household where the children take longer to move out because they're in no rush to settle down and haven't the slightest intention of having a baby before they're thirty. And we're seeing it, tragically, in roiling Mediterranean seas, where refugees from wretched places press against the borders of a Europe that is already starting to empty out.

We may see it, very soon, influencing the global contest for power. Population decline will shape the nature of war and peace in the decades ahead, as some nations grapple with the fallout of their shrinking, aging societies while others remain able to sustain themselves. The defining geopolitical challenge in the coming decades could involve accommodating and containing an angry, frightened China as it confronts the consequences of its disastrous one-child policy.

Some of those who fear the fallout of a diminishing population advocate government policies to increase the number of children couples have. But the evidence suggests this is futile. The "low-fertility trap" ensures that, once having one of two children becomes the norm, it stays the norm. Couples no longer see having children as a duty they must perform to satisfy their obligation to their families or their god. Rather, they choose to raise a child as an act of personal fulfillment. And they are quickly fulfilled.

One solution to the challenge of a declining population is to import replacements. That's why two Canadians wrote this book. For decades now, Canada has brought in more people, on a per capita basis, than any other major developed nation, with little of the ethnic tensions, ghettos, and fierce debate that other countries face. That's because the country views immigration as an economic policy—under the merit-based points system, immigrants to Canada are typically better educated, on average, than the native-born—and because it embraces multiculturalism: the shared right to celebrate your native culture within the Canadian mosaic, which has produced a peaceful, prosperous, polyglot society, among the most fortunate on earth.

Not every country is able to accept waves of newcomers with Canada's aplomb. Many Koreans, Swedes, and Chileans have a very strong sense of what it means to be Korean, Swedish, or Chilean. France insists its immigrants embrace the idea of being French, even as many of the old stock deny such a thing is possible, leaving immigrant communities isolated in their banlieues, separate and not equal. The population of the United Kingdom is projected to continue growing, to about 82 million at the end of the century, from 66 million today, but only if the British continue to welcome robust levels of immigration. As the Brexit referendum revealed, many Brits want to turn the English Channel into a moat. To combat depopulation, nations must embrace both immigration and multiculturalism. The first is hard. The second, for some, may prove impossible.

Among great powers, the coming population decline uniquely advantages the United States. For centuries, America has welcomed new arrivals, first from across the Atlantic, then the Pacific as well, and today from across the Rio Grande. Millions have happily plunged into the melting pot—America's version of multiculturalism—enriching both its economy and culture. Immigration made the twentieth century the American century, and continued immigration will define the twenty-first as American as well.

Unless. The suspicious, nativist, America First groundswell of recent years threatens to choke off the immigration tap that made America great by walling up the border between the United States and everywhere else. Under President Donald Trump, the federal government not only cracked down on illegal immigrants, it reduced legal admissions for skilled workers, a suicidal policy for the U.S. economy. If this change is permanent, if Americans out of senseless fear reject their immigrant tradition, turning their backs on the world, then the United States too will decline, in numbers and power and influence and wealth. This is the choice that every American must make: to support an open, inclusive, welcoming society, or to shut the door and wither in isolation.

The human herd has been culled in the past by famine or plague. This time, we are culling ourselves; we are choosing to become fewer. Will our choice be permanent? The answer is: probably yes. Though governments have sometimes been able to increase the number of children couples are willing to have through generous child care payments and other supports, they have never managed to bring fertility back up to the replacement level of, on average, 2.1 children per woman needed to sustain a population. Besides, such programs are extremely expensive and tend to be cut back during economic downturns. And it is arguably unethical for a government to try to convince a couple to have a child that they would otherwise not have had.

As we settle into a world growing smaller, will we celebrate or mourn our diminishing numbers? Will we struggle to preserve growth, or accept with grace a world in which people both thrive and strive less? We don't know. But it may be a poet who observes that, for the first time in the history of our race, humanity feels old. <>

PHILOSOPHY OF PHYSICS: QUANTUM THEORY by Tim Maudlin [Princeton Foundations of Contemporary Philosophy, Princeton University Press, 9780691183527]

A sophisticated and original introduction to the philosophy of quantum mechanics from one of the world's leading philosophers of physics

In this book, Tim Maudlin, one of the world's leading philosophers of physics, offers a sophisticated, original introduction to the philosophy of quantum mechanics. The briefest, clearest, and most refined account of his influential approach to the subject, the book will be invaluable to all students of philosophy and physics.

Quantum mechanics holds a unique place in the history of physics. It has produced the most accurate predictions of any scientific theory, but, more astonishing, there has never been any agreement about what the theory implies about physical reality. Maudlin argues that the very term “quantum theory” is a misnomer. A proper physical theory should clearly describe what is there and what it does—yet standard textbooks present quantum mechanics as a predictive recipe in search of a physical theory.

In contrast, Maudlin explores three proper theories that recover the quantum predictions: the indeterministic wavefunction collapse theory of Ghirardi, Rimini, and Weber; the deterministic particle theory of deBroglie and Bohm; and the conceptually challenging Many Worlds theory of Everett. Each offers a radically different proposal for the nature of physical reality, but Maudlin shows that none of them are what they are generally taken to be.

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This volume of Philosophy of Physics confronts quantum theory. The original intent was to cover both quantum theory and statistical explanation, but that was not feasible, given the constraints of space. Quantum theory presents a fiendish challenge for a book like this: There are too many phenomena, too much technical elaboration, and too many fundamental conceptual issues to be adequately explicated in such a limited span. Unlike spacetime theory, where there is substantial agreement about how to understand the best physics we have (General Relativity), quantum theory has always been a battleground of contention. Nothing one can say would command the assent of most physicists or philosophers.

Structuring the manuscript demanded painful choices about what to present, the appropriate level of technical complication, what historical background to include, which controversies to mention, which alternative elaborations of theories to consider. Every decision was difficult and can be legitimately challenged. Important phenomena and theoretical approaches have been left unmentioned. Ideas for reconciling quantum theory and General Relativity—quantum theories of gravity—are not discussed. All but the last chapter deal solely with nonrelativistic quantum theory.

What principle guided these choices? The central problem facing attempts to understand a quantum theory is how it manages to model empirical phenomena in a principled way. This is often referred to as “the measurement problem;” because the sorts of laboratory operations used to provide data are called “measurements.” But the problem has a much wider scope. Any macroscopic phenomenon can in principle test a fundamental physical theory, because the theory should be able to provide a physical account of it. Erwin Schrödinger famously asked how quantum theory could model how a cat in a particular experimental setting ends up either alive or dead. It is irrelevant for his point whether the experiment counts as a “measurement”

John Stewart Bell made a proposal about how this can be done, which he called the theory of local beables. “Beables” refers to the ontology of a theory: what it postulates to exist. “Local” indicates a beable that exists in a small region of space or space-time. Fixing the distribution of local beables at a microscopic scale fixes the location, shape, and motion of their macroscopic aggregates and thereby can solve the measurement problem and Schrödinger’s cat problem. What one needs from such a theory is an inventory of local beables and an account of their dynamics: how they get distributed in space-time.

This basic idea can be implemented in different ways, which can be illustrated in a nonrelativistic setting where the technical details are easier to grasp. These are admittedly empirically inadequate theories, but they provide models of general strategies for solving the measurement problem. They also illustrate many iconic quantum-mechanical effects. The additional challenges facing relativistic extensions can be considered later. So our investigation proceeds by discussing three ways to implement this strategy nonrelativistically, together with a short discussion of the additional challenges facing extensions to a relativistic space-time.

This approach faces perils. If the correct solution to the measurement problem does not involve local beables, or if those beables have no nonrelativistic analogs, then starting with nonrelativistic quantum mechanics is counterproductive. But one has to start somewhere, and in an introduction, it is best to start with what is easiest to grasp. If nothing else, nonrelativistic quantum mechanics can act as a foil for alternative theories, so one can see how the assumptions made here fail. Starting from what we understand and seeing clearly its inadequacies can provide a path to conceptual progress.

By far the most controversial aspect of this book is not what it contains but what it omits. There is detailed discussion of the Ghirardi-Rimini-Weber spontaneous collapse theory, of the pilot wave theory of the Louis DeBroglie and David Bohm, and of Hugh Everett's Many Worlds theory. But there is no discussion—indeed aside from here no mention—of the most famous "interpretation" of quantum theory of all: the Copenhagen Interpretation ascribed to Niels Bohr and his colleagues. Why is that?

A physical theory should clearly and forthrightly address two fundamental questions: what there is, and what it does. The answer to the first question is provided by the ontology of the theory, and the answer to the second by its dynamics. The ontology should have a sharp mathematical description, and the dynamics should be implemented by precise equations describing how the ontology will, or might, evolve. All three of the theories we will examine meet these demands.

The Copenhagen Interpretation, in contrast, does not. There is little agreement about just what this approach to quantum theory postulates to actually exist or how the dynamics can be unambiguously formulated. Nowadays, the term is often used as shorthand for a general instrumentalism that treats the mathematical apparatus of the theory as merely a predictive device, uncommitted to any ontology or dynamics at all. That predictive device is described in Chapter 2 under the moniker "the quantum recipe." Sometimes, accepting the Copenhagen Interpretation is understood as the decision simply to use the quantum recipe without further question: Shut up and calculate. Such an attitude rejects the aspiration to provide a physical theory, as defined above, at all. Hence it is not even in the running for a description of the physical world and what it does. More specific criticisms could be raised against this legacy of Bohr, but our time is better spent presenting what is clear than decrying what is obscure.¹

Besides rejecting the usual terminology of "quantum theory" versus "interpretation of quantum theory" in favor of "predictive recipe" versus "physical theory," and besides ignoring the historical question of what (if anything) should count as the Copenhagen Interpretation, this book differs from most standard discussions in a third way. It has become almost de rigeur in the quantum foundations literature to systematically misuse the terms "realist," "realistic," "antirealist," and "antirealistic." These terms have a precise meaning in the philosophy of science, a meaning that seems to be completely unfamiliar to most physicists. And it is not just that these physicists misuse these terms, it is rather that they simply toss them around with no attached meaning at all. This has had terrible consequences for discussions in foundations of quantum theory.

In the proper meaning of the term, physical theories are neither realist nor antirealist. That is, as we used to say, a category mistake. It is a person's attitude toward a physical theory that is either realist or antirealist. For example, was Copernicus's theory of the structure of the solar system realist or antirealist? That question has no content. The theory was what it was: It postulated that the various planets and the earth engaged in particular sorts of motions. When Osiander wrote the preface to *De Revolutionibus*, he strongly advocated taking an antirealist attitude toward the theory: Don't regard the theory as literally true, but just instrumentally as a

convenient way to make certain predictions. He did this to protect Copernicus from the wrath of the Catholic church. Copernicus himself, and Galileo, adopted the opposite attitude: They wanted to argue that the theory is literally true, by reference to its explanatory power and simplicity. And they inherited certain physical problems (for example, problems in terrestrial mechanics) because of their attitude. But the theory toward which Osiander was antirealist and Galileo realist is one and the same theory. The theory itself is neither.

The scientific realist maintains that in at least some cases, we have good evidential reasons to accept theories or theoretical claims as true, or approximately true, or on-the-road-to-truth. The scientific antirealist denies this. These attitudes come in degrees: You can be a mild, medium, or strong scientific realist and similarly a mild, medium, or strong scientific antirealist. Ultimately, this is a question addressed by epistemology and confirmation theory. But this book is not about either epistemology or confirmation theory, so the issue of whether one should be a scientific realist or antirealist, and to what degree, is never even broached. Like "Copenhagen Interpretation," the very terms "realist" and "antirealist" do not appear outside this Introduction.

The real damage that has been done by misapplying the term "realist" to theories rather than to people's attitude toward theories is raising false hopes. For example, we will see that Bell's theorem, together with reported data, rules out the possibility of any empirically adequate physical theory that is local in a precise sense of the term "local." The Pusey, Barrett, and Rudolph (PBR) theorem, together with data that matches the predictions of quantum theory, rules out the possibility of any empirically adequate "psiepistemic" physical theory. But often, when reporting these crucial results, the term "realist" or "realistic" is snuck in. Bell, we are told, ruled out all local realistic theories, for example. And that locution strongly suggests that one can avoid nonlocality and evade Bell's result by saying that realism is what ought to be abandoned. But this suggestion is nonsensical. Bell proves that no local theory, full stop, can predict violations of his inequality. Whether some person's attitude toward the theory is one of scientific realism or not is neither here nor there. If I had my druthers, "realist" and "anti-realist" would be banned from these foundational discussions. And in my own book, I have my druthers, so I will not mention these terms again. <>

THE SECULAR ENLIGHTENMENT by Margaret C. Jacob [Princeton University Press, 9780691161327]

A major new history of how the Enlightenment transformed people's everyday lives [*The Secular Enlightenment*](#) is a panoramic account of the radical ways that life began to change for ordinary people in the age of Locke, Voltaire, and Rousseau. In this landmark book, familiar Enlightenment figures share places with voices that have remained largely unheard until now, from freethinkers and freemasons to French materialists, anticlerical Catholics, pantheists, pornographers, readers, and travelers.

Margaret Jacob, one of our most esteemed historians of the Enlightenment, reveals how this newly secular outlook was not a wholesale rejection of Christianity but rather a new mental space in which to encounter the world on its own terms. She takes readers from London and Amsterdam to Berlin, Vienna, Turin, and Naples, drawing on rare archival materials to show how ideas central to the emergence of secular democracy touched all facets of daily life. Human frailties once attributed to sin were now viewed through the lens of the newly conceived social sciences. People entered churches not to pray but to admire the architecture, and spent their Sunday mornings reading a newspaper or even a risqué book. The secular-minded pursued their own temporal and commercial well-being without concern for the life hereafter, regarding their successes as the rewards for their actions, their failures as the result of blind economic forces.

A majestic work of intellectual and cultural history, [*The Secular Enlightenment*](#) demonstrates how secular values and pursuits took hold of eighteenth-century Europe, spilled into the American colonies, and left their lasting imprint on the Western world for generations to come.

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The Enlightenment was an eighteenth-century movement of ideas and practices that made the secular world its point of departure. It did not necessarily deny the meaning or emotional hold of religion, but it gradually shifted attention away from religious questions toward secular ones. By seeking answers in secular terms—even to many religious questions—it vastly expanded the sphere of the secular, making it, for increasing numbers of educated people, a primary frame of reference. In the Western world, art, music, science, politics, and even the categories of space and time had undergone a gradual process of secularization in the sixteenth and seventeenth centuries; the Enlightenment built on this process and made it into an international intellectual cause. By asserting this expansion of secularity, I do not mean to downplay the many religious manifestations found in the age. This book does not claim that religion was en route to being cast aside like bad bacteria waiting to be knocked out by an antibiotic of deism or atheism.

The chapters ahead do claim that attachment to the world—the here and the now—to a life lived without constant reference to God, became increasingly commonplace and the source of an explosion of innovative thinking about society, government, and the economy, to mention hut a few areas of inquiry. In attaching to the world, many people lost interest, or belief, in hell. Its proprietor, the devil, still haunted popular beliefs but was no longer invoked on a daily basis by the literate and educated.

Areas of human behavior once explained by concepts like miracles or original sin now received explanations inspired by physical science or the emerging studies of social and economic relations. Space and time were cleared of their Christian meaning, and people became more concerned with reorganizing the present and planning for the future than in their fate after death. They could enter churches not to pray but to admire the architecture, spend Sunday mornings reading a newspaper, cast a cold eye on clergy of every persuasion, and read risqué books to their heart's content.¹ The secular-minded and literate could pursue their economic or commercial success, become innovative in science or technology, take up the liberal professions, work long hours in business or household, and imagine their successes or failures as the reward for their actions or the result of blind economic or social forces.

In a secular setting, the purpose of human life takes shape without necessary reference to a transcendent order; temporal well-being is the end being sought, now more readily managed by the increasing use of pocket watches. Where once the deeply religious monitored time to identify their shortcomings and assess their chances at salvation, the secular man lived a punctual life that found pleasure in work or social life. The secular woman, when not caring for home and domestic life, read novels, entertained in gatherings with an agenda—the abolition of the slave trade, the news from France or America—and died without fear of what might come next. Fathers and mothers sought to educate children so that they might find temporal happiness.

It is one thing to say that increasingly secular values and pursuits can be observed in the course of the eighteenth century; it is another to assert that a teleological process took hold particularly in the Western world

and it is here to stay. Most recently, such an assertion allows its believers to look down upon Islam, for example. It also assumes that nation-states making it first to the finish line of secularization would be immune to the dark forces of totalitarianism or fascism.

In this book, readers will hear a cacophony of rich voices new to the age. We will be introduced to freethinkers, low and high Anglican churchmen, Hobbes, Spinoza, Locke, Newton, moderate Scots Presbyterians, French materialists, Rousseauian idealists, pornographers, Lutheran pantheists, and deeply anticlerical Catholics. As a result of their writings about politics, society, or religion, after 1750 a new generation of Europeans and American colonists could imagine entirely human creations such as republics and democracies. So much of this creative energy occurred in cities—hence the focus in many chapters on major urban settings. They did not cause the Enlightenment, but they facilitated its birthing.

Sometimes the signs of secularity, of living in the here and now, were subtle. Around the middle of the seventeenth century, Dutch professors of astronomy stopped teaching astrology. It was still widely practiced, yet, ever so gradually, in most annual Dutch almanacs its importance dwindled. About the same time, in the lifetime of Spinoza (d. 1677), few of his contemporaries could understand, let alone accept, his identification of God with Nature. Fast-forward to the 1780s in both England and Germany, where thinkers with obviously religious sentiments like the Lutheran Johann Herder, or the poet of Dissenting (non-Anglican, Protestant) background, Samuel Taylor Coleridge, could imagine a universe infused with the divine. In three generations, one of the foundations of Christian metaphysics, the absolute separation of Creator from Creation, of spirit from matter, had disaggregated.

The disaggregation could also be symbolic. A French masonic ceremony of the late 1770s occurred in its "Sanctuary." There we find the throne of the master of the lodge and next to it on the altar three silver candlesticks, the book of statutes and rules of the lodge, the "book of the gospel, a compass, a mallet," and in pride of place "reposes, displayed, the new Constitutions from the Grand Orient of France." Were these masonic brothers in Strasbourg mocking the accoutrements of the Catholic Church? Or using them to signal the importance they attached to their legal status within the fraternity? The setting was adorned with sky-blue serge, braids and ribbons of gold, silver and jewels. It belonged to a lodge of merchants who lost little love for their aristocratic brothers largely found in other lodges. The orator of the occasion noted the bravery of the French soldiers fighting in the American Revolution. He also said that brothers meet under "the living image of the Grand Architect of the Universe." Somewhere, in this mélange of symbols and talk about the Grand Architect, lurks the residue of the Christian heritage common to all the brothers, but did one of them actually have to believe in it? Readers can make up their own minds.

Last, what to make of the Christian heritage? As early as the 1720s, an entirely new approach to religion emerged among a circle of exiled French Huguenot writers, German publishers, and engravers resident in the Dutch Republic. Overwhelmingly, the literature about Christianity and all the other religions had praised and privileged the first, even mocked the alternatives. Time out of mind, Jews and Christians waged polemical warfare in multiple texts, while Catholics and Protestants had been at one another's throats since the 1520s. None of them liked Muslims. Then a set of large, engraved French volumes, Picart and Bernard's *Religious Ceremonies of the World*, began to appear from 1723 onward, and it sought to treat all the religions of the world evenhandedly.¹ The volumes would remain in print in multiple editions, in the major languages, well into the nineteenth century. The impulse to develop such a treatment can best be described as secular; it focused on people's religious customs and ceremonies, not on the truth or falsity of their beliefs. By comparing in this way, the volumes helped establish the category of "religion," itself an offshoot of secular thinking. Religion was now a cultural practice that varied across time and space; it could be explained in secular terms.

This book tries to understand the major intellectual currents of the century that gave birth to the label "secular." In the writing of history, in many European languages, the number of Enlightenments has now proliferated: the Radical Enlightenment, the Moderate Enlightenment, the Religious Enlightenment, even the Catholic

Enlightenment. I too am guilty. The *Radical Enlightenment: Pantheists, Freemasons and Republicans* (1981) was my creation.' It is surely blatantly presumptuous in the area of title making to bring forward yet another one, the *Secular Enlightenment*. At least this title possesses a historical lineage that goes back to the writings of Ernst Cassirer in the 1930s and includes, in our own time, Peter Gay, Franco Venturi, Daniel Roche, and John Marshall. Here, I seek to add a contribution to their legacy.

The developments in eighteenth-century intellectual life had far-reaching implications, not always uniform. The fate of the Enlightenment in the Dutch Republic was vastly different from what occurred in the German- and Italian-speaking lands. Where enlightened principles survived the repression of the 1790s and beyond, democracy had a greater chance of emerging. If we look to the twentieth century and beyond, by and large, and unlike German-speaking Europe and Italy, both fascism and Nazism were little fertilized on Dutch soil. In Eastern Europe, the secular Enlightenment continues to cast a light into the twenty-first century but battles against a resurgent xenophobia and a virulent nationalism, with fascist undertones. The survival of liberal democracy in places where enlightened thought had been weak remains a challenge.

The meaning of the Enlightenment resides in political structures and personal transformations that emerged in the course of the eighteenth century. These are most visible in the lives and ideas found in its last quarter. Lessing and Herder tell their readers to look "in the world" and see the achievements of brotherhood. Jefferson decried priestcraft; Franklin set out to establish a new moral consciousness. In London, Unitarian chapels tinkered with their liturgy to express an egalitarian discontent with Anglican hierarchy and orthodoxy.' Decades earlier, Voltaire had championed the Unitarians' cerebral version of religiosity. He could not imagine anything as irrational as democracy; by the 1760s, however, Rousseau showed little restraint when he dreamed of it. By the 1770s, it was clear to the enlightened that in the Western world the American colonies had embarked upon a rebellion that could usher in just such an experiment.

Since the late 1680s into the 1790s, all sorts of people tried to break with tradition and find alternatives, absolutism in church and state. Someone like Isabella de Moerloose (chapter 3) turns up almost by accident. Early in the century in the Dutch Republic, she taught school while taunting the local clergy and writing passionately about sexual freedom. She landed in prison for her trouble, and there she seems to have succumbed to madness. A few decades later in the republic, the Huguenot refugee Jean Rousset de Missy became a revolutionary, and after events in 1747-48 he was exiled. Like English, American, and French revolutionaries, he enlisted John Locke to justify his rebellious battle.' The Italian theorist of republics, Filangieri wanted to join Franklin in the new American Republic so that he could assist at its establishment, while several years later Irish radicals and republicans flocked to the new republic, where many remained.

Then as now, the political has often been personal. Seekers after alternatives to absolute monarchies and their churches filled civil society, dwelt in its cafés, coffee houses, salons, eating clubs, and lodges. There they could find the like-minded, or the pugnacious, even the outrageous and the subversive. Not least, their shelves offered free newspapers and journals. The century ended with revolutions—Brussels, Amsterdam, Paris, Belfast, Dublin, Naples—that focused minds on making new institutions, new laws, new hopes and dreams. All of them in this world, in time to be lived. Sin, hell, and salvation became less real, or to be attended to less urgently. Consumption became easier for the urban educated and employed; books, clocks, and watches to measure the time spent reading were more plentiful. In some minds, the clergy could be disdained, churches avoided or viewed only for their physical beauty; even the founders of the great monotheistic religions could be mocked. By 1800, space and time on earth were filled by fewer miracles, saints, and prophecies than had been the case in 1700. The secular with which we still live had become all pervasive, even if offensive to the religiously observant. In the United States, nineteenth-century evangelical Protestants still longed for a great awakening that would restore the faithful to their Godly covenant. In some quarters in our own time, such dreams remain possible, yet curiously unattainable or tainted by political involvements. The eighteenth-century philosophes,

despite their disagreements, shared a universal distrust of organized religion and the priests who enforced it. We have sought here to recall the contours of their thinking and the social and political settings that gave rise to it. This historical account seeks not to return to the past but to bring the best of the secular Enlightenment with us into the future. <>

INFINITE POWERS: HOW CALCULUS REVEALS THE SECRETS OF THE UNIVERSE by Steven Strogatz [Houghton Mifflin Harcourt, 9781328879981]

“Marvelous . . . an array of witty and astonishing stories . . . to illuminate how calculus has helped bring into being our contemporary world.”—The Washington Post

From preeminent math personality and author of *The Joy of x* , a brilliant and endlessly appealing explanation of calculus – how it works and why it makes our lives immeasurably better.

Without calculus, we wouldn't have cell phones, TV, GPS, or ultrasound. We wouldn't have unraveled DNA or discovered Neptune or figured out how to put 5,000 songs in your pocket.

Though many of us were scared away from this essential, engrossing subject in high school and college, Steven Strogatz's brilliantly creative, down-to-earth history shows that calculus is not about complexity; it's about simplicity. It harnesses an unreal number—infinity—to tackle real-world problems, breaking them down into easier ones and then reassembling the answers into solutions that feel miraculous.

Infinite Powers recounts how calculus tantalized and thrilled its inventors, starting with its first glimmers in ancient Greece and bringing us right up to the discovery of gravitational waves (a phenomenon predicted by calculus). Strogatz reveals how this form of math rose to the challenges of each age: how to determine the area of a circle with only sand and a stick; how to explain why Mars goes “backwards” sometimes; how to make electricity with magnets; how to ensure your rocket doesn't miss the moon; how to turn the tide in the fight against AIDS.

As Strogatz proves, calculus is truly the language of the universe. By unveiling the principles of that language, [Infinite Powers](#) makes us marvel at the world anew.

Introduction
 Infinity
 The Man Who Harnessed Infinity
 Discovering the Laws of Motion
 The Dawn of Differential Calculus
 The Crossroads
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Excerpt: Without calculus, we wouldn't have cell phones, computers, or microwave ovens. We wouldn't have radio. Or television. Or ultrasound for expectant mothers, or GPS for lost travelers. We wouldn't have split the atom, unraveled the human genome, or put astronauts on the moon. We might not even have the Declaration of Independence.

It's a curiosity of history that the world was changed forever by an arcane branch of mathematics. How could it be that a theory originally about shapes ultimately reshaped civilization?

The essence of the answer lies in a quip that the physicist Richard Feynman made to the novelist Herman Wouk when they were discussing the Manhattan Project. Wouk was doing research for a big novel he hoped to write about World War II, and he went to Caltech to interview physicists who had worked on the bomb, one of whom was Feynman. After the interview, as they were parting, Feynman asked Wouk if he knew calculus. No, Wouk admitted, he didn't. "You had better learn it," said Feynman. "It's the language God talks."

For reasons nobody understands, the universe is deeply mathematical. Maybe God made it that way. Or maybe it's the only way a universe with us in it could be, because nonmathematical universes can't harbor life intelligent enough to ask the question. In any case, it's a mysterious and marvelous fact that our universe obeys laws of nature that always turn out to be expressible in the language of calculus as sentences called differential equations. Such equations describe the difference between something right now and the same thing an instant later or between something right here and the same thing infinitesimally close by. The details differ depending on what part of nature we're talking about, but the structure of the laws is always the same. To put this awesome assertion another way, there seems to be something like a code to the universe, an operating system that animates everything from moment to moment and place to place. Calculus taps into this order and expresses it.

Isaac Newton was the first to glimpse this secret of the universe. He found that the orbits of the planets, the rhythm of the tides, and the trajectories of cannonballs could all be described, explained, and predicted by a small set of differential equations. Today we call them Newton's laws of motion and gravity. Ever since Newton, we have found that the same pattern holds whenever we uncover a new part of the universe. From the old elements of earth, air, fire, and water to the latest in electrons, quarks, black holes, and superstrings, every inanimate thing in the universe bends to the rule of differential equations. I bet this is what Feynman meant when he said that calculus is the language God talks. If anything deserves to be called the secret of the universe, calculus is it.

By inadvertently discovering this strange language, first in a corner of geometry and later in the code of the universe, then by learning to speak it fluently and decipher its idioms and nuances, and finally by harnessing its forecasting powers, humans have used calculus to remake the world.

That's the central argument of this book.

If it's right, it means the answer to the ultimate question of life, the universe, and everything is not 42, with apologies to fans of Douglas Adams and *The Hitchhiker's Guide to the Galaxy*. But *Deep Thought* was on the right track: the secret of the universe is indeed mathematical.

Calculus for Everyone

Feynman's quip about God's language raises many profound questions. What is calculus? How did humans figure out that God speaks it (or, if you prefer, that the universe runs on it)? What are differential equations and what have they done for the world, not just in Newton's time but in our own? Finally, how can any of these stories and ideas be conveyed enjoyably and intelligibly to readers of goodwill like Herman Wouk, a very thoughtful, curious, knowledgeable person with little background in advanced math?

In a coda to the story of his encounter with Feynman, Wouk wrote that he didn't get around to even trying to learn calculus for fourteen years. His big novel ballooned into two big novels — *Winds of War* and *War and*

Remembrance, each about a thousand pages. Once those were finally done, he tried to teach himself by reading books with titles like *Calculus Made Easy*— but no luck there. He poked around in a few textbooks, hoping, as he put it, "to come across one that might help a mathematical ignoramus like me, who had spent his college years in the humanities—i.e., literature and philosophy—in an adolescent quest for the meaning of existence, little knowing that calculus, which I had heard of as a difficult bore leading nowhere, was the language God talks." After the textbooks proved impenetrable, he hired an Israeli math tutor, hoping to pick up a little calculus and improve his spoken Hebrew on the side, but both hopes ran aground. Finally, in desperation, he audited a high-school calculus class, but he fell too far behind and had to give up after a couple of months. The kids clapped for him on his way out. He said it was like sympathy applause for a pitiful showbiz act.

I've written *Infinite Powers* in an attempt to make the greatest ideas and stories of calculus accessible to everyone. It shouldn't be necessary to endure what Herman Wouk did to learn about this landmark in human history. Calculus is one of humankind's most inspiring collective achievements. It isn't necessary to learn how to do calculus to appreciate it, just as it isn't necessary to learn how to prepare fine cuisine to enjoy eating it. I'm going to try to explain everything we'll need with the help of pictures, metaphors, and anecdotes. I'll also walk us through some of the finest equations and proofs ever created, because how could we visit a gallery without seeing its masterpieces? As for Herman Wouk, he is 103 years old as of this writing. I don't know if he's learned calculus yet, but if not, this one's for you, Mr. Wouk.

The World According to Calculus

As should be obvious by now, I'll be giving an applied mathematician's take on the story and significance of calculus. A historian of mathematics would tell it differently. So would a pure mathematician. What fascinates me as an applied mathematician is the push and pull between the real world around us and the ideal world in our heads. Phenomena out there guide the mathematical questions we ask; conversely, the math we imagine sometimes foreshadows what actually happens out there in reality. When it does, the effect is uncanny.

To be an applied mathematician is to be outward-looking and intellectually promiscuous. To those in my field, math is not a pristine, hermetically sealed world of theorems and proofs echoing back on themselves. We embrace all kinds of subjects: philosophy, politics, science, history, medicine, all of it. That's the story I want to tell — the world according to calculus.

This is a much broader view of calculus than usual. It encompasses the many cousins and spinoffs of calculus, both within mathematics and in the adjacent disciplines. Since this big-tent view is unconventional, I want to make sure it doesn't cause any confusion. For example, when I said earlier that without calculus we wouldn't have computers and cell phones and so on, I certainly didn't mean to suggest that calculus produced all these wonders by itself. Far from it. Science and technology were essential partners—and arguably the stars of the show. My point is merely that calculus has also played a crucial role, albeit often a supporting one, in giving us the world we know today.

Take the story of wireless communication. It began with the discovery of the laws of electricity and magnetism by scientists like Michael Faraday and André-Marie Ampère. Without their observations and tinkering, the crucial facts about magnets, electrical currents, and their invisible force fields would have remained unknown, and the possibility of wireless communication would never have been realized. So, obviously, experimental physics was indispensable here.

But so was calculus. In the 1860s, a Scottish mathematical physicist named James Clerk Maxwell recast the experimental laws of electricity and magnetism into a symbolic form that could be fed into the maw of calculus. After some churning, the maw disgorged an equation that didn't make sense. Apparently something was missing in the physics. Maxwell suspected that Ampère's law was the culprit. He tried patching it up by including a new term in his equation—a hypothetical current that would resolve the contradiction —and then let calculus churn again. This time it spat out a sensible result, a simple, elegant wave equation much like the equation that

describes the spread of ripples on a pond. Except Maxwell's result was predicting a new kind of wave, with electric and magnetic fields dancing together in a pas de deux. A changing electric field would generate a changing magnetic field, which in turn would regenerate the electric field, and so on, each field bootstrapping the other forward, propagating together as a wave of traveling energy. And when Maxwell calculated the speed of this wave, he found—in what must have been one of the greatest Aha! moments in history—that it moved at the speed of light. So he used calculus not only to predict the existence of electromagnetic waves but also to solve an age-old mystery: What was the nature of light? Light, he realized, was an electromagnetic wave.

Maxwell's prediction of electromagnetic waves prompted an experiment by Heinrich Hertz in 1887 that proved their existence. A decade later, Nikola Tesla built the first radio communication system, and five years after that, Guglielmo Marconi transmitted the first wireless messages across the Atlantic. Soon came television, cell phones, and all the rest.

Clearly, calculus could not have done this alone. But equally clearly, none of it would have happened without calculus. Or, perhaps more accurately, it might have happened, but only much later, if at all.

Calculus Is More than a Language

The story of Maxwell illustrates a theme we'll be seeing again and again. It's often said that mathematics is the language of science. There's a great deal of truth to that. In the case of electromagnetic waves, it was a key first step for Maxwell to translate the laws that had been discovered experimentally into equations phrased in the language of calculus.

But the language analogy is incomplete. Calculus, like other forms of mathematics, is much more than a language; it's also an incredibly powerful system of reasoning. It lets us transform one equation into another by performing various symbolic operations on them, operations subject to certain rules. Those rules are deeply rooted in logic, so even though it might seem like we're just shuffling symbols around, we're actually constructing long chains of logical inference. The symbol shuffling is useful shorthand, a convenient way to build arguments too intricate to hold in our heads.

If we're lucky and skillful enough—if we transform the equations in just the right way—we can get them to reveal their hidden implications. To a mathematician, the process feels almost palpable. It's as if we're manipulating the equations, massaging them, trying to relax them enough so that they'll spill their secrets. We want them to open up and talk to us.

Creativity is required, because it often isn't clear which manipulations to perform. In Maxwell's case, there were countless ways to transform his equations, all of which would have been logically acceptable but only some of which would have been scientifically revealing. Given that he didn't even know what he was searching for, he might easily have gotten nothing out of his equations but incoherent mumblings (or the symbolic equivalent thereof). Fortunately, however, they did have a secret to reveal. With just the right prodding, they gave up the wave equation.

At that point the linguistic function of calculus took over again. When Maxwell translated his abstract symbols back into reality, they predicted that electricity and magnetism could propagate together as a wave of invisible energy moving at the speed of light. In a matter of decades, this revelation would change the world.

Unreasonably Effective

It's eerie that calculus can mimic nature so well, given how different the two domains are. Calculus is an imaginary realm of symbols and logic; nature is an actual realm of forces and phenomena. Yet somehow, if the translation from reality into symbols is done artfully enough, the logic of calculus can use one real-world truth to generate another. Truth in, truth out. Start with something that is empirically true and symbolically formulated (as Maxwell did with the laws of electricity and magnetism), apply the right logical manipulations, and out

comes another empirical truth, possibly a new one, a fact about the universe that nobody knew before (like the existence of electromagnetic waves). In this way, calculus lets us peer into the future and predict the unknown. That's what makes it such a powerful tool for science and technology.

But why should the universe respect the workings of any kind of logic, let alone the kind of logic that we puny humans can muster? This is what Einstein marveled at when he wrote, "The eternal mystery of the world is its comprehensibility." And it's what Eugene Wigner meant in his essay "On the Unreasonable Effectiveness of Mathematics in the Natural Sciences" when he wrote, "The miracle of the appropriateness of the language of mathematics for the formulation of the laws of physics is a wonderful gift which we neither understand nor deserve."

This sense of awe goes way back in the history of mathematics. According to legend, Pythagoras felt it around 550 BCE when he and his disciples discovered that music was governed by the ratios of whole numbers. For instance, imagine plucking a guitar string. As the string vibrates, it emits a certain note. Now put your finger on a fret exactly halfway up the string and pluck it again. The vibrating part of the string is now half as long as it used to be— a ratio of 1 to 2 - and it sounds precisely an octave higher than the original note (the musical distance from one do to the next in the do-re-mi-fa-sol-la-ti-do scale). If instead the vibrating string is $2/3$ of its original length, the note it makes goes up by a fifth (the interval from do to sol; think of the first two notes of the Stars Wars theme). And if the vibrating part is $3/4$ as long as it was before, the note goes up by a fourth (the interval between the first two notes of "Here Comes the Bride"). The ancient Greek musicians knew about the melodic concepts of octaves, fourths, and fifths and considered them beautiful. This unexpected link between music (the harmony of this world) and numbers (the harmony of an imagined world) led the Pythagoreans to the mystical belief that all is number. They are said to have believed that even the planets in their orbits made music, the music of the spheres.

Ever since then, many of history's greatest mathematicians and scientists have come down with cases of Pythagorean fever. The astronomer Johannes Kepler had it bad. So did the physicist Paul Dirac. As we'll see, it drove them to seek, and to dream, and to long for the harmonies of the universe. In the end it pushed them to make their own discoveries that changed the world.

The Infinity Principle

To help you understand where we're headed, let me say a few words about what calculus is, what it wants (metaphorically speaking), and what distinguishes it from the rest of mathematics. Fortunately, a single big, beautiful idea runs through the subject from beginning to end. Once we become aware of this idea, the structure of calculus falls into place as variations on a unifying theme.

Alas, most calculus courses bury the theme under an avalanche of formulas, procedures, and computational tricks. Come to think of it, I've never seen it spelled out anywhere even though it's part of calculus culture and every expert knows it implicitly. Let's call it the Infinity Principle. It will guide us on our journey just as it guided the development of calculus itself, conceptually as well as historically. I'm tempted to state it right now, but at this point it would sound like mumbo jumbo. It will be easier to appreciate if we inch our way up to it by asking what calculus wants ... and how it gets what it wants.

In a nutshell, calculus wants to make hard problems simpler. It is utterly obsessed with simplicity. That might come as a surprise to you, given that calculus has a reputation for being complicated. And there's no denying that some of its leading textbooks exceed a thousand pages and weigh as much as bricks. But let's not be judgmental. Calculus can't help how it looks. Its bulkiness is unavoidable. It looks complicated because it's trying to tackle complicated problems. In fact, it has tackled and solved some of the most difficult and important problems our species has ever faced.

Calculus succeeds by breaking complicated problems down into simpler parts. That strategy, of course, is not unique to calculus. All good problem-solvers know that hard problems become easier when they're split into

chunks. The truly radical and distinctive move of calculus is that it takes this divide-and-conquer strategy to its utmost extreme—all the way out to infinity. Instead of cutting a big problem into a handful of bite-size pieces, it keeps cutting and cutting relentlessly until the problem has been chopped and pulverized into its tiniest conceivable parts, leaving infinitely many of them. Once that's done, it solves the original problem for all the tiny parts, which is usually a much easier task than solving the initial giant problem. The remaining challenge at that point is to put all the tiny answers back together again. That tends to be a much harder step, but at least it's not as difficult as the original problem was.

Thus, calculus proceeds in two phases: cutting and rebuilding. In mathematical terms, the cutting process always involves infinitely fine subtraction, which is used to quantify the differences between the parts. Accordingly, this half of the subject is called differential calculus. The reassembly process always involves infinite addition, which integrates the parts back into the original whole. This half of the subject is called integral calculus.

This strategy can be used on anything that we can imagine slicing endlessly. Such infinitely divisible things are called continua and are said to be continuous, from the Latin roots *con* (together with) and *tenere* (hold), meaning uninterrupted or holding together. Think of the rim of a perfect circle, a steel girder in a suspension bridge, a bowl of soup cooling off on the kitchen table, the parabolic trajectory of a javelin in flight, or the length of time you have been alive. A shape, an object, a liquid, a motion, a time interval—all of them are grist for the calculus mill. They're all continuous, or nearly so.

Notice the act of creative fantasy here. Soup and steel are not really continuous. At the scale of everyday life, they appear to be, but at the scale of atoms or superstrings, they're not. Calculus ignores the inconvenience posed by atoms and other uncuttable entities, not because they don't exist but because it's useful to pretend that they don't. As we'll see, calculus has a penchant for useful fictions.

More generally, the kinds of entities modeled as continua by calculus include almost anything one can think of. Calculus has been used to describe how a ball rolls continuously down a ramp, how a sunbeam travels continuously through water, how the continuous flow of air around a wing keeps a hummingbird or an airplane aloft, and how the concentration of HIV virus particles in a patient's bloodstream plummets continuously in the days after he or she starts combination-drug therapy. In every case the strategy remains the same: split a complicated but continuous problem into infinitely many simpler pieces, then solve them separately and put them back together.

Now we're finally ready to state the big idea.

The Infinity Principle

To shed light on any continuous shape, object, motion, process, or phenomenon—no matter how wild and complicated it may appear—reimagine it as an infinite series of simpler parts, analyze those, and then add the results back together to make sense of the original whole.

The Golem of Infinity

The rub in all of this is the need to cope with infinity. That's easier said than done. Although the carefully controlled use of infinity is the secret to calculus and the source of its enormous predictive power, it is also calculus's biggest headache. Like Frankenstein's monster or the golem in Jewish folklore, infinity tends to slip out of its master's control. As in any tale of hubris, the monster inevitably turns on its maker.

The creators of calculus were aware of the danger but still found infinity irresistible. Sure, occasionally it ran amok, leaving paradox, confusion, and philosophical havoc in its wake. Yet after each of these episodes, mathematicians always managed to subdue the monster, rationalize its behavior, and put it back to work. In the end, everything always turned out fine. Calculus gave the right answers, even when its creators couldn't explain why. The desire to harness infinity and exploit its power is a narrative thread that runs through the whole twenty-five-hundred-year story of calculus.

All this talk of desire and confusion might seem out of place, given that mathematics is usually portrayed as exact and impeccably rational. It is rational, but not always initially. Creation is intuitive; reason comes later. In the story of calculus, more than in other parts of mathematics, logic has always lagged behind intuition. This makes the subject feel especially human and approachable, and its geniuses more like the rest of us.

Curves, Motion, and Change

The Infinity Principle organizes the story of calculus around a methodological theme. But calculus is as much about mysteries as it is about methodology. Three mysteries above all have spurred its development: the mystery of curves, the mystery of motion, and the mystery of change.

The fruitfulness of these mysteries has been a testament to the value of pure curiosity. Puzzles about curves, motion, and change might seem unimportant at first glance, maybe even hopelessly esoteric. But because they touch on such rich conceptual issues and because mathematics is so deeply woven into the fabric of the universe, the solution to these mysteries has had far-reaching impacts on the course of civilization and on our everyday lives. As we'll see in the chapters ahead, we reap the benefits of these investigations whenever we listen to music on our phones, breeze through the line at the supermarket thanks to a laser checkout scanner, or find our way home with a GPS gadget.

It all started with the mystery of curves. Here I'm using the term curves in a very loose sense to mean any sort of curved line, curved surface, or curved solid—think of a rubber band, a wedding ring, a floating bubble, the contours of a vase, or a solid tube of salami. To keep things as simple as possible, the early geometers typically concentrated on abstract, idealized versions of curved shapes and ignored thickness, roughness, and texture. The surface of a mathematical sphere, for instance, was imagined to be an infinitesimally thin, smooth, perfectly round membrane with none of the thickness, bumpiness, or hairiness of a coconut shell. Even under these idealized assumptions, curved shapes posed baffling conceptual difficulties because they weren't made of straight pieces. Triangles and squares were easy. So were cubes. They were composed of straight lines and flat pieces of planes joined together at a small number of corners. It wasn't hard to figure out their perimeters or surface areas or volumes. Geometers all over the world—in ancient Babylon and Egypt, China and India, Greece and Japan—knew how to solve problems like these. But round things were brutal. No one could figure out how much surface area a sphere had or how much volume it could hold. Even finding the circumference and area of a circle was an insurmountable problem in the old days. There was no way to get started. There were no straight pieces to latch onto. Anything that was curved was inscrutable.

So this is how calculus began. It grew out of geometers' curiosity and frustration with roundness. Circles and spheres and other curved shapes were the Himalayas of their era. It wasn't that they posed important practical issues, at least not at first. It was simply a matter of the human spirit's thirst for adventure. Like explorers climbing Mount Everest, geometers wanted to solve curves because they were there.

The breakthrough came from insisting that curves were actually made of straight pieces. It wasn't true, but one could pretend that it was. The only hitch was that those pieces would then have to be infinitesimally small and infinitely numerous. Through this fantastic conception, integral calculus was born. This was the earliest use of the Infinity Principle. The story of how it developed will occupy us for several chapters, but its essence is already there, in embryonic form, in a simple, intuitive insight: If we zoom in closely enough on a circle (or anything else that is curved and smooth), the portion of it under the microscope begins to look straight and flat. So in principle, at least, it should be possible to calculate whatever we want about a curved shape by adding up all the straight little pieces. Figuring out exactly how to do this—no easy feat—took the efforts of the world's greatest mathematicians over many centuries. Collectively, however, and sometimes through bitter rivalries, they eventually began to make headway on the riddle of curves. Spinoffs today, as we'll see in chapter 2, include the math needed to draw realistic-looking hair, clothing, and faces of characters in computer-animated movies and the calculations required for doctors to perform facial surgery on a virtual patient before they operate on the real one.

The quest to solve the mystery of curves reached a fever pitch when it became clear that curves were much more than geometric diversions. They were a key to unlocking the secrets of nature. They arose naturally in the parabolic arc of a ball in flight, in the elliptical orbit of Mars as it moved around the sun, and in the convex shape of a lens that could bend and focus light where it was needed, as was required for the burgeoning development of microscopes and telescopes in late Renaissance Europe.

And so began the second great obsession: a fascination with the mysteries of motion on Earth and in the solar system. Through observation and ingenious experiments, scientists discovered tantalizing numerical patterns in the simplest moving things. They measured the swinging of a pendulum, clocked the accelerating descent of a ball rolling down a ramp, and charted the stately procession of planets across the sky. The patterns they found enraptured them — indeed, Johannes Kepler fell into a state of self-described "sacred frenzy" when he found his laws of planetary motion — because those patterns seemed to be signs of God's handiwork. From a more secular perspective, the patterns reinforced the claim that nature was deeply mathematical, just as the Pythagoreans had maintained. The only catch was that nobody could explain the marvelous new patterns, at least not with the existing forms of math. Arithmetic and geometry were not up to the task, even in the hands of the greatest mathematicians.

The trouble was that the motions weren't steady. A ball rolling down a ramp kept changing its speed, and a planet revolving around the sun kept changing its direction of travel. Worse yet, the planets moved faster when they got close to the sun and slowed down as they receded from it. There was no known way to deal with motion that kept changing in ever-changing ways. Earlier mathematicians had worked out the mathematics of the most trivial kind of motion, namely, motion at a constant speed where distance equals rate times time. But when speed changed and kept on changing continuously, all bets were off. Motion was proving to be as much of a conceptual Mount Everest as curves were.

As we'll see in the middle chapters of this book, the next great advances in calculus grew out of the quest to solve the mystery of motion. The Infinity Principle came to the rescue, just as it had for curves. This time the act of wishful fantasy was to pretend that motion at a changing speed was made up of infinitely many, infinitesimally brief motions at a constant speed. To visualize what this would mean, imagine being in a car with a jerky driver at the wheel. As you anxiously watch the speedometer, it moves up and down with every jerk. But over a millisecond, even the jerkiest driver can't make the speedometer needle move by much. And over an interval much shorter than that—an infinitesimal time interval—the needle won't move at all. Nobody can tap the gas pedal that fast.

These ideas coalesced in the younger half of calculus, differential calculus. It was precisely what was needed to work with the infinitesimally small changes of time and distance that arose in the study of ever-changing motion as well as with the infinitesimal straight pieces of curves that arose in analytic geometry, the newfangled study of curves defined by algebraic equations that was all the rage in the first half of the 1600s. Yes, at one time, algebra was a craze, as we'll see.

Its popularity was a boon for all fields of mathematics, including geometry, but it also created an unruly jungle of new curves to explore. Thus, the mysteries of curves and motion collided. They were now both at the center stage of calculus in the mid-1600s, banging into each other, creating mathematical mayhem and confusion. Out of the tumult, differential calculus began to flower, but not without controversy. Some mathematicians were criticized for playing fast and loose with infinity. Others derided algebra as a scab of symbols. With all the bickering, progress was fitful and slow.

And then a child was born on Christmas Day. This young messiah of calculus was an unlikely hero. Born premature and fatherless and abandoned by his mother at age three, he was a lonesome boy with dark thoughts who grew into a secretive, suspicious young man. Yet Isaac Newton would make a mark on the world like no one before or since.

First, he solved the holy grail of calculus: he discovered how to put the pieces of a curve back together again—and how to do it easily, quickly, and systematically. By combining the symbols of algebra with the power of infinity, he found a way to represent any curve as a sum of infinitely many simpler curves described by powers of a variable x , like x^2 , x^3 , x^4 , and so on. With these ingredients alone, he could cook up any curve he wanted by putting in a pinch of x and a dash of x^2 and a heaping tablespoon of x^3 . It was like a master recipe and a universal spice rack, butcher shop, and vegetable garden, all rolled into one. With it he could solve any problem about shapes or motions that had ever been considered.

Then he cracked the code of the universe. Newton discovered that motion of any kind always unfolds one infinitesimal step at a time, steered from moment to moment by mathematical laws written in the language of calculus. With just a handful of differential equations (his laws of motion and gravity), he could explain everything from the arc of a cannonball to the orbits of the planets. His astonishing "system of the world" unified heaven and earth, launched the Enlightenment, and changed Western culture. Its impact on the philosophers and poets of Europe was immense. He even influenced Thomas Jefferson and the writing of the Declaration of Independence, as we'll see. In our own time, Newton's ideas underpinned the space program by providing the mathematics necessary for trajectory design, the work done at NASA by African-American mathematician Katherine Johnson and her colleagues (the heroines of the book and hit movie *Hidden Figures*).

With the mysteries of curves and motion now settled, calculus moved on to its third lifelong obsession: the mystery of change. It's a cliché, but it's true all the same—nothing is constant but change. It's rainy one day and sunny the next. The stock market rises and falls. Emboldened by the Newtonian paradigm, the later practitioners of calculus asked: Are there laws of change similar to Newton's laws of motion? Are there laws for population growth, the spread of epidemics, and the flow of blood in an artery? Can calculus be used to describe how electrical signals propagate along nerves or to predict the flow of traffic on a highway?

By pursuing this ambitious agenda, always in cooperation with other parts of science and technology, calculus has helped make the world modern. Using observation and experiment, scientists worked out the laws of change and then used calculus to solve them and make predictions. For example, in 1917 Albert Einstein applied calculus to a simple model of atomic transitions to predict a remarkable effect called stimulated emission (which is what the s and e stand for in laser, an acronym for light amplification by stimulated emission of radiation). He theorized that under certain circumstances, light passing through matter could stimulate the production of more light at the same wavelength and moving in the same direction, creating a cascade of light through a kind of chain reaction that would result in an intense, coherent beam. A few decades later, the prediction proved to be accurate. The first working lasers were built in the early 1960s. Since then, they have been used in everything from compact-disc players and laser-guided weaponry to supermarket bar-code scanners and medical lasers.

The laws of change in medicine are not as well understood as those in physics. Yet even when applied to rudimentary models, calculus has been able to make lifesaving contributions. For example, in chapter 8 we'll see how a differential-equation model developed by an immunologist and an AIDS researcher played a part in shaping the modern three-drug combination therapy for patients infected with HIV. The insights provided by the model overturned the prevailing view that the virus was lying dormant in the body; in fact, it was in a raging battle with the immune system every minute of every day. With the new understanding that calculus helped provide, HIV infection has been transformed from a near-certain death sentence to a manageable chronic disease—at least for those with access to combination-drug therapy.

Admittedly, some aspects of our ever-changing world lie beyond the approximations and wishful thinking inherent in the Infinity Principle. In the subatomic realm, for example, physicists can no longer think of an electron as a classical particle following a smooth path in the same way that a planet or a cannonball does. According to quantum mechanics, trajectories become jittery, blurry, and poorly defined at the microscopic scale, so we need to describe the behavior of electrons as probability waves instead of Newtonian trajectories. As soon as

we do that, however, calculus returns triumphantly. It governs the evolution of probability waves through something called the Schrödinger equation.

It's incredible but true: Even in the subatomic realm where Newtonian physics breaks down, Newtonian calculus still works. In fact, it works spectacularly well. As we'll see in the pages ahead, it has teamed up with quantum mechanics to predict the remarkable effects that underlie medical imaging, from MRI and CT scans to the more exotic positron emission tomography.

It's time for us to take a closer look at the language of the universe. Naturally, the place to start is at infinity.
<>

HISTORICAL DICTIONARY OF AMERICAN CRIMINAL JUSTICE edited by Matthew J. Sheridan, Raymond R. Rainville, Anna King, Brian Royster, and Giuseppe M. Fazari [Historical Dictionaries of Professions and Industries, Rowman & Littlefield Publishers, 9781538111406]

There has never been a more important time for those involved in criminal justice policy, operations and civil service to know their history. The *Historical Dictionary of American Criminal Justice* provides a comprehensive overview of the development of criminal justice in the United States. Criminal justice is a multidisciplinary endeavor, emerging across time and place through the fields of philosophy, law, biology, anthropology, and sociology. Developments occur quickly and regularly, the meanings of which are deeply embedded, not only in an historical context, but in complicated social, economic, and political circumstances as well. The field is particularly vulnerable to the exploitations of power being as closely aligned with the forces of social control as it is.

The [*Historical Dictionary of American Criminal Justice*](#) contains a chronology, an introduction, appendixes, and an extensive bibliography. The dictionary section has over 1,200 cross-referenced entries on the most relevant concepts, cases, people, and terms. This book is an excellent resource for students, researchers, and anyone wanting to know more about American criminal justice.

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Excerpt: American criminal justice, starting from a rudimentary state three centuries ago, has developed into one of the most complete and sophisticated systems in the world and has become a model for many other countries. It is more responsive to change than is taught in schools, to say nothing of its portrayal in popular literature, television, and cinema. But not everything we know—or think we know—about American criminal justice is correct. This historical dictionary, therefore, should be of interest to a broad array of readers. The evolution of criminal justice is presented in the chronology and then more fully explained in the introduction. The dictionary section explains in detail the various aspects of the American criminal justice system. Not everyone will need more information, but if you do, the extensive bibliography provides a great number of additional sources.

[Historical Dictionary of American Criminal Justice](#) was written by five specialists on the topic with a broad range of specializations and an impressive number of achievements. Matthew J. Sheridan, who led the team, is a convict criminologist on the faculty of Georgian Court University. Raymond R. Rainville is a specialist in corrections, teaching at Saint Peter's University, and past president of the New Jersey Association of Criminal Justice Educators. Brian L. Royster spent 25 years with the New Jersey State Police and is a professional mediator, certified crisis negotiator, and longtime member of Saint Peter's College. Anna King deals with female criminology and corrections and is an associate professor and chair at Georgian Court University. Giuseppe M. Fazari, a trial court administrator, is on the faculty of the National Center for State Courts and is past president of the New Jersey Association of Criminal Justice Educators. More information can be found in the "About the Authors" section at the end of the book.

I have striven not to laugh at human actions, not to weep at them, not to hate them, but to understand them. —Baruch Spinoza, *Tractatus Politicus*, 1676

This text centers on the American experience of criminal justice, particularly during the last 50 years as criminal justice has developed as an independent academic discipline and area of study. Criminal justice is an inherently multidisciplinary endeavor, emerging across time and place through the fields of philosophy, law, biology, anthropology, and sociology. Criminal justice professionals likewise represent a broad area of specialized knowledge and expertise across legal, criminological, psychological, sociological, and administrative fields. As such, the people who inhabit the discipline, like the fields of study from which American criminal justice materialized, inevitably take residence in unique perspectives that are a reflection of the knowledge, experiences, and normative judgments associated with their respective areas of expertise. Where we have been aware of how these subjectivities might create biases and/or blind spots, we have tried to compensate.

Criminal justice is not only interdisciplinary; it is also dynamic. Developments in criminal justice happen quickly and regularly, the meanings of which are deeply embedded, not only in a historical context but in complicated social, economic, and political circumstances as well. Accordingly, some terms covered will be reflective of the period out of which we are writing, while others are more immutable.

We have aimed to provide readers with an unrestricted, easily accessible, historical overview of the field in a climate where the general public and specialists alike are increasingly hungry for broader and more in-depth information about criminal justice and its relationship to freedom, liberty, and the pursuit of happiness in modern American life. Our long-term intention is to provide readers with a fuller story of criminal justice that is critical to the development of informed opinions and rational decision making. In the short term, our objective is less abstract: to give clarity to the multiplicity of professional jargon that composes the multilayered criminal justice system. Below we expand upon the reasons for writing such a book and clarify some of our fundamental assumptions about the nature of history as it applies to the realm of criminal justice.

There has perhaps never been a more important time for those involved in criminal justice policy, operations, and civil service to know their history. Criminal justice is a field particularly vulnerable to the exploitations of power—being as closely aligned with the forces of social control as it is. Power exists where people believe it exists, and the backstory to knowledge, so integral to its substance, can easily be manipulated for the benefit of those in power. The terms selected for inclusion in this text, and our interpretation of their significance, have heightened our awareness of the mediated and political nature of historical knowledge. Combined with the volatility of global and domestic politics today, questions about the value of truth and the nature of reality press upon our collective conscience in more concrete ways than they ever have before; the mere intellectual titillations of postmodern discourse have seemingly manifested into the everyday existence of modern life. For many, this is an undesirable state of affairs; for others, the notion of multiple, equally credible perspectives is liberating. We take a position somewhere in the middle, that perhaps in especially divisive political environments, generally agreed upon facts that help to develop a common narrative about our past serve constructive purposes.

Recalling events of the recent past can help identify levels of credibility in different perspectives. For instance, under the Donald Trump administration, a motion was put forth to cease the practice of federal consent decrees. The discontinuance of a policy that allows for federal oversight of state and local law enforcement and criminal justice operations might be appealing absent a memory of not-so-distant occurrences. For instance, in 2001, the Los Angeles Police Department, long marred by allegations of police misconduct (e.g., the Rodney King beating in 1991 and the 1992 Los Angeles riots) was finally put under a federal decree that lasted more than a decade. The policy of federal decree once applied to the LAPD brought about impressive reform in the department. Likewise, in the Northeast, following the deaths of four African American motorists during a traffic stop, the New Jersey State Police came under federal decree. After a decade of forced oversight, allegations of racial profiling and other forms of inequitable policing decreased, and state police training improved. Assessments of criminal justice policy need not be guided by the achievements and failures of the past but must be considered if one is to engage in a process of informed decision making. A judgment regarding the policy of federal decree that does not take into account past events can easily result in a belief that federal decree is reducible to the power needs of big government. This is a more challenging position to hold in light of the positive, practical impacts that the practice has evidenced throughout history.

Knowledge of the broader context of the historical trends within which the American criminal justice system has developed serves a similar function. Organizations that have arisen to combat racial conflict in the United States (e.g., the Anti-Defamation League and American Civil Liberties Union) and the frequency with which so many otherwise reputable figures from the past have been involved in one form of prejudicial action or another (e.g., Barnes) remind us of the importance of checks and balances. A civic atmosphere that allows for the emergence of organizations such as these is easy to take for granted in our modern American justice system, a system that in a global context is and always has been oriented toward due process.

The United States is a federal republic, a representative democracy grounded in the U.S. Constitution that is populated with more than 310 million people living in 54 jurisdictions. Since the arrival of the first European settlers in the early 15th century, criminal justice has been a cornerstone to the foundation of American society. Crime in the early 21st century bears little resemblance to the legal structure and judicial practices that were in use during the founding of the colonies and the establishment of the republic. Indeed, the system of justice and the processes with which we attempt to understand and control criminal behavior have undergone a series of changes since those early years of the nation.

Urbanization, industrialization, westward migration, population growth, and the metamorphosis of crime, including the increasing prevalence of terrorism, have not changed the need to continually address the crime problem. What has changed, however, is how society has come to view and understand crime—that is, how we have come to define it—and how American civilization has attempted to develop strategies to prevent or otherwise address its effect on the population. The means by which crime is prevented, prosecuted, and penalized have undergone substantial change. In addition, the protections of individual rights have been subject to a more stringent review by the legislature and the judiciary to ensure a balanced system of justice. At times, the criminal justice system has also been affected by criminological research, which offers evidence to support needed or desired change. However, new legislative statutes are influenced by politicized constructs (such as the War on Drugs, the shift to a crime control model, or public reactions to terrorism and recent school shootings), which are not necessarily empirically grounded.

More fundamental are the profound shifts in attitude toward what leads to crime and what should be done to control it—the systemic responses to criminal events. From an early emphasis on "degenerate and immoral" individuals, views regarding the causes of crime have increasingly focused on social and psychological factors as well as the biological and neurological effects that contribute to criminality.

The Foundation of Criminal Justice

The originators of the U.S. Constitution struggled with the existing British legal system that they inherited and the colonies largely adopted. The result of the new federal constitution was a complex, highly individualized and multilayered system of checks and balances from which legal statutes were developed at both the national and local levels. Legislators at both the national and local level have been responsive to specific, timely contexts that reflect the changing philosophical, social, and cultural influences affecting the public. The American criminal justice system, as a theoretical concept and an applied practice, has a rich history of blending new and old, indeed even ancient, ideas with which to promote social control and achieve (maintain) a just society.

The term criminal justice, particularly as it has developed in the United States, is worthy of both definition and explanation. The effort to define criminal justice—the rule of law, the nature of crime, the institutional actors and their roles, the prospect of social control and justice, and reform efforts—has been and remains an ongoing process. There have been shifts in laws, policies, and procedures which at first included some propositions that were later disallowed, only to have those laws/policies/operations reinstated. Any understanding of the current complexities of criminal justice and its applications must include an understanding of the administrative components (as they exist in law enforcement, the courts, and corrections), the key theoretical concepts and empirical data, and the men and women (the pioneers and the notorious) who are responsible for shaping it.

A discussion of present law must at minimum consider a brief history of the rule of law vis-à-vis the rule of man. Criminal law in the United States undergoes perpetual change (often in unpredictable ways), some of which is—as argued by pundits—contrary to the original intentions of the Founding Fathers. This is observed in the current debate regarding the right to bear arms addressed in the Second Amendment.

Historically, crime has been understood as, among other things, a social problem, an individual problem, a political problem, a spiritual problem, and an economic problem. These diverse perspectives can be seen as representing different theoretical frameworks, each of which informs public policy in ways that often seem contradictory. The current consensus, however, is that public policy on the subject of crime must acknowledge the complexities of the problem. This includes an understanding of types of crime, criminals (those who are formally charged within the context of criminal justice administration), and the criminal code/law. The dynamic interplay between the loosely coupled organizations charged with enforcing the law (law enforcement, the courts, corrections, and the legislature) and the multiple interdependent functions and responsibilities of each are collectively referred to as the "criminal justice system." Together, this system seeks to achieve social control, deter crime, intervene in criminal activity, sanction those who violate the law, and attempt to reorient offenders toward law-abiding behavior.

Law for a New Country

In the United States, those suspected of having committed criminal offenses have their circumstances addressed through a legal system that guarantees specific rights enumerated in the Constitution to ensure protection from the unfair or excessive use of government power, including those exercised by law enforcement. The writers of the U.S. Constitution faced the daunting task of determining the legal structure for the new country and ultimately settled on a federalist system. While the U.S. Constitution is often referred to as the overarching law of the land, it refers to federal law and not necessarily the legislative mandate within the individual states, which was intended as the primary instrument in ensuring states' rights. States' rights are proposed to ensure not the sovereignty of a state but rather its existence as an independent legal entity (within the federal structure) capable of self-governance, with its own constitution, laws, and government. To that end, it is not an exceptional circumstance for states to have internal operations that are distinct from the general tenets of federal law. That prohibitions still exist against marijuana at the federal level while some states have decriminalized it is an example of this.

Still, the U.S. Supreme Court has the role of affirming constitutional uniformity between state and federal law. The Court in its holdings interprets the meaning and intended purpose of the Constitution, sets precedents, and,

to the extent possible, ensures the applicability of those mandates to current circumstances. For instance, in the case of *Gideon v. Wainwright*, 372 U.S. 335 (1963), regarding the Court's role, Robert F. Kennedy stated,

If an obscure Florida convict named Clarence Earl Gideon had not sat down in his prison cell ... to write a letter to the Supreme Court ... the vast machinery of American law would have gone on functioning undisturbed. But Gideon did write that letter, the Court did look into his case ... and the whole course of American legal history has been changed.'

Clarence Earl Gideon also remarked on the timeliness of the Court's decision in his letter to his attorney, Abe Fortas: "Each era finds an improvement in law for the benefit of mankind."

This specific function of the Court was emphasized over the course of the 20th century as American society grappled with a variety of issues including racial segregation, sexual discrimination, police corruption, and government operations and procedures involving the inmate population. The Bill of Rights existed as it always did during the onset of the 20th century but was not applied as liberally in safeguarding the rights of all persons equally. During the formative years of the 20th century, the American Civil Liberties Union (ACLU), among other interest groups, and Supreme Court jurists, such as Felix Frankfurter, acknowledged the abject failure that the government was perpetuating by not safeguarding the rights of the most vulnerable people in society.

Despite the renewed focus given to the Bill of Rights, there was little done to immediately ensure its application toward protected classes. The change, however intended, was unsurprisingly protracted. The Constitution, for instance, served as the foundation of the newly formed nation for almost eight decades following ratification, yet slavery and racial discrimination were accepted norms throughout that period. For example, there was the *Dred Scott* (a slave who sued for his freedom) decision by Chief Justice Taney, who opined in 1857 that "Blacks had no rights which the white man was bound to respect." Eight years later, in 1865, slavery would be abolished despite the forgoing decision with the ratification of the Thirteenth Amendment. The amendment, however, did not guarantee rights—instead, that would take more than another century and the passage of the Civil Rights Acts of 1964 and 1991.

A sociopolitical change in criminal justice that began in the mid-1970s perpetuated a shift from a due process model to a crime control model of justice. The emerging change centered on efficiently determining guilt and the swift and certain imposition of harsher punishments. Jury trials diminished as the system transitioned and became more focused on plea bargain and resembled more of an assembly line in processing cases from arrest to disposition. For instance, by 2015 the *New York Times* reported that jury trials in the federal courts had declined to 1,650 jury convictions out of 81,000 defendants.'

Contemporary Issues

The contention and debate regarding rights and entitlements is ever present in the criminal justice landscape. Terroristic attacks on U.S. soil from domestic and foreign entities during the latter part of the 20th century and early part of the 21st century have resulted in government actions that many believe to be essential in safeguarding American freedoms. Others, however, purport that these measures curtail and are an infringement on the very same rights that they are purported to. For instance, the use of torture, a violation of the Eighth Amendment as cruel and unusual punishment, was approved for the interrogation of enemy combatants by President George H. W. Bush during the late 1980s and early 1990s. Whether torture and deprivation of the enemy is constitutionally acceptable remains an unresolved debate in the public forum.

The tragic events of 11 September 2001 introduced American society to terrorism on a scale that was previously inconceivable by many. Even though this international act occurred just six years after the Oklahoma City bombing, the worst domestic act of terrorism in modern history, the concern for balancing public safety and individual liberties took on a new emphasis. The tragic and extraordinary events of 11 September 2001

brought to bear the swift and unanimous action of the U.S. Congress to draft and pass the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (commonly referred to as the Patriot Act). The Patriot Act, deemed critical at the time to safeguard public safety from a terroristic attack as well as to preclude future acts from occurring, was perhaps one of the most transformative pieces of legislation since the writing of the U.S. Constitution. The Patriot Act affected each aspect of criminal justice. It redefined the agencies charged with providing protection by expanding law enforcement authority and influencing the policies and procedures by which those organizations function and operate. Law enforcement powers were significantly expanded in ways previously considered to be constitutional violations. For instance, actions that previously required a warrant, such as allowing wiretaps and other unwarranted searches, including those of library records and the internet, were permitted within specifically constructed parameters.

Disapproval and condemnation of the legislation materialized from watchdog groups. The ACLU, in particular, expressed concern that the act allowed far too much latitude in the issuance of subpoenas with little to no evidence of criminal activity or wrongdoing. They wrote, "The USA PATRIOT Act gives the Attorney General and federal law enforcement unnecessary and permanent new powers to violate civil liberties that go far beyond the stated goal of fighting international terrorism." The concerns went further by probing whether the Central Intelligence Agency (CIA) could now spy on citizens—a governmental operation that was unprecedented. The contention by the ACLU, among other interest groups, that claim the Patriot Act has infringed on the public's civil liberties remains controversial.

The U.S. Drug Enforcement Administration (DEA) was formed on 1 July 1973 by President Nixon to fortify through the establishment of one cohesive agency the government's initiative of the "War on Drugs." The War on Drugs was initially spearheaded by the 1914 Harrison Narcotics Tax Act. The DEA was charged with operating at the national and international levels to investigate violations of drug laws and to gather evidence for the prosecution of offenders engaged in the illegal drug trade.

The Central Intelligence Agency (CIA) was established on 18 September 1947 in response to the absence of intelligence gathering that could have been used to prepare or otherwise prevent the attack on Pearl Harbor by Japan during World War II. Although the CIA serves no law enforcement function, it is an intelligence-gathering agency charged with conducting covert operations on foreign soil to protect American interests. Among other tasks, those secret operations may include paramilitary functions. Prior to the attacks of 11 September 2001, the CIA was precluded from conducting operations on U.S. soil, but it has since been authorized to partake in and share information with other intelligence organizations to protect America's welfare.

The Department of Homeland Security (DHS), the largest law enforcement agency in the nation, was created on 25 November 2002 pursuant to the passage of the Homeland Security Act. The formation of the DHS was prompted by the attacks of 11 September 2001 and mandated the reorganization of many federal law enforcement agencies including the Coast Guard, the Transportation Security Administration, and Customs and Border Protection to better coordinate the efforts of various agencies with the goal of preventing terroristic attacks on American soil. In theory, the DHS would provide the needed leadership and authority to clarify points of conflict and jurisdictional control that previously created an inefficiency of response.

The events of 9/11 illustrated the fragmentation of federal agency authority and the complacency that can sometimes occur in large government bureaucracies. Subsequent reports showed that agencies did not share respective information in a manner that was well coordinated and timely.

Current Trends in the Criminal Justice Landscape

All societies during the course of their history seek to address and resolve the crime problem specific to that place and time. The United States is no exception in this endeavor and has demonstrated this by developing a myriad of practices, systems, and agencies while committing countless resources to addressing crime throughout

its own history. Much crime is a manufactured event that is constructed by law and social conventions, which can change over time. Most recently, during the early 1990s, the United States experienced a significant drop in both violent and nonviolent crime. This has continued through the early part of the current century. Property and violent crime rates in 2002 were the lowest recorded since the inception of the National Crime Victims Survey (NCVS) in 1973. The causes for the fluctuation in crime continue to be debated. Some criminologists and practitioners believed that tougher sentencing laws, such as California's "three strikes" policy, have been critical to crime reduction, while other experts believe that changing demographics, such as the aging population, and the robust economy during the 1990s had the most impact on reducing crime rates.

Georgette Bennett, in her book *Crimewarps: The Future of Crime in America*, found that crime in America is undergoing a shift in its pattern. *Crimewarps* refers to the significant changes or complete reversal in the geography, type, and offender characteristics of crime. Some of the emerging patterns include the decline of street crime and a corresponding rise in occupational crime, an increasing rate of female and elderly offenders, and a shift in high crime rates from the northern to the southern part of the country. She also noted decreasing crime rates in urban areas while rural crime rates are showing an uptick, as well as the rise of technology-based offenses.

Crime and the manner in which the nation addresses the problem are not static. Changes in society and culture influence the public's perspective and understanding of crime and in turn compel the government to respond using varied means. Recent events involving school and other mass shootings, for instance, are prompting a review and debate on the Second Amendment, which may culminate in tougher gun laws. The definition of criminal justice constructs will continue to evolve as scholars and practitioners address the changing landscape of crime, juxtaposing it against the underlying causes and those who commit it. As criminal justice changes unfold, new or perhaps modified definitions will be warranted to reflect the emerging realities. <>

THE NONSENSE FACTORY: THE MAKING AND BREAKING OF THE AMERICAN LEGAL SYSTEM by Bruce Cannon Gibney [Hachette Books, 9780316475266]

A withering and witty examination of how the American legal system, burdened by complexity and untrammelled growth, fails Americans and threatens the rule of law itself, by the acclaimed author of *A Generation of Sociopaths*.

Our trial courts conduct hardly any trials, our correctional systems do not correct, and the rise of mandated arbitration has ushered in a shadowy system of privatized "justice." Meanwhile, our legislators can't even follow their own rules for making rules, while the rule of law mutates into a perpetual state of emergency. The legal system is becoming an incomprehensible farce.

How did this happen? In *The Nonsense Factory*, Bruce Cannon Gibney shows that over the past seventy years, the legal system has dangerously confused quantity with quality and might with legitimacy. As the law bloats into chaos, it staggers on only by excusing itself from the very commands it insists that we obey, leaving Americans at the mercy of arbitrary power. By examining the system as a whole, Gibney shows that the tragedies often portrayed as isolated mistakes or the work of bad actors-police misconduct, prosecutorial overreach, and the outrages of imperial presidencies-are really the inevitable consequences of law's descent into lawlessness.

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The practice of law was vulgar, but the study of it was sublime. —Oscar Wilde (attrib)/John Irving
 You can't keep doing shitty things, and then feel bad about yourself like that makes it okay! You need to be better! —Todd Chavez (BoJack Horseman)

The Exception is the Rule

The young man knows the rules, but the old man knows the exceptions. —Oliver Wendell Holmes, Sr.

This book is about the increasingly serious failings of the American legal system. In the common view, law is a system of intelligible rules, made sensibly and applied evenly. That's a reasonable definition of what law should be, but not an accurate description of what law has become. Over the past century, whole fields of law have grown so bloated and confused that not even a subset of their rules can be administered consistently. To cope, law modifies or ignores its own rules on the fly, and the entire legal system is backsliding toward a regime in which the arbitrary supplants the absolute. Eventually, what calls itself law will cease to deserve the name.

There's no denying that law is bedeviled from within and without. The Trump Administration vividly reduced entire provinces of law to failed states, but that is not the only reason why the legal system needs a critique, nor is it what compelled me to write this book. Trump's actions add an undeniable relevance, but only in the same way that discovering a gas leak adds urgency to the calamity of a house already on fire. Law's crises preceded, and will outlast, Trump.

A major theme of this book is that as law becomes less lawlike, the essential goods we expect from the legal system—order, justice, legitimacy—will be in ever shorter supply. A minority of Americans already suffer these legal deficits, severely. But general legal decay consigns all of us to injustices large and small. Whether our antagonists are police, building inspectors, litigious opportunists, or Social Security benefits administrators, our legal difficulties are real, and they will get worse. These are the inevitable consequences of a system of rules self-liquidating into a chaos of exceptions.

Consider the right to trial by jury, provided by the Constitution, and American law's crown jewel. It is The Rule. Yet American trial courts conduct very few trials—a withering that became quite pronounced in the 1980s. In criminal matters, virtually all charges are now resolved by plea bargains, each fashioned according to the unaccountable whims of a prosecutor selecting from a vast menu of crimes. These bargains are the exceptions, made ad hoc, and they leach the jury trial rule of its value. Nevertheless, the Supreme Court condones plea bargains as useful expediences, explaining that the rules of criminal procedure have made trials dauntingly intricate and expensive. Notice that the Court does not make a Constitutional argument; it offers a bullet point on the management consultant's slide deck, sandwiched between "outsourcing" and "downsizing." The Court works a betrayal, and claims that it's for our own good.

Trials have also disappeared in civil proceedings, such as disputes over broken contracts, employment discrimination, cell phone overbilling, and medical malpractice. We are all potential parties to these sorts of

civil disputes, and we have a right to trial by jury. Again, the Court says modern litigation is too cumbersome to fully honor Constitutional promises. The Court therefore sanctions arbitrations, privatized justice whereby stronger parties can divert troublesome litigation into fora of their own design, using whatever procedures and "judges" they deem most useful to themselves. The Court proclaims its satisfaction with these arrangements, and why not? Justice seems to be just another chore to life-hack.

How did law become so lawless? In large part, because the rot is spreading from the top: the institutions that make the rules cannot be bothered to abide by them. Congress can't even follow its own rules for making rules:

to pass legislation of any importance, Congress resorts to emergency procedures that sidestep committees, open debate, and normal voting. Yet, for all the compromise and strain, Congress voids itself of surprisingly little substance. The real work of legislating is offloaded to bureaucracies, which take their own shortcuts to hustle product out the door. The net effect is that rules can be created in enormous volume, but not always well, nor in compliance with the authorizing law or the Constitution, America's ur-rule. To apply the sprawling rule book in the real world, the system's enforcers must cut corners of their own, engendering litigation that the Court must resolve. Naturally, the Court issues its own rules, barely workable in theory and mostly unusable in practice, which must be ignored in turn, and the cycle of expedience becomes fully self-perpetuating.

Notwithstanding these dysfunctions, a generally dismal reputation, and specific and well-publicized disasters, law has escaped a comprehensive critique. This is not the public's fault, but the legal community's. Scholars jealously guard their status as the definitive arbiters of legal discourse. For the most part, their work lacks scope and interconnection commensurate with claims of monopoly. Legal scholarship is overwhelmingly specialized, inward-focused, and prone to viewing grave catastrophes as mere byproducts of theoretical kinks. Law's provincial pathologists spend endless hours counting angels impaled on different pinheads, which fosters the false impression that law's problems are compartmentalized or abstract, amenable to being ignored or tweaked. In fact, most of law's problems are systemic, deriving from the same few sources—the swirl of rules and exceptions being a chief example. The whole of law is poisoned, with tangible and serious consequences, and requires a comprehensive overhaul.

To chance an extended metaphor, law is a giant factory. In a perfect world, the factory would be run according to a sensible plan, rigorously monitored, with customer satisfaction carefully scrutinized. In reality, the factory is bedlam. Every division receives instructions that are too complicated to follow and quotas that are impossible to meet. Each division tries to make its numbers by taking shortcuts, hoping that someone else will pick up the slack. Because the divisions don't communicate and quality control has taken an extended holiday, few workers realize how awful the product is. A normal factory so poorly run would be overhauled or shuttered. But law is not a normal factory: it can force people to buy whatever it produces.

Naturally, customers are not satisfied, but until they understand that the entire legal enterprise is at risk and demand corresponding reform, we are all victims-in-waiting. Though our tragedies will differ in kind and degree, none of us can escape the decay of a system that controls every aspect of our lives. What law needs is a wide-angle critique, and that demands a generalist, which is where I hope to be useful. Rather unusually, my legal career broadened as it progressed. I began as a securities lawyer and, had I proceeded on the normal course, I would have ended as one. I would have burrowed into my specialty for forty years, and retired believing that I had the odd luck to toil in an unusually messy corner of the law, one whose disorganization was merely a function of being too vulgar to attract the attention lavished on glitzier subjects like Constitutional law (which surely worked better). However, I quickly left law firm practice to become a general counsel, and then a private client, working with more than a dozen law firms over the years. As I spent time with legal specialists in different areas—finance, employment, health care, construction, intellectual property, and tax—I noticed important commonalities. Everyone seemed to believe their specialty area was a mess, yet few attorneys asked if the rest of the system was similarly afflicted. They simply assumed that the legal system as a whole was reasonably healthy, overseen by a Constitutional Higher Power according to some sensible plan. They didn't

check if that was true. In fairness, that wasn't their job. Their job was to answer technical questions and get me off the phone before any metaphysical (and potentially unbillable) questions issued. My job here is to provide a more panoptic view.

If the panoptic view requires a generalist, the realist critique demands an expatriate. Residents, especially those at law's higher ranks, have difficulty separating themselves from the very worldview that requires examination. Moreover, for all its other problems, law has, by definition, served its elites well, making it harder for them to see (or care) whether law is working for everyone else. Indeed, some traditions hold that the efficacy and morality of laws are not proper subjects for legal study—though the public surely cares about those matters, and the public is the nominal source, and intended beneficiary, of law. (Why else would it tolerate lawyers?) Furthermore, many eminent legal commentators, whatever their doctrinal perspectives, must maintain polite relationships with the legal system. One would no more expect an august professor or judge to write a broad and searing account of the legal system's failings in the Harvard Law Review than imagine Jeff Bezos exposing the failures of techno-capitalism in the Wall Street Journal. Having extracted myself from the vocation of law, I'm largely immune to these considerations. While I stand behind the text alone, to the extent my arguments have credibility beyond these pages, it's because I'm appropriately free of conflicting interests—as all lawyers, and all critics, should be.

Although I have no great responsibilities to law, I do have responsibilities to you, and they're straightforward: to inform and to entertain. I'll be glad if your reading provides some useful knowledge, such as your ability to nullify an unjust law if serving on a jury, notwithstanding the misleading instructions that judges often deliver. And I hope what follows is interesting. The law is fascinating, as the evergreen popularity of legal dramas makes plain. But the genuine article is so much more compelling and colorful than cinematic derivatives. Screenwriters might pause at having a character's liberty depend on whether a fish is a "record, document, or tangible object." But in real life, that issue went all the way to the Supreme Court, and it was a 5-4 nail-biter.' (The result: a fish is not a "tangible object," at least when it comes to the Sarbanes-Oxley Act. Actually, the case should have been decided 9-0, because why was government using an Enron-inspired law to hassle fishermen?)

Along the way, I hope to discredit law's central claim, which is that the legal system works as a coherent whole to produce outcomes that citizens recognize as just. Opinion polls suggest that most Americans already disdain law, but whenever we vote, call 911, sign a contract, hire a lawyer, pray that the courts provide us deliverance, or do any of the million other things in which law plays a role, we reveal our residual faith in the system. Regrettably, that faith is increasingly misplaced if this book's second theme is correct: that the law can't fulfill its promises—not reliably, not in its present state.

Before we proceed, let me provide one more illustration of how the chaotic, unfeeling operations of the legal factory produce perfect, and perfectly legal, absurdity. Recall that the Court (and Congress and other members of the legal firmament) have allowed corporations to force consumers—you, me, everyone—into "gotcha" arbitrations. The mere act of testing a product can be enough to shunt consumers into this world of rigged non-trials. Well, as it happens, this book is a product, and by reading any further, those legal luminaries—but emphatically not other readers—hereby consent to binding arbitration, per the Appendix. What the Appendix requires is that arbitrations occur at the time and place of my choosing (Antarctica is charming, I hear), with my mother as sole arbitrator. To which some of the professors, judges, and Congressmen pilloried herein might respond: that's nonsense.

Well, it might be nonsense, but it's also the law.

Judges don't understand how Congress works, they will misinterpret legislation. If Congress, which has delegated enormous power to executive branch bureaucracies, doesn't understand how those bureaucracies work or how much power has been given away, legislators may find their intentions disregarded, or even thwarted. And, of course, for legal actors to understand each other, they must possess a degree of self-awareness. But like the mad, forlorn Lear, they have but slenderly known themselves. Congress, for example,

rarely reads or understands the legislation it passes, which is how the Senate managed to accidentally and dramatically raise some corporate taxes in its version of the Tax Cuts and Jobs Act of 2017.¹⁰ The goal is to simply produce rules quickly and in volume, taming any monsters by means of exception. Worse still, law's departments, each overwhelmed by managing its own Island of Dr. Moreau, hardly realize that their beasts have escaped to breed with other creatures in a larger archipelago of deformity.

The chapters that follow examine the different parties that make, interpret, and enforce law. However, description is not enough—law doesn't simply exist; it should be effective and legitimate. Accordingly, the first chapters address what laws can do, how they can be made well, and where their limits lie. These matters are not properly addressed in American law schools, an omission that reverberates throughout the legal system for the obvious reason that law school graduates fill many critical positions in the system. Lacking a firm notion of the sane and the good, lawyers can only make undereducated guesses, using hunches informed by legal customs. These customs are more habits than heuristics, but to the extent law thinks, these are its default modes of cogitation.

Customs of the Natives

Four mental tics dominate legal thinking: slavish deference to authority, a belief in the normalcy of American law, an obsession with the past, and an unshakable belief in the power of rules. These beliefs are often deeply unhelpful and can defeat law's social purposes, but they do allow us to reliably predict how law will confront many problems.

Servility. Law inverts normal business mores: the customer (you) might be wrong, but the boss (officialdom) is always right. Given law's famously quarrelsome nature, servility may seem an unlikely attribute, but once a higher power clicks its heels together, lesser legal beings rapidly fall into line—assuming they understand their orders. Servility is the helpmeet of hierarchy and authoritarianism, traits that suffuse law, which is problem enough. But servility is also anti-thought, and radically constrains legal discussion: this is how ancient injustices pervade the law without provoking many systemic critiques.

To illustrate by extremes, all lawyers are trained from professional birth to view the Supreme Court with awe. The Court has accomplished some amazing things and has included some jurists of real genius. However, in the past century alone, the Court has let stand laws and orders requiring segregation, ethnic internment camps, the execution of minors (until 2005), the suppression of free speech (about the Constitution, incredibly), the involuntary sterilization of "imbeciles," the immunization of police brutality, and the diversion of public lawsuits into private fora." The last three are still on the books, supplemented by blemishes including the Court's summary resolution of the 2000 presidential election on intellectually flimsy and nakedly partisan grounds. This would seem to counsel some skepticism about the Court. Yet, while lawyers vehemently debate the merits of today's decisions, they mostly avoid questioning the Court as an institution.

Let me provide an example by making an observation I haven't seen get much play elsewhere. The Court is supposed to provide a bulwark against executive tyranny. But a majority of the present Court helped create an over-powerful executive by articulating doctrines of presidential maximalism before they became Justices—and indeed, we can speculate that those accommodations were why Justices Alito, Gorsuch, Kagan, Kavanaugh, and Roberts landed on presidential short lists. If this matter is raised, it's always presented in personal terms—Nominee A being too cozy with White House.

B—rather than as the institutional issue it is. When the straightest path to a Court nomination is to undermine the judiciary's role as a check or balance, the Court has a structural problem. And what holds for the Court holds for most of law. Following orders is almost always safe; questioning orders (however much questioning is deserved), is dangerous. Law expects the same when interacting with the public: we are to do as we're told, full stop.

(Ab)normalcy. The second cultural tic is American law's belief in its own normalcy, which is so deeply held as to be invisible. But American law is not normal. For one, it's unusually expensive, and not unrelatedly, it facilitates

much weirder lawsuits (only in America would an administrative law judge sue a local dry cleaner, claiming damages of \$67 million for a lost pair of pants).¹³ American law also stands out because it employs the common law, a system used only by Britain and its imperial stepchildren. Most of the world draws upon the civil law tradition, in which American standards such as judge-made law, precedent, and adversarial trial play limited roles, or none at all. American law is unimaginable without the judge-precedent-trial trinity, and while that trinity makes a certain amount of internal sense, that doesn't mean the system of which it is a part is normal or necessarily good. Even John Roberts, a sophisticated jurist, fell into the normalcy trap. When John Roberts said that federal courts were "uniformly" a "model ... throughout the world," he made a statement that wobbled between the merely poetic and empirically untrue. (It was also false on its face.) America's common-law courts can't be a model to civil-law courts, any more than pilots can learn to fly by watching cowboys ride horses.

The assumption of normalcy makes it difficult to raise basic questions about American law, or to see problems that are readily visible to outsiders. For example, precedent is an established feature of American law, and most lawyers accept its value without demurrals (even if they often try to evade its consequences, which speaks volumes). After one judge jumps off a bridge, precedent requires that every future judge take a leap, all else being equal. Other nations believe precedent helps perpetuate old mistakes, especially when, as in American law, the operating assumption is that the more ancient the precedent, the better. Even the proper name for following precedent, *stare decisis*, betrays this principle of helpless antiquarianism. Aside from being unintelligible to the public, it's also wildly perverse to render a common-law principle in Latin, the language of Rome, birthplace of the civil law system. Such is the price of historical fetishism.

Historical obsessions. On the subject of history, law is trapped in a passionate, unhealthy relationship with it. Constantly looking to a past that's remote, and whose details law occasionally and catastrophically mangles, consigns us to unhealthy regress. To interpret laws written yesterday, judges look back to the Constitution. When that document is unclear, many judges (especially "originalist" jurists) examine the practices of the Framers, which were themselves informed by legal doctrines in eighteenth-century England, which in turn derived from historical clutter accumulating since the thirteenth century. Certainly, history can provide apt lessons. When we face the same problems as the Framers, James Madison can be illuminating about the Constitution he (co-)wrote. In 1791, America had a Congress and priests, and Madison's thoughts about mixing the two remain relevant. (As it happens, Madison believed that having chaplains in Congress was an unconstitutional blending.¹⁶) By contrast, in 1791, America had a Second Amendment, but not gangland Glockes, so the Framers' adamancy about the right to bear arms is less revealing (if that adamancy existed, which it arguably did not). But law is a grave-robber with eclectic tastes: it plucked one trinket from the corpse while ignoring the other.

The greatest temple to erratic historiography is the Supreme Court building located at the deeply unobtrusive address of 1 First Street, Washington, D.C., center of the legal universe. Leaving aside the potent symbolism of John Roberts sealing the Court's front door in 2010, which requires no decoding, what are we to make of the Court's interior? The main chamber is adorned with a bizarre sculptural history of law that would stump Lara Croft, Indiana Jones, and Robert Langdon (he of *The Da Vinci Code*). "Almost none of the figures depicted are relevant to, or express values even vaguely consonant with, American law: the pharaoh Menes (irrelevant, obviously), Draco (so harsh that his name lives on in "draconian"), Augustus (swept away republican government), Justinian (laid foundations for modern civil law), Mohammed (elaborated sharia, which incidentally forbids his depiction), King John (had the Pope nullify Magna Carta), and Napoleon (abolished common law as a ludicrous anachronism). Sure, it's just decoration, but it's decoration of the family home. Why is it there? More pertinently, what does it mean? The answer to the second question is simple: law should use the past seriously or not at all, and any judicial opinion drawing on history should be treated with (as judges would say) "heightened scrutiny." Thus, our narrative will delve into the historical details to present counter-narratives when appropriate.

Blind faith in rules. For law, there is no problem that cannot be solved by a rule—preferably, many rules. Unfortunately, it's very difficult to craft even one clear, self-contained rule. Consider the old legal chestnut, the municipal sign reading "no vehicles allowed in park." Does that apply to bicycles, motorized wheelchairs, and

ambulances, or only to private cars? Or does it allow a private car in the public green, so long as the gearshift isn't in "park"? It's difficult to say on semantic grounds. Yet, parks are not overrun by wayward vehicles, because common sense and basic decency give the rule life; we understand what the municipal prohibition means to convey and even if we don't, we err on the side of caution. What makes rules work, in other words, are norms—standards of community behavior. Modern law needs both rules and norms, but if given the choice, law prefers rules (making them, that is; not necessarily following them).

Norms, however, cannot be ignored. When rules and norms conflict, citizens can become disgruntled to the point where they ignore the law or deem it illegitimate. Arguably, the entirety of modern law violates two norms central to our conceptions of justice: the norms of fair warning and even application. Many areas of law are so unknowably large that fair warning doesn't exist—even as a concept. And by granting its own officials special dispensation to ignore rules deemed too complex to follow, law also violates the norm of even application. In the end, the vast system of loopholes must reform itself into legitimacy or face an abrupt and extra-legal revolution, a process that's called (in no slight coincidence) a "state of exception."

By Way of Preview

To provide a preliminary sense for how law functions end to end, it's useful to observe one set of laws moving through the assembly line, a process that roughly tracks the order of the succeeding chapters. As we started with criminal law, we may as well continue the theme. The general purpose of criminal law is to impose order by issuing clear rules within Constitutional boundaries, with suspects apprehended fairly, charges supported by credible evidence, and cases tested in open court by equal adversaries before a jury. If there's a conviction, the sentence should be determined by a judge who fits punishment to crime, with convicts contained and rehabilitated until they can be safely discharged. This is how it works on TV and in textbooks, and for once, they have it right: this is how criminal law is supposed to work in real life. Sadly, it doesn't.

In the 1980s, Congress responded to widespread fears about rising crime with a wave of legislation. The project began in 1984, the same year that the DOJ threw up its hands at the already exasperating profusion of criminal law. Rather than study the social factors responsible for rising crime, or ponder why existing laws had failed to stem misbehavior, Congress decided to slap criminal sanctions on anything that caused opinion polls to twitch. The first product was the Comprehensive Crime Control Act of 1984 (CCCA), which debuted stringent new provisions for drug crimes, so that any user not immediately shamed into sobriety by Nancy Reagan's Just Say No campaign would be treated to a cleansing stint in the federal clink. For maximum effect, the CCCA opened the door to civil forfeitures, by which the illicit gains of the drug trade could be seized. Forfeiture arguably violated existing rules and had obvious potential to be abused, though perhaps Congress was beguiled by images of Detectives Crockett and Tubbs breaking the spine of South Floridian criminality by snapping up coke-funded Ferraris in *Miami Vice* (which premiered shortly before the CCCA passed).

Congress then passed the Anti-Drug Abuse Act of 1986. That act was cobbled together in the month following the furor over basketball star Len Bias's death by overdose of crack cocaine, whose distribution or use would now be punished much more severely than cocaine in powder form. The bill had many problems, including a real whopper: Len Bias actually died of a powder cocaine overdose, as was becoming clear before the Act was finalized. Congress had missed its target before it even pulled the trigger. But Congress wanted to take a dramatic stand all the same. So, in addition to harsh penalties for crack, Congress expanded the range of crimes subject to mandatory minimum sentences, a profound rebalancing of a criminal justice system about which Congress knew little and declined to know more. As one of the legislative aides involved later reflected: "We had no hearings. We did not consult with the Bureau of Prisons, or with the federal judiciary, or with DEA, or with the Justice Department." The Act passed anyway, and the states pursued similar experiments.

In the 1980s, Congress also chartered the U.S. Sentencing Commission, a new bureaucracy charged with writing up the Sentencing Guidelines, in its current form a rigid and barely intelligible monster that collapses into a numbing matrix of forty-three criminal offense levels, six tiers of criminal history "points," and four sentencing

"zones" by which prison terms are calculated. The Guidelines reflected law's faith in rules (628 pages of them, in the latest version), but worked about as well as boarding planes by five-zone group numbers. Worse, the combination of the Guidelines, mandatory minimums, and the functional abolition of parole vaporized the existing sentencing regime almost overnight, without fully considering the ramifications.

The bureaucratization of criminal sentencing was inevitable. In important ways, bureaucracies are the government. Your medical and retirement benefits are formally established by Congressional acts, but in practice, what you receive and whether you receive it are decided by bureaus. Bureaucracies provide the rules, the enforcers, and in many cases, the courts—*fora* in which bureaucracies can sue you, using their own judges, interpreting their own rules. Bureaucracies operate beyond public control, which partially explains why they are despised. But most bureaucracies also lie beyond Congressional control; in legislators' haste to offload responsibility, they deposited most bureaucracies into the executive branch. As a result, bureaus jump to the orders of presidents who often have different priorities than legislators.

Unlike most bureaucracies, the Sentencing Commission was unusual in that it was (fictionally) housed in the judiciary and enjoyed the assistance of an eminent scholar, Stephen Breyer. Breyer seemed ideal: a former Senate staffer who was then a part-time law professor specializing in bureaucracies and Constitutional law, as well as a full-time appellate judge. Despite this rare combination of talent—if any bureaucracy had the resources to do good work, it was this one—the Sentencing Commission facilitated awful outcomes, and some of its machinery violated the laws in which Breyer was expert. In 2005, by which time Breyer was a Justice, his brethren concluded that the Guidelines as applied sometimes conflicted with the Constitution!

In the meantime, equipped with take-all-prisoners criminal legislation, police rounded up the usual suspects. Because there are so many crimes, policing can descend into arbitrariness, which helps explain how the traffic code devolves into crimes of "driving while black," just as the baroque tax code allows the phenomenon of being "audited while rich." No law allows (and some forbid) discrimination on the bases of color or class, but many judges tread lightly around policing. Indeed, conservative judges immunized police from all but the most egregious abuse claims, and allowed cops to gather tainted evidence under doctrines of "reasonable mistake." Once again, the justification was complexity; police could not be expected to know or follow every rule. Conservative judges also argued that police deserve the benefit of the doubt, with Antonin Scalia noting (in 2006) that gross police misconduct was largely a thing of the past. This was either disingenuous or catastrophically underinformed; either way, Scalia's forgiving attitude helped ensure that misconduct would be a thing of the future.

Once detained, brutally or otherwise, suspects are handed off to prosecutors, who select charges from a menu whose options and prices have been greatly inflated by tough-on-crime initiatives. In theory, prosecutors make their choices apolitically and case-by-case. Judges assume this is true, but that's not really tenable, given that DOJ has always been politicized and most local prosecutors are elected. Discretion would be less terrifying if prosecutors had to test their cases in court. But the arrival of the Guidelines and mandatory sentencing, rampant overcriminalization, the corruption of the bail system, and the underfunding of public defenders' offices amplified prosecutors' coercive powers, and the plea bargain reigns supreme.

The sliver of cases not summarily resolved by means outside judicial control are then sent to trial courts, which barely deserve the name. Most actions, whether civil or criminal, are resolved out of court, determined by the variables of money, law, and evidence, in descending order of importance. Quite simply, law is beyond the financial reach of most Americans. Even at \$200 per hour, the least any decent city lawyer can afford to charge (\$300-\$1,000 per hour is the usual range), the poorest 20 percent of Americans could afford zero days of legal representation and the next 20 percent, about a week. Only the richest 20 percent—really, just the top 5 to 10 percent—can afford to litigate comfortably. Pure financial necessity forces almost all cases to settle, and quickly, though this is not a subject of universal interest among judges.

At least criminal defendants have the option of court, however nominally. For civil matters, including important areas such as consumer protection and employment rights, access to courts may be denied entirely, with claims channeled straight into the privatized system of justice known as arbitration. In fact, the criminal laws of the 1980s played an important role in the diversion of civil litigation, a development no one quite anticipated back in 1984-1986. By the early 1990s, fearing a flood of new criminal cases, conservative Justices began diverting civil cases into arbitration. The flood never materialized, but conservative Justices kept expanding arbitration's reach, so that essentially every breathing American has now relinquished rights to sue in court. Arbitration clauses are everywhere: in mobile phone contracts, employment agreements, insurance documents, software licenses, and so on. Courts say that these contracts are entered into freely and knowingly (perhaps judges read software agreements every time their devices update) and claim that arbitration affords a speedy and fair forum for resolving disputes arising under such contracts. Of course, undisguised corporate enthusiasm for these agreements, made in unlikely paradises of willing consent such as hospital admissions, suggested that judicial assumptions might be unwarranted. Not only are law's departments disconnected from each other, they are estranged from life and logic, too.

Returning to criminal litigation, one of its great surprises is the secondary importance of evidence. What matters most is having the resources to gin up a hefty file of stuff reliable or otherwise. We supposedly live in a golden age of criminal forensics, but contrary to CSI and its brethren, much forensic evidence is rubbish. Police labs have been mired in scandal for years, most forensic methods are quackery, witnesses are often worse than useless, and even reliable techniques like DNA analysis are prone to misinterpretation. Although there are rules that allow courts to independently filter out garbage forensics and other shoddy evidence, judges rarely do so on their own initiative. The burden of discrediting evidence rests almost entirely with defendants, most of whom cannot afford that undertaking. Perhaps that doesn't matter overmuch—the law often doesn't understand what evidence means, though this is a tragedy for an institution supposedly devoted to facts.

With economic and evidentiary factors stacked against them, defendants usually travel a direct line from arrest to arraignment to sentencing. Although one justification for the Sentencing Commission was to reduce racial disparities in punishment, the new tools and discretion granted to police and prosecutors allowed more minorities to be rounded up, and given (often racially motivated) prior convictions, these defendants found themselves shoved into the more hellish parts of the Guidelines matrix. Compounding the debacle, Congress never decided what to do with the human cargo being laded onto the ship of state. One major goal of prison was to rehabilitate criminals, but legal changes in the 1980s withdrew the necessary funds and incentives. Congress also failed to consult with prison authorities to see if the prisoner influx could even be contained. Prisons quickly became overcrowded, some so severely as to violate Constitutional rights, prompting involuntary releases. Indeed, conditions deteriorated so badly that some prisons became crimogenic, making their residents more likely to commit crime upon release.

The whole tough-on-crime experiment was a fiasco. To succeed, the experiment needed a grounding in social realities (by the early 1990s, crime rates were falling for reasons unrelated to the crackdown) and demanded coordination across the many departments required to fulfill a policy affecting tens of millions. The whole process became impossibly complex, with each rule engendering an exception and a new rule, hypocrisy and inefficiency multiplying at bacterial rates. But law, having other lives to ruin, and other ways to ruin them, moved on.

The legal system is often wrongly compared to a Rube Goldberg machine. A Goldberg machine, however complicated, eventually achieves its designed purpose. It may take three hamsters, twelve lightbulbs, and a steam engine to fold a napkin in Goldberg's universe, but the napkin gets folded. The legal system has a great many more hamsters, lightbulbs, and steam engines, all strung together in an enormous factory of Goldberg machines, yet it can't fold the napkin, and sometimes sets it on fire.

The heart of law's complicated assembly is the rule of law, a concept usually rendered as a "government of laws, not of men." There's more to rule of law than rule by law, but the essential points are that every part of society must play by the rules, and that law must not descend into the arbitrary whims of legal officials. However, because modern American law is overly complex, enforcement is necessarily selective; because law insulates officials from the consequences of their decisions, law becomes unaccountable; by necessity, modern law can only be rule by men. And because legislators and judges have tolerated—indeed, facilitated—the concentration of so much power in the presidency, it's not so much the rule of men as the rule of one man. From 2017, that man commenced an open war with the very people who granted his office such incredible power: a spectacular instance of law failing to comprehend itself or the consequences of its work. The incomprehension is mutual, of course, because Trump no more understands the Constitution than a cat fathoms quantum mechanics. Some critics deem Trump an outlier; vindictive, feckless, and incompetent, but this underscores the essential point. An incompetent president cannot summon quasi-despotic powers by himself—he must inherit them. And that inheritance will compound and be passed along, because until law reforms itself, the estate tax on stupidity and despotism stands at zero.

Some of the best legal arguments are not arguments at all, but questions that inspire doubts about the parties and the system. How many police departments need to look like those of Baltimore, Chicago, Oakland, and Detroit before trust in police breaks everywhere? How many courthouse doors can be closed by plea bargains and arbitration before citizens realize that courts are transforming themselves into mere civic adornments? How unaffordable must justice become before "justice for all" curdles into a sadistic joke—when only 20 percent of people can afford a trial, or 10 percent, or 1 percent? Will people continue to respect a system that promises jury trials, reasonable bail, and humane punishment but delivers none of the above? Just how many self-defeating blunders need accumulate before society realizes that law has only a tenuous grasp on its operations? And what happens when the law's servants declare themselves above the law?

As law students know, the answer is: "It depends." <>

USUAL CRUELTY: THE COMPLICITY OF LAWYERS IN THE CRIMINAL INJUSTICE SYSTEM by Alec Karakatsanis [The New Press, 9781620975275]

From an award-winning civil rights lawyer, a profound challenge to our society's normalization of the caging of human beings, and the role of the legal profession in perpetuating it

Alec Karakatsanis is interested in what we choose to punish. For example, it is a crime in most of America for poor people to wager in the streets over dice; dice-wagerers can be seized, searched, have their assets forfeited, and be locked in cages. It's perfectly fine, by contrast, for people to wager over international currencies, mortgages, or the global supply of wheat; wheat-wagerers become names on the wings of hospitals and museums.

He is also troubled by how the legal system works when it is trying to punish people. The bail system, for example, is meant to ensure that people return for court dates. But it has morphed into a way to lock up poor people who have not been convicted of anything. He's so concerned about this that he has personally sued court systems across the country, resulting in literally tens of thousands of people being released from jail when their money bail was found to be unconstitutional.

Karakatsanis doesn't think people who have gone to law school, passed the bar, and sworn to uphold the Constitution should be complicit in the mass caging of human beings—an everyday brutality inflicted disproportionately on the bodies and minds of poor people and people of color and for which the legal system has never offered sufficient justification. Usual Cruelty is a profoundly radical reconsideration of the American "injustice system" by someone who is actively, wildly successfully, challenging it.

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The Punishment Bureaucracy

The Human Lawyer

Policing, Mass Imprisonment, and the Failure of American Lawyers

Author's Note

Notes

Excerpt: When I was a new lawyer almost ten years ago, I was at the jail in Montgomery, Alabama, one night with a client to prepare for court the next morning. As we discussed what would happen in his case, one of us made a joke, and we both laughed for a few seconds. Then, under his breath, he said, "I don't think anyone has smiled at me in a couple weeks."

I have been thinking a lot recently about what his words say about our society.

In the six years before my organization filed a constitutional civil rights lawsuit challenging the money bail system in Harris County, Texas, fifty-five human beings died in the local jail in downtown Houston because they were too poor to buy their release before trial. The American punishment system inflicts unspeakable cruelty every day, both in ways that make it into newspapers and viral videos and in ways that are only whispered about in jail cells late at night.

The essays in this book reflect on that everyday brutality. I wrote the three essays at different times in my career, and they're presented here with the most recent first. I wrote "The Human Lawyer" during my final year in law school and my first few months working in the legal system.

First, I have long been interested in the chasm between how the law is written and how the law is lived. An enduring theme of my short career representing directly impacted people is the difference between how we advertise the law with beautiful inscriptions on our public monuments or lofty words in judicial opinions taught in law schools, and how we use the law to crush the bodies and minds of poor people and people of color in our streets, our prisons, and our courtrooms.

One afternoon, not long ago, I was observing a local courtroom in New Orleans, Louisiana. A black man was wearing an orange jumpsuit. He was fully restrained in metal chains as the court heard his case. He stood in between eight or nine other men—eight or nine other black bodies wearing eight or nine other orange jumpsuits bound in eight or nine other sets of chains. I thought of James Baldwin's letter to Angela Davis as she languished in a jail cell forty-eight years ago. "Dear Sister," he began. "One might have hoped that, by this hour, the very sight of chains on black flesh, or the very sight of chains, would be so intolerable a sight for the American people, and so unbearable a memory, that they would themselves spontaneously rise up and strike off the manacles. But, no, they appear to glory in their chains; now, more than ever, they appear to measure their safety in chains and corpses."

The question before the judge in New Orleans that afternoon was whether the man would be released back to his family before his trial. Because the man was very poor, if the court chose to require him to pay money for his release, he would likely be stuck in a jail cell until his case finished. If the judge released him with nonfinancial conditions of release, then the judge did because it violates a person's rights to jail her solely because she cannot make a payment and without the government demonstrating that pretrial detention is absolutely necessary. Nonetheless, the judge did what judges in New Orleans and in over three thousand other cities and counties do every day: ignore the law on pretrial release. The man I saw had just become one of more than 500,000 human beings to be kept in a jail cell every night indictates before being they cannot pay money

As I left the wood-paneled courtroom and walked up into the gorgeous nave lined with giant glass windows, I thought about how it is inside some of the grandest buildings that our society does some of its worst deeds. I thought about how hard it is to get courts to do what the law requires, especially in a place like New Orleans.

After all, in Louisiana, it's not surprising that the judge would require as many people as possible to pay for their release from jail: the public defender who represented the man, the prosecutor who argued against the man, that a for-profit bail bond, then these local officials would get \$600 of that payment. (The for-profit company would keep \$2,000.) Every year in New Orleans alone, this money amounts to about \$250,000 each for the budgets of the public defender, district attorney, and sheriff, and about \$1 million for the budget of the court controlled by the local judges. We had just won two federal civil rights lawsuits, in which the federal courts agreed that a Louisiana judge's financial conflict of interest in collecting this bail money and in collecting a percentage of other fines and fees is unconstitutional. The local judges are currently appealing the two cases.

A few minutes later, I went outside and walked down the steps and across the street. I looked back at the courthouse. On top of the building, stretching for about a hundred feet on the marble façade, was carved this inscription: "The impartial administration of justice is the foundation of liberty." A second related theme connects the three essays: all of us who work in the system have become desensitized to the pain that we inflict. When I went to Ferguson, Missouri, in 2014 in the wake of the murder of Michael Brown, my clients in Ferguson told me about how they were sleeping on top of each other on the floor in jail cells covered in feces and mold with no access to natural light or fresh air because they could not pay old tickets to the city. One client with serious physical disabilities explained that he had been jailed without a lawyer and without his medications because he could not pay a ticket he had received: police had searched his home without a warrant and without permission, found women's underwear, and arrested him for allowing a woman to sleep over in his home without getting an occupancy permit that the City of Ferguson required for friends, relatives, or romantic partners to stay overnight. Another client told me that she had spent forty-eight days in the jail without a shower, toothbrush, or any way to clean her menstrual bleeding because she could not pay traffic tickets. At the time we sued Ferguson and its neighbors Jennings, St. Ann, and Velda City—St. Louis County itself had eighty-one different municipal courts, almost all of which appeared to be engaging in similar practices. And I have seen things like this over and over again around the country, in virtually every local courtroom and jail that I have observed.

My client Christy Dawn Varden was arrested in Clanton, Alabama, in 2015. When she found out that she could not go home to her children because she could not afford to pay a few hundred dollars in cash bail, she became anxious and panicked. She was taken to a corner of the jail outside the view of the hallway's security cameras. Christy was strapped to a chair and shocked repeatedly with electric current until she stopped crying and shouting. The prongs from the electric shock device burned open wounds all over her body that I photographed the next day.

One defining feature of America's punishment system is that it inflicts cruelty on such a scale that it no longer feels cruel. For three years, I worked as a public defender in Washington, DC. In the basement of the District of Columbia Superior Court, a few blocks from the National Mall, the DC government prosecutes children charged with juvenile delinquency. These cases are conducted in secret, closed to the public and to journalists. On my first day, I saw that the children in those closed courtrooms were fully restrained in metal chains, including their hands, feet, and waists. I saw tiny children as young as eight years old, children with severe intellectual disabilities, and children with histories of trauma, abuse, pervasive neglect, and mental illness. The children were routinely confused and disoriented because they could not move their limbs. Sometimes, children would be restrained for an entire day in court judges, prosecutors, public defenders, and government employ black children.

Brutality like this feels normal to many people in our punishment bureaucracy and to many people in our society—so normal that we can inflict it on a massive scale without needing any justification. This desensitization has led to a remarkable lack of intellectual rigor in every corner of the punishment bureaucracy: almost no one carrying out punishment in our legal system.

A final theme is more forward-looking. I've always been interested, above all, in exploring what we can do about the senseless suffering caused by the punishment system. Each essay, in different ways, talks about how

people might think about the moral obligations created by the American bureaucracy of mass human caging. I talk about why personal decisions matter—how we spend our lives and careers, the work that we choose to do, who we stand next to and whose hand we hold, the way we spend precious time on earth, and how we decide to use the knowledge and energy that animate our bodies each day.

But these are also collective questions. I write about how to come together to organize with others to build the power necessary to demand a different way of doing things and about the language society uses to talk about the punishment system. After all, dismantling the system of mass human caging is not a legal battle for lawyers. It is, fundamentally, a political one. It is about power. And so we have to examine why the punishment system exists and how it has functioned throughout its history as a mechanism of preserving white supremacy and the distribution of economic wealth and social control. Its future depends on whether we can build enough power—on whether enough people organize together with enough urgency and clarity—to challenge the forces that created and benefit from the punishment system. Will we each go home every night thinking about how we can come together in solidarity with people whose bodies and minds and loved ones are on the line?

Dismantling mass incarceration is a deeply human project that requires a different cultural narrative about what the punishment system is, why it looks the way it does, who it harms, and how it harms them. Because the success of the punishment system depends on erasing people and their stories, the success of a movement to undo it depends on a massive intentional effort to change the way society talks and thinks. This won't be easy, because it requires everyone—particularly people who are not directly impacted—to evaluate their own complicity in the criminal injustice system and to find creative ways to resensitize themselves and each other. It requires us to have open minds, to not be defensive, and to develop a new discourse. We must employ the language of life against the language of a bureaucracy—songs instead of shackles, poems instead of police reports. <>

AGEING, AGEISM AND THE LAW: EUROPEAN PERSPECTIVES ON THE RIGHTS OF OLDER PERSONS by edited by Israel (Issi) Doron, Nena Georgantzi [Elgar Studies in Law and Society, Edward Elgar Publishing, 9781788972109]

Europe is ageing. However, in many European countries, and in almost all fields of life, older persons experience discrimination, social exclusion, and negative stereotypes that portray them as different or a burden to society. This pivotal book is the first of its kind, providing a rich and diverse analysis of the inter-relationships between ageing, ageism and law within Europe.

Throughout the book - which builds on a European Cooperation in Science & Technology (COST) action - leading scholars offer theoretical and empirical analysis in order to discern the role European law plays in perpetuating and combating ageism. Including specific examples of how stereotypes and prejudices influence and shape the European legal system, the book contributes to the broader current global social movement towards advancing a new international human rights convention for older persons.

Timely and engaging, this book will appeal to students and scholars of law, sociology, public policy and a wide range of related fields including gerontology, human rights, and health-studies. Practitioners, policy-makers, civil society organizations and senior citizens activists will also benefit from the insights into the socio-legal aspects of social policies and human rights of older persons.

Contributors include: P. de Hert, M. De Pauw, I. Doron, N. Georgantzi, A. Gur, R. Harding, E. Mantovani, T. Mattsson, B. Mikolajczyk, A. Numhauser-Henning, G. Quinn, P. Quinn, B. Spanier, B. Sleaf, J. Watson

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Ageism Affects All Of Us Negatively — And The Law Can Help

Ageing has become an almost universal experience. A century ago, only a small minority of the population was fortunate enough to live up to old and very old age. Since then, life expectancy has increased considerably, in many countries coming close to (or exceeding) the age of 80 years. This is good news: we are able to live a full life span, from childhood and adolescence over young and middle adulthood to old age. Compared to the living situation of older people a century ago, in many countries the material living conditions of older people with respect to income and wealth as well as health and long-term care have improved, although there are still large inequalities between and within countries.

Despite the undeniable progress in life expectancy and the standard of living, we are struggling with stereotypes, prejudice and discrimination concerning older people. These stereotypes, prejudice and discrimination are the basis for ageism, the complex and usually negative social construction of old age. Ageism is based on social constructions. It is manifested in the ways we think, feel and act towards age and ageing — and these social constructions influence the way people grow old. This concerns not only "them", but all of us, as we move towards old age. Ageism restricts the realm of opportunity for older people: societal norms control the way older people are allowed to behave. Just think about indignant responses when older people violate these expectations. For instance, an old woman who spends all her money on luxury cars and travels all over the world, "wasting" her children's future inheritance, violates the expectations of old mothers. Or imagine an old man, dressing in fashionable and provocative outfits — "not appropriate for his age". Sharp reactions, from malicious remarks to open outrage, demonstrate the power of ageism.

More severely, ageism can lead to discrimination. This is the case when older people are denied access to jobs or to healthcare services, simply because of their age. And, let's not fool ourselves: ageism does not start when people turn 65; ageism often starts much earlier. In certain business sectors, turning 40 can make you "too old" for a job. Ageism reinforces social inequality as it is more pronounced towards older women, poor people, people with disability or those with dementia. Moreover, ageism hurts society as a whole as it hinders older people from realizing their full potential.

Ageism is not a rare phenomenon, just the opposite is true: a recent study based on the European Social Survey (The Everyday Ageism Project, www.eurage.com) found that ageism is the most prevalent type of discrimination reported by almost 35 per cent of all participants over the age of 18. Hence, ageism can (and eventually will) affect most of us as we move along the life course.

The basis of ageism is mechanisms of social categorization and stereotyping. As humans, we deal every day with huge amounts of information, and categorization is a useful mechanism to assist individuals with processing the large amounts of information we are confronted with. Categorization allows us to handle diversity and enables us to make quick decisions, especially in social contexts. There are negative effects of overgeneralization, however. If a person is classified as a member of a social group, all properties of the

group are ascribed to the individual person. Hence, if a person is seen as "old", the features of the category "old" are attributed to this individual person. Properties of the social category "old" are features like "chronically ill", "functionally impaired", and "cognitively slowed down" — even if an individual older person is neither ill nor functionally and cognitively impaired. Social categorizations come with positive or negative attitudes towards members of a group solely because of their group membership. Social psychological theories suggest that in the case of a negative group identity people try actively to dissociate from this group (for example social identity theory or terror management theory). This leads to social and spatial segregation between younger and older age groups, and reinforces societal beliefs about age groups.

What can we do against ageism? At the present time, research with regard to effective anti-ageist interventions is limited. We know, however, from other fields about potentially effective interventions. These may include raising public awareness and sensitizing civil society about ageism (for example, pointing out the ways in which the media contribute to ageist beliefs and stereotypes) and correcting false beliefs (for example, educating healthcare professionals that certain processes are due to illness and not to ageing per se). Finally, enacting, enforcing and changing laws is one important avenue to change ageism in contemporary societies. The current book is about ageing, ageism, and law in Europe. Israel "Issi" Doron from the University of Haifa (Israel) and Nena Georgantzi from the AGE Platform Europe (Brussels, Belgium) have brought together experts from Europe to comprehensively address this topic. The book has two parts. In the first part, Theories and Concepts, topics such as equality, inclusion/exclusion and autonomy are discussed. The second part, Realities and Legal Experiences, addresses the way laws interact with ageism, either as amplifiers or as attenuators of ageism. Taken as a whole, the book informs as to how to use the law as a tool against ageism.

This book grew out of a European research network, the COST Action "Ageism — A Multi-National, Interdisciplinary Perspective". COST is an EU-funded programme that enables researchers to set up interdisciplinary research networks in Europe and beyond. The researchers in this network come from 35 countries and represent a highly diverse group of established and early stage researchers as well as policy makers. As leaders of this COST Action we are grateful to our colleagues Issi Doron and Nena Georgantzi that they have used the network to produce a timely book on the role of the law in the field of ageism.

Introduction: between law, ageing and ageism by Israel (Issi) Doron and Nena Georgantzi
This book is about law, ageing and ageism in Europe. Generally speaking, European countries, as well as the European public media and interest are well aware of the ageing of Europe, the demographic shift it is facing, and the future challenges which are related. Nevertheless, much less attention was given in Europe to the social construction of old age, the prejudices, biases, stigmas and discrimination the older Europeans experience in their daily lives. Moreover, the different European legal systems, for example legislators, judges and lawyers, were mostly unaware of or blind to the fact that older persons have unique legal challenges, and that these challenges are the outcome of the way society treats and constructs old age.

Law and Ageing

Historically, law — meaning lawyers, judges, legislators or the scientific or philosophical (jurisprudential) aspects of the legal body of knowledge — was not interested in "ageing" or "older persons" as such (Doron, 2008). Typically, the interface between law and the older population was within the broader context of treating the poor, those who were unable to care for themselves (for example "lunatics" or "idiots"), or in the context of filial responsibility (for example the duty to care for older parents who were not able to care for themselves) (Doron, 1998). Even in more modern times, when law and society started to recognize the significance of "social groups" as the societal way of systematically discriminating (for example based on religion, nationality, gender, sexual orientation or disability), "age", a unique legal category, was usually missing or invisible.

The first part of the book is focused more on conceptual or theoretical aspects of how ageism can be related to law.

The book opens with the chapter by Rosie Harding, which explores the concepts of equality and social justice for older people in the context of arguments for and against the need for a new Convention on the Rights of Older Persons. Professor Harding interrogates the effectiveness of different theoretical approaches to equality (equality of resources, equality of recognition, equality of power and equality of condition) that could underpin arguments about the need for new international human rights protection for older people. In evaluating each of these "equality"-based approaches, the chapter demonstrates why each falls short as a justification for a new Convention. In response to the limitations of an equality approach, Professor Harding argues that we need to turn towards an understanding of social justice for older people, and suggests that a capabilities approach, building on the work of Amartya Sen and Martha Nussbaum, offers the most persuasive conceptual basis for a new Convention. Moreover, she argues that the capabilities approach, which requires not only the discursive and rhetorical enunciation of rights but also their substantive realization, is the most effective way to understand equality and social justice for older people.

The book continues with the chapter by Titti Mattsson, with a discussion that focuses on the relationship between vulnerability and ageism in the light of age limits in social welfare legislation. Professor Mattsson investigates the meaning of vulnerability by drawing on Martha Albertson Fineman's vulnerability theory as a starting point for the discussion of how the concept alternatively may be used by researchers as well as policy makers dealing with age-related legal issues in order to maximize the social rights potential for older people. The point of departure for the discussion is the Disability Act in Sweden, which limits disability benefits for those over 65 years old who have disabilities that are considered being part of "normal ageing".

Part I closes with the chapter by Gerard Quinn, Ayelet Gur and Joanne Watson, which looks at new developments in communications theory which potentially unlock — and reveal — the will and preference of people (including older people) who have been hitherto deemed unreachable because of their cognitive impairments. It goes further by looking at emerging evidence about the importance of social capital as a form of support to enable people to remain in control of their own lives. Finally, this chapter emphasizes the importance of community living as a way to break down ageism, and of supporting older persons to be, and remain, in charge of their own lives and as well as life choices.

The second part of the book moves from the theoretical perspective into the more empirical and descriptive perspective of the interaction between law, ageing and ageism.

The first chapter in this part is by Barbara Mikolajczyk, who describes how the participation of older persons in social life has so far been examined predominantly from the sociological, medical, psychological and economic perspective. Lawyers, apart from labour lawyers, have seldom taken on this issue. The chapter continues by arguing that it has been even more uncommon for international lawyers to touch upon active ageing. In order to fill this gap, this chapter examines whether Europe's two most important organizations, the Council of Europe and the European Union, have adopted effective legal instruments promoting active ageing of Europeans. Therefore, this chapter analyzes regional international law acts (both hard and soft law) of the Council of Europe, as well as the EU legal acts, strategies and programmes, and the ways in which they address ageism.

The next chapter is by Ann Numhauser-Henning, which shows how ageism in working life is a central concern when it comes to active ageing. More specifically, this chapter aims to discuss the relation between the EU ban on age discrimination, European employment law and active ageing strategies. In doing so it draws heavily on some earlier works of Professor Numhauser-Henning and on the premise that there is a special and close connection between ageism — the overall theme of this book — and non-discrimination regulation on the grounds of age. Discrimination — or discriminatory behaviour — is thus an integral part of most definitions of ageism.

Numhauser-Henning's chapter is followed by Eugenio Mantovani, Paul Quinn and Paul de Hert, who comment in this chapter on the so-called 2014 Chicago Declaration on the Rights of Older Persons, one of the most recent efforts to establish the human rights status of older persons, and the way it tackles stereotyping, stigmatization

and discrimination of older persons. To this end, the authors analyze a series of selected cases drawn from the case law of the ECHR with a view to (trying to) anticipate what a judge, confronted with a controversy involving ageism, would decide. The legal analysis, focused on Articles 14 (Prohibition of discrimination) Article 10 (Freedom of expression), and Article 8 (Right to private and family life). This analysis lends support to the claim that stereotyping and stigmatization are only partially open to influence from human rights law. The force of the law appears otherwise to be limited in contrasting the social manifestation of ageism in stigmatizing expressions and stereotypes. <>

THE ELGAR COMPANION TO JOHN MAYNARD KEYNES edited by Robert W. Dimand, Harald Hagemann [Edward Elgar Publications, 9781847200082]

The most influential and controversial economist of the twentieth century, John Maynard Keynes was the leading founder of modern macroeconomics, and was also an important historical figure as a critic of the Versailles Peace Treaty after World War I and an architect of the Bretton Woods international monetary system after World War II. This comprehensive Companion elucidates his contributions, his significance, his historical context and his continuing legacy. Prominent scholars examine Keynes's life and major writings, his theories and contributions, influences on the development of his thought, his interactions with his contemporaries, his followers and critics, the lasting significance of his work and the changing fortunes of Keynesianism in different countries.

The concise but thorough and comprehensive entries are arranged in eight parts: Life and Work, Influences, Major Works, Economic Analysis, Critics and Contemporaries, Associates, Legacy and Impact, and Keynesianism in Various Countries. The Companion will serve as the standard reference work for all those interested in John Maynard Keynes, in the economics of Keynes and in the history of macroeconomics.

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Introduction to [The Elgar Companion to John Maynard Keynes](#) by Robert W. Dimand and Harald Hagemann

MOTIVATIONS

"Rereading the General Theory", wrote Milton Friedman, "has reminded me what a great economist Keynes was." His Chicago colleague, Judge Richard Posner ("How I became a Keynesian" 2009), when driven by the Global Financial Crisis to actually read Keynes's *The General Theory of Employment, Interest and Money*, was shocked to discover that he found the book admirable, readable and helpful in understanding the world, and even was converted to Keynesianism (not at all an effect that rereading the book had on Friedman). That Keynes was an economist of sufficient historical influence, both of attraction and repulsion, to warrant inclusion with David Ricardo or Alfred Marshall in *The Elgar Companion* series hardly seems debatable. We cannot imagine a three-volume biography of any other economist, however well written, being published, let alone being a best seller (Skidelsky 1983-2000, 2003). The evolution of modern macroeconomics cannot be understood without reference to Keynes's influence — and in the case of monetarism and New Classical

economics, to reactions against his influence (see Skousen, *Dissent on Keynes*, 1992). The Global Financial Crisis has provoked an outpouring of books with titles such as *Keynes: The Return of the Master* (Skidelsky 2009), *Keynes: The Rise, Fall and Return of the 20th Century's Most Influential Economist* (Clarke 2009), *Maynard's Revenge. The Collapse of Free Market Macroeconomics* (Taylor 2010), *The Return to Keynes* (Bateman et al. 2010), *The Fall and Rise of Keynesian Economics* (Eatwell and Milgate 2011) and *Keynes Hayek: The Clash that Defined Modern Economics* (Wapshott 2011). Yet even if Keynes had never written *General Theory*, he would have been historically important as the critic of the Versailles Peace Treaty and author of the *Economic Consequences of the Peace*, and as a leading Treasury advisor and international negotiator during and after two world wars. His interests and activities, notably as a philosopher and as a cultural entrepreneur, ranged far beyond economics.

[The Elgar Companion to John Maynard Keynes](#) surveys and samples the scholarship on his life and legacy, the influences on his intellectual development, and the nature and context of his contributions. This body of scholarship, anchored by the great biographies of Keynes by Donald Moggridge (1992) and Robert Skidelsky (1983-2000), has benefitted from the 30 volumes of *The Collected Writings of John Maynard Keynes* (1971-89, general editors Donald Moggridge and Austin Robinson, volume editors Donald Moggridge and, for four volumes, Elizabeth Johnson), supplemented by T.K. Rymes's reconstruction of Keynes's lectures in the early 1930s (Rymes 1989), and by much now-available unpublished material such as declassified Treasury files (see Lekachman 1964, for an overview of earlier studies of Keynes as an economist). It has also benefitted from a changed, and deepened, understanding of Keynes as an economist, notably by Axel Leijonhufvud's distinction between Keynesian economics (the economics of the mainstream of those who considered themselves Keynes's followers) and the economics of Keynes himself (Leijonhufvud 1968; see also Minsky 1975, Friedman 1997 and Harcourt and Riach 1997 for other perspectives on the economics of Keynes). Views of Keynes the man also evolved: contrast Jeff Escoffier (1995) on Keynes as a gay man with the reticence of Harrod (1951). Too much can, and all too often has, been made of this: Keynes's pre-Lydia homosexuality can explain his break from the economic orthodoxy of Pigou and Robertson only if a similarity can explain a difference. The Bloomsbury group, a crucial context for Keynes, is now much better known and understood than it was.

[The Elgar Companion to John Maynard Keynes](#) comprises 95 newly commissioned scholarly chapters on aspects of Keynes's life and career, influences on his intellectual development, his major writings, themes in his analytical contributions, significant contemporaries with whom he interacted, later figures whom he influenced, and what became of his ideas and legacy in various countries. It is worth considering some other works that at first might appear to be substitutes, but which on closer examination turn out to be complements.

Milo Keynes's Essays on John Maynard Keynes (Keynes 1975) was especially strong in first-person reminiscences by people closely acquainted with some facet of Keynes: Geoffrey Keynes offering (at the age of 86) a brother's view of Maynard's early years, Geoffrey's son Milo recalling his aunt Lydia and uncle Maynard, Charles Ryle Fay on Keynes as an undergraduate and A.N.L. Munby on Keynes as a book collector (both reprinted from the 1949 King's College memoir), a 1944 letter from Frank Lee of HM Treasury about Keynes in the Washington negotiations, the painter Duncan Grant collaborating on an essay about Keynes as a picture collector, Mary Glasgow (the first secretary-general of the Arts Council) on Keynes and the Arts Council, Norman Higgins (the first general manager of the Cambridge Arts Theatre) on Keynes and the Cambridge Arts Theatre, Austin Robinson recalling hearing Keynes's lecture on "Economic aspects in the Peace Treaty" in late 1919, A.F. Wynne Plumptre on being taught by Keynes in the late 1920s (revising an article he had published in 1947), excerpts from the 1919-20 diaries of the Earl of Crawford and Balcarres (Lord Privy Seal at the time of the Versailles Peace Conference) and "Keynes in the City" by the financial journalist Nicholas Davenport, who joined Keynes on the board of National Mutual Life Assurance in 1932. Whatever some of our colleagues may think, the editors and contributors to *The Elgar Companion to John Maynard Keynes* are not of an appropriate vintage to proffer such first-hand testimony, as also applies to Keynes's niece Polly Hill and his nephew Richard Keynes (Hill and Keynes 1989) who have edited the letters between Maynard and Lydia.

The Cambridge Companion to Keynes (Backhouse and Bateman 2006) differs greatly from the present volume, reflecting the format of the series in which it was published. The Cambridge Companion contains 14 longer essays (plus the introduction), compared with 95 chapters on many aspects of Keynes's life, work, background and legacy. Although, as with the volume on Adam Smith in the same series, The Cambridge Companion to Keynes necessarily pays attention to Keynes as an economist (for example, Axel Leijonhufvud on "Keynes as a Marshallian"), the proportion of articles on Keynes as a philosopher testifies to its place in a series of companions to philosophers. Although The Elgar Companion to John Maynard Keynes gives due attention to Keynes as a philosopher of probability and uncertainty, to his place in the Bloomsbury group and to the influence on him of the philosophers Moore, Russell, Wittgenstein and Ramsey, our focus is on the influences upon, contributions of and legacy of an economist, both economic theorist and political economist, the author of *Economic Consequences of the Peace* (1919) and *The General Theory of Employment, Interest and Money* (1936), the critic of Versailles and negotiator of Bretton Woods, the person for whom a Keynesian Revolution or an Age of Keynes could plausibly be named. This focus is consistent with remembering that Lydia Lopokova was quite right, when writing to her mother-in-law that economists, with their narrow views, should not rule the world, to make an exception for "Maynard, who is more than economist". At the same time, this work differs from An Encyclopedia of Keynesian Economics (Cate 1997 [2013]) by focusing on the influences on and of a person, and his life and thought, rather than on a movement in economics. John Maynard Keynes is the subject of an article (by Geoff Harcourt, an admirable summary but only three pages long) in An Encyclopedia of Keynesian Economics (although he figures in many of the other articles), but the whole of The Elgar Companion to John Maynard Keynes is, in one way or another, only about him.

The Structure of the Book

[The Elgar Companion to John Maynard Keynes](#) opens with an overview of Keynes's life and work, starting with entries about his father, the Cambridge economist, logician and administrator John Neville Keynes (by Heinrich Bortis), his mother Florence Ada Keynes, mayor of Cambridge and longtime president of the National Council of Women, and his wife, the delightful Russian ballerina Lydia Lopokova (both by Indra Hardeen). Victoria Chick writes about Keynes's long and close involvement in the Bloomsbury group, from his first participation in the Cambridge Apostles through to his presentation of "My early beliefs" and "Dr. Melchior: a defeated enemy" to the Memoir Club. Donald Moggridge, editor of Keynes's *Collected Writings* (1971-89) and author of a major biography of Keynes (Moggridge 1992), addresses four stages of Keynes's role in public policy-making: at the India Office, in World War I, in British financial policy between the wars and in World War II. June Flanders, a distinguished scholar of the history of international monetary economics and a lovely person, contributed the chapter about Keynes and Bretton Woods. It is with sadness that we must record that she did not live to see the publication of this chapter.

John Maynard Keynes was a philosopher as well as an economist, and his fellowship dissertation was on the philosophical foundations of probability. The first four entries about influences on Keynes are on the Cambridge philosophers G.E. Moore (who shaped the world-view of the Apostles), Bertrand Russell, Ludwig Wittgenstein and Frank Ramsey, all contributed by John Davis, himself both a philosopher and an economist, with doctorates in both disciplines. Keynes saw his *Treatise on Probability* as doing for the logical foundations of probability what Russell and Alfred Whitehead had done for the logical foundations of mathematics. The precocious philosopher and mathematician Ramsey, in addition to making notable contributions to economics with Keynes's encouragement (optimal capital accumulation and Ramsey pricing), forced Keynes to rethink his views on subjective probability. Keynes greatly admired the genius Wittgenstein but, like others, found personal relations with him uneasy. Davis brings out the parallels in how Keynes and Wittgenstein thought about conventions and rules.

Richard Kahn's place in the "Keynesian revolution" is secured by his central part in developing the multiplier. Joan Robinson, pioneer of imperfect competition and critic of neoclassical capital theory, had a key role in

helping Keynes see that the path from his *Treatise on Money* required a theory of the equilibrium level of income and output, not of movements in price levels, and was also among the first expositors of the economics of Keynes. James Meade, Nobel laureate for his work in international economics, was also a member of the "Cambridge circus" in 1930-31, and brought Keynesian ideas into British policy-making during World War II and into international economics after the war. Like Meade, Colin Clark and Nobel laureate Richard Stone were central to the creation of national income and product accounts. Lorie Tarshis, whose notes were decisive to Thomas Rymes's reconstruction of Keynes's lectures, helped change Keynes's mind about the cyclical pattern of real and nominal wages, and was prominent among those who brought Keynesian economics from Cambridge to North America. David Champernowne, Keynes's bright student at King's College, was among the first to attempt a formalization of *General Theory* and to sort out the controversy on unemployment between Keynes and Pigou.

Part VII explores Keynes's legacy and impact by considering leading Keynesian and post-Keynesian economists (whether American Keynesians such as Alvin Hansen, Paul Samuelson, Lawrence Klein, Franco Modigliani, Robert Solow and James Tobin, Canadian Keynesian Mabel Timlin, the post-Keynesians Hyman Minsky and Sidney Weintraub, and Nicholas Kaldor, a Cambridge Keynesian who came to Cambridge from LSE after Keynes's time), interpreters and re-interpreters of Keynes from J.R. Hicks and G.L.S. Shackle to Don Patinkin, Robert Clower and Axel Leijonhufvud (see Clower 1965; Leijonhufvud 1968; Minsky 1975), Keynes's influential critic Milton Friedman (see Friedman 1997), and Harry Johnson, who could be placed, to some degree, in any of these categories except post-Keynesian. Part VII also features entries on post-Keynesian economics, new Keynesian macroeconomics, the Phillips curve, and Peter Clarke on "The rise, fall and return of the master". As with Peter Clarke's chapter, several are by authors who have written books on the topic of their chapter (see Clarke 2009), such as Roger Backhouse on Paul Samuelson, James Forder on the Phillips curve, Donald Moggridge on Harry Johnson, Anthony Thirlwall on Nicholas Kaldor and L. Randall Wray on Hyman Minsky.

Part VIII considers the fortunes and vicissitudes of Keynesianism in eight countries (see Hall 1989, for earlier studies of the spread of Keynesianism, and Carl Turner 1969 for the convoluted attitudes towards Keynes in a country where there was no Keynesianism, the Soviet Union).

In her impressive venture in intellectual history *Economic Sentiments*. Adam Smith, Condorcet and the Enlightenment, Emma Rothschild has not only provided a comprehensive reinterpretation of the origins of economic liberalism, arguing that the "utopian" enlightenment of Condorcet and the "conservative" enlightenment of Smith (Rothschild 2001, p. 2) are much closer than commonly thought, that is, political economy is both the science of moral sentiments as well as of rational economic calculus, but also how the reception of the ideas of Smith and Condorcet significantly changed in the political tides during the French Revolution and the subsequent restoration period. A similar observation can be made concerning the reception of Keynesian ideas. A quarter of a century after the publication of *General Theory* in the United States, from Alvin Hansen to President Nixon, "We are all Keynesians now" became a widespread statement. However, the monetarist counter-revolution, initiated by Milton Friedman, and the new phenomenon of stagflation contributed to a decline of Keynesian ideas in economic theory and policy, so that a leading American Keynesian such as James Tobin (1977) felt induced to raise the question "How dead is Keynes?". In the 1980s, the age of Ronald Reagan and Maggie Thatcher and the high time of deregulation, the influence of Keynes was at its low point. With the neoclassical macroeconomics of Lucas et al., an improved version of pre-Keynesian orthodoxy had established and the anti-Keynesian counter-revolution seemed accomplished.

However, those declared dead prematurely sometimes live longer. Another quarter of a century later, the financial crisis of 2007 and the "Great Recession" the world faced after the crash of Lehman Brothers in September 2008 prompted a major shift and a Keynesian rebirth in macroeconomic policy, both monetary and fiscal policies, to stabilize the economy. The past decade was characterized by the insight that Keynesian ideas provide a "Useful Economics for the World Economy", as Peter Temin and David Vines (2014) have given the subtitle of their book. Keynesian ideas cannot only lay the basis for a longer-run return to economic growth, but

are also important to improve the interactions among nations in a globalized world which is endangered by Brexit, the Euro crisis, Trumponomics, regional wars and conflicts, and a rising autocracy in many major countries.
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MARKETS, GAMES, AND STRATEGIC BEHAVIOR: AN INTRODUCTION TO EXPERIMENTAL ECONOMICS (SECOND EDITION) by Charles A. Holt [Princeton University Press, 9780691179247]

From a pioneer in experimental economics, an expanded and updated edition of a textbook that brings economic experiments into the classroom

Economics is rapidly becoming a more experimental science, and the best way to convey insights from this research is to engage students in classroom simulations that motivate subsequent discussions and reading. In this expanded and updated second edition of *Markets, Games, and Strategic Behavior*, Charles Holt, one of the leaders in experimental economics, provides an unparalleled introduction to the study of economic behavior, organized around risky decisions, games of strategy, and economic markets that can be simulated in class. Each chapter is based on a key experiment, presented with accessible examples and just enough theory.

Featuring innovative applications from the lab and the field, the book introduces new research on a wide range of topics. Core chapters provide an introduction to the experimental analysis of markets and strategic decisions made in the shadow of risk or conflict. Instructors can then pick and choose among topics focused on bargaining, game theory, social preferences, industrial organization, public choice and voting, asset market bubbles, and auctions.

Based on decades of teaching experience, this is the perfect book for any undergraduate course in experimental economics or behavioral game theory.

- New material on topics such as matching, belief elicitation, repeated games, prospect theory, probabilistic choice, macro experiments, and statistical analysis
- Participatory experiments that connect behavioral theory and laboratory research
- Largely self-contained chapters that can each be covered in a single class
- Guidance for instructors on setting up classroom experiments, with either hand-run procedures or free online software
- End-of-chapter problems, including some conceptual-design questions, with hints or partial solutions provided

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Excerpt: Economics is enjoying a resurgence of interest in behavioral considerations, i.e., in the study of how people actually make decisions when rationality and foresight are limited, and when psychological and social considerations may play a role. Experimental techniques are increasingly used to study markets, games, and other strategic situations. The mounting excitement about experimental results is reflected in a string of recent Nobel Prizes. New subdisciplines are arising, e.g., behavioral game theory, behavioral law and economics, behavioral finance, behavioral political economy, and neuro-economics. Laboratory and field experiments provide key empirical guideposts for developments in these areas.

This book combines a mix of theory and behavioral insights with active classroom learning exercises. The chapters use a leadoff experiment as an organizing device to introduce the central concepts and results. The classroom games set up simple economic situations, e.g., a market or auction, which highlight several related economic ideas. Each chapter provides a relatively short (15-20 page) reading for a particular class, in a one-a-day approach. The reading can serve as a supplement to other material, or it can be assigned in conjunction with an in-class "experiment" in which students play the game with each other. Doing the experiments before the assigned reading enhances their teaching value. Many of the games can be run in class "by hand," with dice or playing cards. A larger class can be divided into teams of 2-4 students, which facilitates the collection and announcement of results. Team decisions are the norm in many professional masters programs, since team discussions allow students to clarify strategic insights and learn from each other.

The appendix contains sample sets of instructions for a few hand-run games that are particularly well adapted for classroom use. In addition, the broader selection of about 60 games are available free of charge at the Veconlab site that has been programmed by the author:

<http://veconlab.econ.virginia.edu/admin.htm> (for instructor setup),

<http://veconlab.econ.virginia.edu/login.htm> (for participant login).

The site for instructors can be located with a Google search for "veconlab admin," and the student login site can be found with a search for "veconlab login." Some similar experiments are available on a University of Exeter (FEELE) server and on a commercial Moblab site, which features sliders that are optimized for small screens. Wireless connections are standard on campuses, and the typical student backpack contains multiple devices (laptops, iPads, cell phones) that connect to a browser. It is certainly not necessary for class to meet in a lab anymore. Nevertheless, it is often effective to have students work in pairs, which helps with group learning and discussion and reduces "surfing." Such discussions are not as important for non-interactive individual decisions, e.g., a choice between two gambles. In this case, the web-based Veconlab programs can be accessed by students individually before class. Running experiments after hours is also easy for games like the ultimatum, battle of sexes, and guessing games that are only played once, since students can then read instructions and enter a decision before their partners have logged in.

Web-based programs can be set up and run from any standard browser that is connected to the Internet, without loading additional software. The programs have fully integrated instructions that automatically conform to the features selected by the instructor in the setup process. The instructor data displays can provide records of decisions, earnings, round-by-round data averages, and in some cases, theoretical calculations. There is an extensive menu of setup options for each game that lets the instructor select parameters, e.g., the numbers of buyers, sellers, decision rounds, fixed payments, payoffs, etc. There are many possible treatment configurations for each of the 60 online games. The author regularly teaches classes of 30-45 students who design their own experiments and run them on the other students at the end of one class, followed by a formal presentation of results at the beginning of the next class.

To reiterate, the class discussion can reach a higher level and expand to include recent research if (1) students participate in an experiment at the end of the prior class, and (2) students do the reading in advance, which can be incentivized by assigning an open-book multiple choice quiz (ten questions per chapter, available from the author on request). The approach is based on learning by doing and teaching by doing.

The introductory chapter provides a summary of a "pit market" experiment that can be run by hand with playing cards, along with information about the development of experimental economics as a field. Market instructions are provided in the experiment instructions appendix for chapter 1, found at the end of the book. It is effective to run a pit market on the first day of class; then the subsequent reading in chapter 1 can serve as a tie-in to key concepts. The second chapter pertains to price discovery and adjustment in several different types of market institutions, including the commonly used double auctions and call markets. The remaining chapters are grouped by category (decisions, games, social preferences, markets, and auctions). An alternative to proceeding part by part would be to cover some basics in key chapters and then pick and choose among the remaining topics. For basics, I would suggest chapters 1, 2, 20, and 24 on markets; chapters 3 and 4 on risk aversion and prospect theory; chapters 8-11 on simple games; and chapters 14-16 on bargaining, trust, and voluntary contributions. Then other chapters could be selected based on the focus of the course. The pick-and-choose process also works well with incorporating outside readings.

This book is designed to be a primary text for a course in experimental economics or behavioral game theory. Each chapter is based on a key experiment, which is presented with a measured amount of theory and related examples. Innovative field experiments are included wherever possible. The chapters are relatively self-contained, which makes it possible to choose selections tailored to serve as a supplement for a particular course. Many of the experimental designs may be of interest to non-economists, e.g., students of political science, anthropology, and psychology, as well as anyone interested in behavioral finance or behavioral law and economics. Finally, the book could serve as an organizing device for a postgraduate course with supplemental readings from current research.

I have tried to keep the text uncluttered, with no footnotes. Mathematical arguments are simple, since experiments are based on parametric cases that distinguish alternative theories. Calculus is used sparingly, with

discrete examples and graphs that provide the intuition behind more general results. References to other papers are often confined to an "extensions and further reading" section at the end of each chapter. For more extensive surveys of the literature, see Kagel and Roth's (1995, 2016) *Handbook of Experimental Economics*, volumes 1-2, and the Plott and Smith (2008) *Handbook of Experimental Economics Results*, which are pitched at a level appropriate for advanced undergraduates, graduate students, and researchers in the field.

Notes on the Revised Edition

The book has been updated and reorganized, with the introductory chapters followed by a progression from simple to complex interactions: individual decisions (chapters 3-7), games (8-12), methodology (13), social preferences and public choice (14-19), markets, finance, and macroeconomics (20-25), and auctions and mechanisms (26-30). This sequence has the advantage of moving important topics like prospect theory and behavioral game theory closer to the beginning of the book, so that these ideas can be used in subsequent treatments of more complex market, macro, and auction interactions. The number of chapters is reduced, but there are new chapters on prospect theory (chapter 4), belief elicitation and ambiguity aversion (6), social dilemmas (11), tournaments (12), methodology and nonparametric testing (13), macroeconomics (25), combinatorial and two-sided auctions (29), and rank-based matching mechanisms (30). In addition to these chapters, there is new material on risk preference measures ("ink bomb" and portfolio choice measures), infinitely repeated games with random termination, graphical analysis of games with curved quantal responses, endogenous groupings and exclusion in social dilemmas, distinguishing reciprocity from altruism in trust games, principal-agent sharing contracts, unraveling in insurance markets, distinguishing regret and risk aversion in auctions, and auction design for emissions permit markets. Chapters from the previous edition have been completely revised, updated, and in some cases combined with material from deleted chapters (discrimination, prediction markets, information cascades).

There is a "Note to the Instructor(s)" at the beginning of each chapter that provides guidance on class experiments. Key insights are italicized and separated from the text for emphasis. As mentioned above, the chapter-specific multiple-choice questions on the author's website are simple enough to be done in advance to ensure that students finish the reading before class. The applications that are covered in more detail are usually selected to match available class experiments. The "extensions" sections direct the student to recent, interesting experiments that were not included due to space limitations. The end-of-chapter problems feature some non-mechanical or design-type problems, along with hints for selected problems (but not answers) in an appendix at the end of the book. The hints are detailed enough so that the students will know whether or not they are on the right track. <>

ADVANCED INTRODUCTION TO INTERNATIONAL POLITICAL ECONOMY, SECOND EDITION by Benjamin J. Cohen [Elgar Advanced Introductions, Edward Elgar Publishing, 9781788971546]

Elgar Advanced Introductions are stimulating and thoughtful introductions to major fields in the social sciences and law, expertly written by the world's leading scholars. Designed to be accessible yet rigorous, they offer concise and lucid surveys of the substantive and policy issues associated with discrete subject areas.

Now in its second edition, Benjamin J. Cohen's introduction provides a comprehensive and up-to-date global survey of the field of international political economy. With detailed discussions regarding the divergent paths of different schools of thought in the field, this unique guide explores the links between contending factions. This *Advanced Introduction* gives students access to the multiple analytical styles and traditions of all perspectives in this rich field of study.

Key features of the second edition:

- Concise introduction to the field in an accessible, non-technical form updated with the most recent discussions in IPE

- Further in depth analysis of the most established American and British schools of IPE
- Extended discussion of other key regions contributing to IPE, including Continental Europe, Latin America, Australia, Canada and China.

Written in a concise and dynamic style, this *Advanced Introduction* serves as a thoughtful entry point text for advanced undergraduate and graduate students, as well as being an excellent go-to resource for scholars specializing in international political economy.

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Excerpt: What is International Political Economy (IPE)? Even for an advanced student, that is not an easy question to answer. Clearly, IPE has something to do with economics (economy). It also has something to do with politics (political). And it somehow relates to the world beyond the confines of the individual state (international). On these three elements, all scholars concur. However, that is about as far as agreement reaches. In practice, there seem to be almost as many conceptions of IPE as there are specialists in the field. As one

expert wearily concedes, IPE is "a notoriously diverse field of study" (Payne 2005: 69). A second simply calls it "schizoid".

Among possible definitions, my personal favorite comes from Robert Gilpin, one of the pioneers of IPE in the United States. International political economy, he suggested, may be thought of as "the reciprocal and dynamic interaction in international relations of the pursuit of wealth and the pursuit of power" (Gilpin 1975: 43). By pursuit of wealth, Gilpin had in mind the realm of economics: the role of markets and other allocative mechanisms and the challenges of providing for material welfare, which are among the central concerns of economists. By pursuit of power, he had in mind the realm of politics: the role of the state and other political actors and the challenges of effective governance, which are among the central concerns of political scientists. By international relations he meant actions and outcomes that extend across national frontiers, which are among the central concerns of students of international or global affairs. By reciprocal he meant that neither economics nor politics takes precedence: each influences and, in turn, is influenced by the other. And by dynamic he meant that nothing can be taken for granted: things change. To a remarkable degree, this concise definition captures what IPE is all about.

One point of confusion stems from the seeming overlap between IPE and the closely related specialty of comparative political economy (CPE). Like IPE, CPE involves reciprocal and dynamic interactions between the realms of economics and politics. Unlike IPE, however, CPE tends to discount the international, which is a critical part of Gilpin's definition. In CPE, the emphasis is more on what goes on within national units — the making of policy, the evolution of institutions, and the like. National units are compared and contrasted for their similarities and differences. In IPE, by contrast, the emphasis is on what goes on between national units — the linkages created by trade, finance and other types of cross-border relationships. The two fields, clearly, share much in common; indeed, specialists in either field may at times find themselves doing work that is more in the tradition of the other. Nonetheless, the distinction between the two disciplines is vital. What distinguishes IPE is the first word — international.

Following standard practice, the term IPE (or the capitalized words International Political Economy) will be used here to refer to the field of study that is the subject of this Advanced Introduction. The same meaning will also be attached to the term Global Political Economy (GPE), a frequently used synonym for the field. Without capital letters, international or global political economy may be understood to refer to the material world — the myriad connections between economics and politics across the globe that we read about in the daily newspaper or on our favorite blog.

History

As a field of study, IPE is both very old and very young. It is old because the connections between economics and politics in international relations have long been recognized and explored by keen observers. However, it is also young because, until recently, it had not yet achieved the status of a formal, established academic discipline. The modern field of IPE, as we know it today, has actually been in existence for little more than half a century.

A formal field of study may be said to exist when a coherent body of knowledge is developed to define a subject of inquiry. Recognized standards come to be employed to train and certify specialists; fulltime employment opportunities become available in university teaching and research; professional associations are established to promote study and dialogue; and publishing venues become available to help disseminate new ideas and analysis. In short, an institutionalized network of scholars comes into being, a distinct research community with its own boundaries, rewards and careers — an "invisible college," as it is sometimes called. In IPE, the invisible college did not begin to coalesce until around the end of the 1960s.

There were precursors, of course. In terms of intellectual antecedents, today's field actually has a long and distinguished lineage, going back to the liberal Enlightenment that spread across Europe in the seventeenth and eighteenth centuries. Even before there were separate disciplines of economics and political science, there was

classical political economy — the label given to the study of economic aspects of public policy. Classical political economy encompassed three broad discourses: a practical discourse about policy, a normative discourse about the ideal relationship between the state and the economy, and a scientific discourse about the way the economy operates as a social system (Gamble 1995). All three discourses were key inspirations for today's invisible college. A recent commentary is correct in insisting that "IPE did not undergo a pure virgin birth ... without classical political economy there could be no modern IPE".

Classical political economy flourished through the eighteenth and early nineteenth centuries. From the French physiocrats and Adam Smith onward, the classical political economists all understood their subject to be a unified social science closely linked to the study of moral philosophy. Their perspective was self-consciously broad and inclusive. "The classical political economists were polymaths, who wrote on a variety of subjects," one expert has written. "They did not study 'the economy' as an enclosed and self-contained entity." The earliest university departments teaching the subject were all designated departments of political economy. John Stuart Mill's monumental summary of all economic knowledge in the mid-nineteenth century was pointedly entitled *Principles of Political Economy*.

Not long after Mill, however, a split began, fragmenting the social sciences in many parts of the world. Like an amoeba, classical political economy started to subdivide. In place of the earlier conception of a unified economic and political order, two separate realms were envisioned, representing two distinct spheres of human activity. One was "society," the private sector, based on contracts and decentralized market activity and concerned largely with issues of production and distribution. The other was the "state," the public sector, based on coercive authority and concerned with power, collective decision making, and the resolution of conflict. Many university departments were systematically reorganized to address the divergent agendas of the two realms. By the start of the twentieth century, the divorce of political science from economics was well underway, with fewer and fewer points of intellectual contact or communication remaining between them.

Not everyone elected to choose sides. In many places, particularly in Continental Europe and Latin America, the tradition of classical political economy lingered on. The split was deepest in the United States and Britain, where only a few hardy souls continued to stress links between the pursuit of wealth and the pursuit of power. Most were to be found at the radical fringes of US and British academia, heterodox observers outside the "respectable" mainstream of scholarship. These included Marxist or neo-Marxist circles on the Left, where the superstructure of politics was unquestioningly assumed to rest on a foundation defined by prevailing modes of production, as well as laissez-faire liberals or libertarians on the Right determined to preserve capitalism against the oppressive power of the state. There were also some notable exceptions closer to the orthodox mainstream in both countries. One was the great British economist John Maynard Keynes, who cared deeply about the relationship between markets and politics. Another was Joseph Schumpeter, an Austrian polymath who taught for many years at Harvard, best known for his magisterial treatise on *Capitalism, Socialism and Democracy* (1942). A third was Jacob Viner, a Canadian economist transplanted to the United States. Long before Gilpin, Viner (1948) had already remarked on the interaction between "power" and "plenty" in the foreign economic policies of nations, dating back to the era of Mercantilism in the seventeenth and eighteenth centuries.

For the most part, however, the void only grew deeper with time, especially among students of world affairs. References to political economy at the international level soon disappeared from polite conversation. By mid-twentieth century, in most places, the frontier dividing the economics and politics of global affairs had become firm and seemingly impassable. Scholars working in the separate specialties of international economics and international relations (IR) simply did not speak to one another. It was like a dialogue of the deaf.

The dichotomy was summarized acutely in a seminal article published in 1970 by British scholar Susan Strange, provocatively entitled "International economics and international relations: a case of mutual neglect". The void between international economics and IR had endured for too long, Strange declared. Scholars from both

traditions were neglecting fundamental changes in the world economy. The dialogue of the deaf should not be allowed to persist. A more modern approach to the study of international economic relations was needed — a determined effort at "bridge-building" to spotlight the crucial "middle ground" between economic and political analysis of international affairs. Here, for the first time, was a full and compelling case laid out for a new field of study, a clarion call expressed in the fierce and uncompromising manner that came to be Strange's trademark. The article was, for all intents and purposes, a manifesto.

Strange's summons to battle was by no means the sole spark to ignite a renewed interest in the political economy of international relations. By 1970, there were also others — principally in Britain and the United States — who were beginning to grope their way toward reconnecting the two realms of inquiry, "reintegrating what had been somewhat arbitrarily split up". Yet looking back, we can now appreciate how significant her manifesto was. Its publication marked something of a tipping point. Never before had the brewing discontent among scholars been so effectively distilled and bottled. Nowhere else had the issue been posed in such concise and focused terms. As such, it is as good a candidate as any to mark the moment of birth of the modern field of IPE.

In an earlier book, *International Political Economy: An Intellectual History* (Cohen 2008), I provided a brief history of the field since the early 1970s. The coverage of that volume was deliberately limited to the English-speaking world — often called the "Anglosphere" — defined to include mainly the United States, Canada, the British Isles, and the Antipodes. It was also limited to what might be considered mainstream conceptions of IPE in the Anglosphere, excluding outliers. Although my intention was to broaden horizons by going beyond a single orthodoxy, the book was nonetheless criticized for being unduly narrow in its coverage. In the words of one commentator, "Cohen's account excludes too much ... These exclusions amount to omitting a considerable part of what is taught and written in IPE". As it happens, I agree — hence this *Advanced Introduction*, which may be considered something of a sequel to my earlier *Intellectual History*. This book takes us much further afield, broadening horizons even more. My aim is to provide a comprehensive tour d'horizon of IPE as it exists today across the globe.

Diversity

Since the early 1970s, an invisible college has coalesced around the subject of IPE. However, the community is hardly monolithic. Bridges have been built, as Strange urged, to span the void between inter-national economics and IR. Yet the connections have been many and varied, offering a colorful array of alternative perspectives. Once born, the modern field proceeded to develop along sharply divergent paths followed by different clusters of scholars. Although united by a shared purpose — a determination to overcome the dialogue of the deaf between economists and political scientists — the invisible college also divided into contending, and occasionally warring, factions.

A faction may be understood to denote a group of scholars with a shared understanding of broad basics. It does not demand agreement on specific goals or one single research agenda. A synonymous term is "school of thought". The development of factions or schools is hardly unfamiliar in academic life, as the philosopher of science Thomas Kuhn (1962) long ago pointed out. Research specialties commonly subdivide as experts seek out the comfort of others who share the same values and assumptions. In the words of political psychologist Margaret Hermann, "Our identities become intertwined with the perspectives and points of view of the theoretical cohort to which we perceive ourselves belonging. And we tend to distance ourselves from those we do not understand or whose ideas seem discordant with our group's theoretical outlook." Differences then tend to be reinforced over time by divergent patterns of professional socialization, producing what the sociology of science calls distinct "discourse coalitions". The emergence of factions within the invisible college is an altogether natural process.

Nor is it necessarily a bad thing, so long as the diverse schools encourage a lively competition of ideas. A research community without factions is like a monoculture in farming, dominated by a single biological species.

Agricultural monocultures, it is known, can be highly efficient, since there is less unpredictability in cultivation and no need for trial and error. Similarly, in an academic monoculture, no time need be wasted arguing about basic standards or methodologies. However, as political scientist Kathleen McNamara has reminded us, "monocultures, be they intellectual or agricultural, are never healthy ... Intellectual monocultures, where one theoretical perspective, ontological position, and method are used exclusively, may well result in a ... desiccation of the field of study." Scholarship becomes arid and offers diminishing returns. The emergence of factions, like the cultivation of diverse crops, can help to preserve a field's fertility.

Much depends, however, on the degree of communication between the factions: how well acquainted discourse coalitions are with each other and how open they are to alternative points of view. Are they willing to learn from one another? Are they even aware of the existence of other schools? The kind of socialization that Hermann (1998) talks about can build up a powerful momentum of its own. Cohorts may begin to distance themselves so much that they become effectively insular, if not isolated, foregoing the benefits of cross-fertilization. New dialogues of the deaf emerge. That is what happened to the classical political economy of the Enlightenment, when economists and political scientists stopped talking to each other. It can in fact happen to any academic specialty — including IPE.

Indeed, the field of IPE today would seem to be at particular risk, judging from the way the subject is typically taught in many places around the world. Too often, in course syllabi and lectures, students are mainly exposed to just a single version of IPE — something approaching a monoculture in miniature. Students may believe that they are joining a broad invisible college. In fact, without even knowing it, many instead are being initiated into a more narrow faction, trained to remain loyal to one tradition among many. Consciously or unconsciously, they become members of a single discourse coalition, and insularity is reinforced.

Why worry, some might ask. At least students are acquiring some grasp of the field, even if not the whole picture. Yet that way lies misconception and a potentially distorted perception of reality. As an old Yiddish saying puts it, a half-truth is a whole lie. Students deserve the whole truth. To get it, they must be reminded that there are in fact multiple versions of IPE, each with its own distinct personality. They must be shown that much can be learned from every faction. That is the central purpose of this Advanced Introduction.

Factions

Who are these factions, and what distinguishes them? Beyond the bridges built to span the void between international economics and IR, specialists in IPE can — and do — divide over a number of critical points of substance or style. Five dimensions stand out:

1. **Ontology.** From the Greek for "things that exist," ontology is about investigating reality: the nature, essential properties, and relations of being. What are the basic units of analysis in our research, and what are their key relationships? Do we primarily study individuals, enterprises, social units, sovereign states, or the "system" as a whole?
2. **Agenda.** What are the most salient issues to be addressed? Are we more interested in matters relating to material welfare — the production and distribution of goods and services for final use — as emphasized by the discipline of economics? Or is our interest more in issues of politics and governance — decision-making, cooperation, and the management of conflict — as stressed by political scientists? Are our horizons primarily local or regional, or does our perspective extend to the intercontinental and global?
3. **Purpose.** What is the goal of research? Is our aim "positive," intended primarily to enhance our objective understanding of how the world works? Or, rather, is it more "normative," hoping to make the world a better place to live?
4. **Openness.** How receptive are we to ideas or insights from other disciplines beyond economics and political science? How important are related specialties like sociology, anthropology, history, geography, or psychology? And what about other more distant specialties such as law, philosophy, religion, or even cultural or gender studies?

5. Epistemology. From the Greek word for "knowledge," epistemology has to do with the methods and grounds of knowing. What methodologies do we use to study the world? What kinds of analytical techniques will best enhance our understanding?

We know that differences exist in all these dimensions. It is not always easy, however, to know where to draw the lines. Any set of labels to categorize factions is bound in some degree to be arbitrary — and therefore controversial. Alternative traditions may diverge along some dimensions even while converging on others; elements of several versions may overlap and intertwine, even in the minds of individual scholars.

The world of scholarship is inherently messy, a raucous cacophony of voices competing for attention. No one system of classification can possibly do justice to them all.

Some differences, however, are more readily apparent than others — and, arguably, the most obvious differences tend to be geographic: national or, in some cases, regional (encompassing a number of neighboring nations). Not all experts agree. According to the Canadian Tony Porter (2001), "it is only minimally useful to speak about 'national perspectives' on international relations." The weight of the evidence, however, suggests otherwise. Clustering comes naturally to citizens of the same nation, who more often than not share a common language, attend the same schools, join the same associations, read the same journals, and have less distance to travel in order to talk with one another — all influences that act as centripetal forces to differentiate one national tradition from others. The same can also be said of certain multistate regions, such as Latin America. The sociology of science recognizes that there really are basic differences in intellectual cultures across the globe, shaped by the unique history, language, institutions, and politics of individual countries or regions. These cultural differences are paramount in determining how most scholars see the world, particularly in the social sciences.

Moreover, once differences like these begin to assert themselves, they tend to be replicated and strongly reinforced through the training and advancement of successive generations of scholars — what one source calls "practices of intellectual reproduction". University departments, in particular, play a crucial gatekeeping role. They decide what courses will be taught, who will fill faculty vacancies, and who will be promoted or granted tenure. Funding sources decide whose research will be supported. Program chairs decide what work will be featured at professional meetings. Journal editors and book publishers decide which scholarship will appear in print. In very tangible ways, all these practices serve to define and perpetuate distinctive schools of thought.

As a first approximation, therefore, it does not seem unreasonable to start with geography to define the principal factions in IPE. That is the approach that I took in my *Intellectual History*, where across the Anglosphere I spotlighted a deep and abiding schism that I called the transatlantic divide. The transatlantic divide, I argued, separates two starkly different conceptions of IPE: an American school and a British school. The line between the two schools, in my view, reflected above all a basic contrast in intellectual cultures — broadly, the way the subject of international studies traditionally has been approached in universities on either side of the Atlantic. On the American side of the "pond," links with political science have always dominated. International studies grew up in an environment framed by the norms of conventional US social science, with a particular emphasis on positivist analysis and training in quantitative methods. Once modern IPE was born, it seemed natural for most American scholars to channel the infant field's development along similar lines. In Britain, by contrast, training in international studies has roots that are spread much more widely into a variety of other disciplines, including especially sociology, history, and law. Direct links with political science have always tended to be weaker, with most universities maintaining a strong institutional separation between IR faculty and others. British academics were already conditioned to think about the international realm in multidisciplinary fashion. Hence it was no surprise that in Britain the new field of IPE might develop in the same open manner.

By extension, geography is the approach that I use in this *Advanced Introduction* as well. The idea is to give students a sense of the remarkably wide range of approaches to IPE that can be found around the globe. Coverage is limited to those parts of the world where a "critical mass" of scholars has managed to come

together to form a distinct research community. Readers may wonder why there is no chapter on Russia or Japan or the Arab world or Africa. Certainly, in many of these places, one or a few individuals may be seen doing work that is recognizably IPE in nature. However, they are not included here because their numbers are simply too small to form a genuinely distinctive discourse coalition. Beyond the Anglosphere, local versions of the field are still mostly at an earlier stage of development. In many countries or regions, the formation of an institutionalized network of scholars has barely even begun. Two readers from South Africa criticized the first edition of this book for leaving southern African scholarship "out in the dark". But even they acknowledge the absence of any sort of collective intellectual program in the region.

I start with the American and British schools, the two sides of the transatlantic divide, since it was in the United States and Britain that the modern field of IPE first began to take shape. These two countries are home to the most established factions of the invisible college, complete with their own professional associations, numerous employment opportunities, and respected publishing venues. After taking due account of competing alternatives to be found elsewhere in the English-speaking world, I will then move on to national and regional traditions in other languages, focusing in particular on the European continent, Latin America, and China. The penultimate chapter will take a look at how the different communities fit together and relate to one another — a sketch of what we may call the geography of IPE. The book will then conclude with a brief discussion of what we have learned from all these diverse efforts.

Limits

Geographic labels have their limits, of course. "Typologies are most useful," the noted scholar John Ravenhill (2008: 26) has reminded us, "when they have minimal within-type variance and maximum between-type variation." The geographic approach that I propose here has been roundly criticized by many (including Ravenhill) for failing to meet these criteria. On the one hand, even within a single country or region, there are bound to be significant differences. Despite all that US scholars share in common, for instance, the American school rarely speaks with one voice. Even within the US-based research community, diverse camps have emerged over time, making for lively debate and a cross-fertilization of ideas. I acknowledged as much in an essay written after my *Intellectual History*, entitled "The multiple traditions of American IPE" (Cohen 2009), and will have more to say about that in the next chapter. No national or regional faction can be expected to be totally without some degree of within-type variance.

On the other hand, even for a single faction, adherence may well be much broader than a single country or region. Certainly there are many outside the United States who proudly identify themselves with the tenets of the American school despite their residence elsewhere. Not surprisingly, that tends to be especially true of scholars who trained in US universities. Conversely, as I wrote in my *Intellectual History*, you do not have to be British to be in the British school; you do not even have to live in Britain. No faction should be assumed to be strictly confined to a single country or region either. Some muddling of between type variation is to be expected too.

Migration, in particular, tends to blur the lines between factions. Academics move around, and when they do

with Hveem's frustration, but as an educator I regard his advice as an abject surrender of responsibility. Students deserve more clarity than that.

Others go to the opposite extreme, producing taxonomies of such density that they make the eyes glaze over. One representative example is offered by Matthew Watson, an accomplished historian of IPE. Starting with a simple two-by-two matrix, Watson ultimately identifies some 19 separate "traditions of thought" intricately connected to one another by one or more degrees of separation in a complex web of relationships. Another noted example is provided by Leonard Seabrooke and Kevin Young who use network analysis and community detection methodologies to distinguish numerous "niches" in IPE's invisible college — as many as 5-7 distinct clusters at any given point in time. One can admire the erudition underlying such approaches yet question their usefulness. The purpose of any typology should be to simplify and clarify, not overwhelm.

Between these extremes yet others have proposed various dichotomies in the field, such as orthodox/heterodox or positivist/critical or rationalist/nonrationalist. Most such dualities can be considered variations of a theme first struck years ago by one of the doyens of the British school, Robert Cox (1981), who distinguished between what he called "problem-solving theory" and "critical theory" in IPE. (More on that later.) Pairings like these provide much insight and certainly maximize between-type variation but still leave us with an enormous amount of within-type variance.

Perhaps the most popular alternative to a geographic approach is a strategy first proposed by Gilpin back in the field's early years. Three schools of thought could be identified, he averred, all drawn from traditional IR theory — liberalism, Marxism, and realism — each offering students of IPE its own distinct "model of the future" (Gilpin 1975). The advantage of the strategy was that for many it facilitated an organic construction of the new field of study on familiar foundations provided by political science. Even now, Gilpin's three "models" — frequently also referred to as paradigms or perspectives — remain a staple of many introductory textbooks, especially in the United States. The biggest disadvantage is that over time, as the field has evolved around the world, diverse alternative perspectives have emerged that do not fit comfortably into any one of Gilpin's three models. Where do we place constructivism, for instance, or the various versions of critical theory? In many textbooks today, one finds as much space allocated to alternatives to the three models as to the models themselves. Gilpin's trichotomy, useful as it was as a starting point in IPE's infancy, simply cannot claim to encompass the full breadth and complexity of the field as it exists today.

For all their limits, therefore, geographic labels still seem to provide the most helpful principle for organizing a comprehensive introduction to today's many versions of IPE. The approach is accessible and easy to follow, yet informative, and does minimal violence to reality. Advanced students deserve to be informed about the full array of perspectives to be found across the globe in this rich field of study. <>

DARKNESS BY DESIGN: THE HIDDEN POWER IN GLOBAL CAPITAL MARKETS by Walter Mattli [Princeton University Press, 9780691180663]

An exposé of fragmented trading platforms, poor governance, and exploitative practices in today's capital markets

Capital markets have undergone a dramatic transformation in the past two decades. Algorithmic high-speed supercomputing has replaced traditional floor trading and human market makers, while centralized exchanges that once ensured fairness and transparency have fragmented into a dizzying array of competing exchanges and trading platforms. [Darkness by Design](#) exposes the unseen perils of market fragmentation and "dark" markets, some of which are deliberately designed to enable the transfer of wealth from the weak to the powerful.

Walter Mattli traces the fall of the traditional exchange model of the NYSE, the world's leading stock market in the twentieth century, showing how it has come to be supplanted by fragmented markets whose governance is frequently set up to allow unscrupulous operators to exploit conflicts of interest at the expense of an

unsuspecting public. Market makers have few obligations, market surveillance is neglected or impossible, enforcement is ineffective, and new technologies are not necessarily used to improve oversight but to offer lucrative preferential market access to select clients in ways that are often hidden. Mattli argues that power politics is central in today's fragmented markets. He sheds critical light on how the redistribution of power and influence has created new winners and losers in capital markets and lays the groundwork for sensible reforms to combat shady trading schemes and reclaim these markets for the long-term benefit of everyone.

Essential reading for anyone with money in the stock market, [Darkness by Design](#) challenges the conventional view of markets and reveals the troubling implications of unchecked market power for the health of the global economy and society as a whole.

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Excerpt: Power Politics and Market Governance

The mysterious death of the world's leading equity market, the old NYSE, is forensically investigated in chapter 2. The key finding is that power politics within the NYSE killed it—a plot by a coterie of powerful insiders who had grown weary of the traditional way of organizing trading, viewed the old model increasingly as contrary to their economic interests, and quietly pushed for a different market structure more aligned with those interests. Technology plays a central role in explaining the rise in power of some NYSE members, but, in the final analysis, it is power politics—not technological change per se—that explains the end of organized market dominance and the advent of a fragmented market reality.

There is a simple logic to the plot. Traditionally, the typical member of NYSE was the small broker partnership. NYSE membership comprised about 600 such partnerships during the first half of the twentieth century. Some member firms handled retail clients, others looked after wholesale customers, still others specialized in market making in specific stocks, thus serving as brokers of (retail and wholesale) brokers, and so on. The picture that emerges from the empirical investigation in chapter 2 is that of a membership teeming with a multitude of relatively small and highly specialized operators. They were essential cogs in a sophisticated market-constituting "machine" and depended for their livelihood on trading operations on the floor. They thus had a strong vested interest in the success and good reputation of their market. Each member had an equal voice on key regulatory and policy matters, and no single member group was dominant or prevailed.

The face of the NYSE membership changed in the second half of the twentieth century as a result of successive waves of mergers and acquisitions triggered by the computer revolution and changes in membership rules that allowed public companies, notably highly capitalized banks, to become members. The long-standing balance of power within the membership disappeared. In its place emerged a hierarchy of economic power, with a few giant broker-dealers at the top, including Merrill Lynch, Goldman Sachs, Morgan Stanley, JP Morgan, UBS, Credit Suisse, Barclays, and Deutsche Bank. Their big size made them latent markets; that is, they had such an enormous client base that they could profitably match client orders in-house, rather than routing the orders to NYSE and paying a fee for trade execution. Only unmatched orders would be sent to the Exchange. They could further profit by setting up proprietary trading desks and trading against client orders.

Big size was a source of power because it reduced dependence on the Exchange, even while the Exchange remained heavily dependent on big members for liquidity. The larger the members, the greater the potential gains and savings from running in-house markets and the stronger these members' incentive to push for a breakup of the old system. A democratic form of market governance, where a numeric majority of small members had an operational voice and voting rules failed to reflect economic importance, was of no interest to them. It held them back in their desire and ambition to freely expand their business. In the early 2000s, they decisively moved against the old NYSE. Death came swiftly and ushered in an era of market fragmentation.

This plot travels well beyond the NYSE. Most formerly dominant market organizations, including the London Stock Exchange and leading commodity exchanges in the world, share many of the key organizational features of NYSE, and they underwent similar transformations. So why should we be concerned about such change in market structure?

Market transformations matter because they shape the incentives of market organizations to invest in either good or bad governance. As noted above, good market governance is about managing conflicts of interest for the long-term benefit of all in society. Well-governed market organizations perform several socially beneficial functions. They create standardized financial instruments (like stocks and bonds), facilitate trading among strangers, transfer ownership as well as risk, and, perhaps most importantly, provide "price discovery"—that is, they produce price information that accurately reflects the true value of a security or its underlying asset. Accurate price information is a public good. "[It] help[s] ... to allocate the economy's scarce capital to the most promising potential real investment projects and ... improv[es] ... the utilization of the economy's existing

productive capacity through optimizing the signals provided to management about investment decisions and the signals given to boards and shareholders about the quality of management decisions." Good governance reduces the likelihood of opportunistic market manipulations that distort the production of accurate price information.

Good market governance is expensive, however, necessitating extensive investments in developing stringent private rules, robust surveillance, and strict enforcement. A dominant exchange, I argue, is likely to have an incentive to make these investments. This is because dominance means public visibility, which, in turn, entails particular reputational vulnerabilities. Fraudulent trading by one exchange member risks damaging the reputation of the entire exchange. And because the potential wealth gained by one member acting opportunistically is generally more than offset by the wealth lost by the many other exchange members as a result of the reputational damage inflicted by the one, a dominant exchange has a particularly strong incentive to invest in robust governance safeguards.

Reputational sensitivity is compounded by the fact that dominance may attract blame even in the absence of fault or culpability.

A dominant or focal exchange is all too easy a scapegoat for anything that may go wrong in the wider financial market. The chief economist of the NYSE recognized this problem in the early 1920s, lamenting that "rumors ... never start on the floor of the Exchange but outside it; [but] since their effects are principally felt in the stock market, the opposite is commonly supposed. The tense and imaginative atmosphere of Wall Street is peculiarly liable to magnify trifles into bonanzas or catastrophes—but we must remember that the Stock Exchange and Wall Street are not synonymous."

Evidence of high levels of investment in governance in centralized markets is abundant (and assessed more systematically in chapter 3). The LSE, for example, early on had an unusually stringent admissions policy to protect its reputation. Members had to reapply annually for admission, giving the Exchange "regular opportunity to refuse re-entry to those considered unsatisfactory.... This was in addition to the ability to expel for specific misdeeds or to reject unsuitable new applicants." On the trading floor, deals were made based on honor and the word of Exchange members. "Reputations [were] ... more important ... than ironbound contracts complete with sinuous codicils." Reneging on a deal with another member resulted in immediate expulsion, not only from the Exchange but from the social life of the city.

A well-governed exchange, however, faces a serious challenge—a so-called free rider problem. A free rider is an actor who is able to benefit from the provision of a public good by another actor without having to incur the cost of creating, providing, or maintaining it. In this case, rival exchanges or off-exchange trading venues may take price information from the well-governed exchange to undermine it. Because they do not incur the considerable expense of creating and maintaining a price discovery mechanism, these rivals can charge lower commissions or offer better prices. In the nineteenth century the dominant NYSE competed for business with many local exchange providers. Some of these rivals were ingenious free riders. For example, in the 1830s the members of the New Board rented a room in a building "next to the ... room [occupied by the NYSE], and dug the bricks out of the wall in order that they might see and hear what was going on." Another example is provided in the July 1857 issue of *Hunt's Merchants' Magazine*: "Curbstone brokers have leased a large room directly under that occupied by the [NYSE].... Any transaction [on the NYSE] is known below as soon as made." "Curbstone brokers are infinitely better than many of the [NYSE deals], and are taken more readily by outsiders"

How, then, did dominant exchanges survive in a context of free riding by rivals? The key here is economies of scale that derive from dominance and, in effect, represent a "subsidiy" essential to the maintenance of good market governance.

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become dispensable for trading venues. Institutional investors are second-class citizens in this new market order. Long-standing commitments of traditional exchanges to fairness, equality, and transparency are sacrificed to efforts to curry favor with the powerful. The result is the emergence of bad market governance—a system designed to milk conflicts of interest for the benefit of the powerful at the expense of the investing public.

The evidence for this stark claim is examined in great detail in chapter 5. Although it is empirically challenging to quantify the harm being done to investors, the findings are troubling. They reveal an extraordinary and unprecedented catalog of governance failings by market providers since the onset of fragmentation in the second half of the 2000s: secretive discriminatory operations; undisclosed business practices inconsistent with exchange rules or securities law; ineffective oversight and accountability mechanisms; deliberate strategies to keep regulators and investors in the dark through various forms of deception, including lying, concealing, and spinning; failure to take corrective action even when told to do so by the regulators; and inadequate testing protocols and monitoring procedures to ensure that the operational systems comply with rules and regulations. The cloak-and-dagger and systematic nature of many of the shenanigans quietly facilitated by market providers, and the utter disregard of the architects of such shenanigans for the adverse consequences for investors and for society more generally, are deeply disturbing.

These governance failings are the inevitable by-product of determined and relentless efforts by competing trading venues to win over the business of high-speed liquidity providers. Trading venues today offer a wide range of special services favoring high-speed traders—at the expense of investors. One such proprietary service is labeled "enriched private data feeds." These feeds contain an astonishing amount of trading information that exchanges collect each time a client places an order, including order execution details, modifications, and cancellations. Although access to enriched data feeds is nondiscriminatory in principle, only relatively few market participants possess the costly hardware and software to standardize raw data feeds and decrypt millions of messages in milliseconds. Millions of investors have no idea that such trading data is being collected and sold to high-speed traders.

A companion service, "colocation," involves placing a high-speed trader's computer server or black box next to the exchange's trade-matching engine in the data center of the exchange, thus reducing the order and information travel time between server and matching engine.

Private data feeds and colocation enable high-speed liquidity providers to anticipate investor order flow, infer short-term price movements of stocks, and trade ahead of other market participants. Individual or institutional investors do not typically possess the resources to pay for these special services or invest in the telecommunications and computer systems needed to support and benefit from them. The high cost of these services crowds out most investors. As a result, investors run the risk of paying more for stocks they buy or receiving less for stocks they sell.

So-called special order types (SOTs) are another service on offer. SOTs are complex buy and sell orders that define how an order is placed in a market, how it is displayed, and how it interacts with other orders. Certain opaque SOTs allow orders of powerful clients to remain hidden and jump the queue to be first in line of execution when the clients wish to enter a trade. This discriminatory treatment of order handling imposes significant costs on investors. Exchanges have produced hundreds of SOTs in the rat race to attract liquidity from high-speed traders.

A third prominent service is the provision pools were initially designed to enable big institutional investors to place large "block" orders without tipping the market to their intentions, which could trigger adverse price changes. In a lit market, the risk of displaying a large sell order, for example, is that buyers may pull their orders out of the market in the hope of soon buying at lower prices, thereby depressing the price for the seller. Dark pools provided a solution by simply matching large buy and sell orders. In a fragmented market system, however, many dark pools became vehicles of market abuse. By adding a layer of darkness to the invisibility of

ultrafast trading, these pools created a practically foolproof environment for opportunistic trading. As will be detailed in chapter 5, the abuse in dark pools has been truly shocking.

This evidence may represent only the tip of the iceberg of market shenanigans. Firms are exploiting conflicts of interest under cover of darkness, so to speak, to the detriment of investors. For regulators and academics alike, governance failings and market manipulation are hard to spot and investigate in today's highly fragmented and complex markets where tens of billions of trades are executed daily at the speed of micro- or even nanoseconds. No watchdog possesses adequate surveillance tools or data analytical capabilities to be able to systematically monitor these markets and deter market abuse.

The book concludes with a few reflections on how to reengineer good market governance in today's capital markets—that is, how to bring back healthy markets that ensure fairness, orderliness, and efficiency. My main propositions may surprise the reader. Failings in market governance are rarely fixed by governmental intervention. It is a considerable challenge for governmental rules to keep apace with changing technology and resulting new market practices. Governments can provide the basic parameters of fair play, most importantly through disclosure regulation or legislation, but market failures are most effectively resolved through market intervention. Here governments can play an important role in enabling certain market players to contribute to market solutions, by nudging or incentivizing them in the right direction. Specifically, a transformation from a heavily fragmented market toward consolidation or centralization will bring about a simpler and more transparent marketplace. The existence of a dominant market organization exposed to relentless sunlight and persistent competition from ambitious newcomers or free riders will generate better market governance. <>

ECONOMICS IN TWO LESSONS: WHY MARKETS WORK SO WELL, AND WHY THEY CAN FAIL SO BADLY by John Quiggin
[Princeton University Press, 9780691154947]

A masterful introduction to the key ideas behind the successes—and failures—of free-market economics

Since 1946, Henry Hazlitt's bestselling [Economics in One Lesson](#) has popularized the belief that economics can be boiled down to one simple lesson: market prices represent the true cost of everything. But one-lesson economics tells only half the story. It can explain why markets often work so well, but it can't explain why they often fail so badly—or what we should do when they stumble. As Nobel Prize-winning economist Paul Samuelson quipped, "When someone preaches 'Economics in one lesson,' I advise: Go back for the second lesson." In [Economics in Two Lessons](#), John Quiggin teaches both lessons, offering a masterful introduction to the key ideas behind the successes—and failures—of free markets.

[Economics in Two Lessons](#) explains why market prices often fail to reflect the full cost of our choices to society as a whole. For example, every time we drive a car, fly in a plane, or flick a light switch, we contribute to global warming. But, in the absence of a price on carbon emissions, the costs of our actions are borne by everyone else. In such cases, government action is needed to achieve better outcomes.

Two-lesson economics means giving up the dogmatism of laissez-faire as well as the reflexive assumption that any economic problem can be solved by government action, since the right answer often involves a mixture of market forces and government policy. But the payoff is huge: understanding how markets actually work—and what to do when they don't.

Brilliantly accessible, [Economics in Two Lessons](#) unlocks the essential issues at the heart of any economic question.

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Excerpt:

Moral: To understand economics you need to know not only fundamentals but also its nuances. Darwin is in the nuances.

When someone preaches "Economics in One Lesson," I advise: Go back for the second lesson.

—Paul Samuelson, *An Enjoyable Life Puzzling Over Modern Finance Theory*, *Annual Review of Financial Economics*, Vol. 1, p. 30

As the name implies, this book is, or at least began as, a response to Henry Hazlitt's *Economics in One Lesson*, a defense of freemarket economics first published in 1946. But why respond to a seventy-year-old book when new books on economics are published every day? Why two lessons instead of one? And where does opportunity cost fit into all of this?

The first question was one that naturally occurred to me when Seth Ditchik, my publisher at Princeton University Press, suggested this project. It turns out that *Economics in One Lesson* has been in print continuously since its first publication and has now sold more than a million copies. Hazlitt's admirers have embraced the message that all economic problems have a simple answer, and one that matches their own preconceptions. Adapting Hazlitt's title, this simple answer may be described as *One Lesson economics*.

Broadly speaking, Hazlitt's simple answer is "leave markets alone, and all will be well." This may be summed up, in the pithy expression of eighteenth-century French writer and free trade advocate, René de Voyer, Marquis d'Argenson, as *laissez-faire* (let [business] do it).

Hazlitt, as he makes clear, was simply reworking the classic defense of free markets by the French writer Frédéric Bastiat, whose 1850 pamphlets "The Law" and "What Is Seen and What Is Unseen" form the basis of much of *Economics in One Lesson*. However, Hazlitt extends Bastiat by including a critique of the Keynesian economic model, which was developed in response to the Great Depression of the 1930s.

Both where he was right and where he was wrong, Hazlitt's *One Lesson* is relevant today, and has not been improved on by today's advocates of the free market, who may fairly be referred to as *One Lesson economists*. Indeed, precisely because he was writing at a time when support for *One Lesson economics* was at a particularly low ebb, Hazlitt gave a simpler and sharper presentation of the case than many of his successors.

Hazlitt presented One Lesson economics in clear and simple terms that have not been sharpened by any subsequent writer. And, despite impressive advances in mathematical sophistication and the advent of powerful computer models, the basic questions in economics have not changed much since Hazlitt wrote, nor have the key debates been resolved. So, he may be read just if he were writing today.

Hazlitt worked in the tradition of "microeconomics," that is, the study of the way prices work in particular markets. The central question, which will be the main focus of this book, is whether the prices of goods and services reflect, and determine, all the costs involved for a society in providing those goods and services, summed up in the concept of "opportunity cost."

The opportunity cost of anything of value is what you must give up so that you can have it.

Opportunity cost is critical both in individual decisions and for society as a whole.

Reading Hazlitt, the centrality of opportunity cost isn't immediately evident. Hazlitt states his One Lesson as:

The art of economics consists in looking not merely at the immediate but at the longer effects of any act or policy; it consists in tracing the consequences of that policy not merely for one group but for all groups.

This isn't particularly helpful: it seems to say only that economists should do a thorough job. But, on reading Economics in One Lesson it becomes clear that Hazlitt, as an anti-government activist, wants to make a much stronger claim. When economics is done properly, Hazlitt argues, the answer is always to leave the market alone. So, the One Lesson may be restated as:

Once all the consequences of any act or policy are taken into account, the opportunity costs of government action to change economic outcomes always exceed the benefits.

The simplicity of Hazlitt's argument is his great strength. By tying many complex issues to a single principle, Hazlitt is able to ignore secondary details and go straight to the heart of the case against government action. His answer in every case flows from his "One Lesson."

Hazlitt's claim to teach Economics in One Lesson is similar in its appeal to other best sellers like The Secret and The Rules. He provides a simple answer to problems that have puzzled humanity since the dawn of civilization. As with these other best sellers, Hazlitt is offering a delusion of certainty. His One Lesson contains important truths about the power of markets, but he ignores equally important truths about the limitations of the market.

So, we need Economics in Two Lessons.

Two lessons are harder than one. And thinking in terms of two lessons comes at a cost: we can sustain neither the dogmatic certainty of One Lesson economics nor the reflexive assumption that any economic problem can be solved by government action. In many cases, the right answer will remain elusive, involving a complex mixture of market forces and government policy. Nevertheless, the two lessons presented here provide a framework within which almost any problem in economic policy can usefully be considered.

One Lesson economics, of the kind propounded by Bastiat, had come under severe criticism from leading economists by the time Hazlitt rose to its defense. Decades before Hazlitt, economists such as Alfred Marshall and A. C. Pigou had developed the concept of "externalities," that is, situations in which market prices don't fully reflect all the relevant opportunity costs. The classic example is that of air or water pollution generated by a factory. In the absence of specific government policies, the costs of pollution aren't borne by the owner of the factory or reflected in the prices of the goods the factory produces. To understand the problem, we need to go beyond individual opportunity costs and consider costs for society as a whole. We must modify the original definition (changes in capitals):

The SOCIAL opportunity cost of anything of value is what you AND OTHERS must give up so that you can have it.

Externalities are just one example of a large class of problems referred to by economists as "market failures." In all these cases, prices differ from social opportunity costs. In some cases, but not all, the problems may be remedied by appropriately designed government policies. A typical intermediate course on microeconomic policy begins with a catalog of market failures and goes on to examine arguments about the desirability or otherwise of possible policy responses.

When I began writing this book, I envisaged it as a nontechnical guide to microeconomic policy, based on the concepts of opportunity costs and market failure. As I worked on the book, though, I felt dissatisfied.

Externalities and related market failures are big issues; the problem of climate change has been aptly described by Sir Nicholas Stern as "the biggest market failure in history." But at a time of chronic economic recession or depression in much of the developed world, and of rapidly growing economic inequality, a book on market failure alone could scarcely justify the title *Economics in Two Lessons*.

I started to think more about the problem of unemployment and how it is treated in Hazlitt's work. Much of *Economics in One Lesson* can be read as an attack on the work of John Maynard Keynes, the great English economist, whose *General Theory of Employment, Interest and Money* was published in 1936 and gave rise to the entire field of macroeconomics (the study of disturbances affecting aggregate levels of employment, interest rates, and prices).

Experience shows that the economy frequently remains in a depression or recession state for years on end. Keynes was the first economist to present a convincing account of how a market economy could operate for long periods at high levels of unemployment. By contrast, despite the then-recent experience of the Great Depression, Hazlitt implicitly assumed that the economy is always at full employment—or would be if not for government and trade union interference.

As I worked on the problem, I reached the conclusion that the central issue could be stated in terms of opportunity cost. In a recession or depression, markets, and particularly labor markets, don't properly match supply and demand. This means that prices, and particularly wages, do not, in general, reflect or determine opportunity costs.

That insight doesn't tell us what, if anything, governments can do to restore and maintain full employment. But it does lead us to a crucial observation, ignored not only by Hazlitt but by the majority of mainstream economists today. It is normally assumed that, in the absence of obvious market failures in some particular part of the economy, Hazlitt's *One Lesson* is applicable. But a recession or depression affects the economy as a whole. Under conditions of recession, opportunity costs will not, in general, be equal to market prices in any sector of the economy.

The other crucial issue of the day is the distribution of income and wealth, which is becoming steadily more unequal. Although he does not say so explicitly, Hazlitt implies that the existing market distribution of income (or rather, the one that would emerge after the policies he dislikes are scrapped) is the only one that is consistent with his *One Lesson*.

The market outcome depends on the system of property rights from which it is derived. In fact (as we will see later), when markets work in the way Hazlitt assumes, any distribution of goods and resources where prices equal opportunity costs can be derived from some system of property rights. So, Hazlitt's *One Lesson* tells us nothing useful about the distribution of income or about government policies that may change that distribution.

While markets are exceptionally powerful social institutions, they cannot work unless governments establish the necessary framework in which they can operate. The core of the economic framework in a market economy, and a central role of government, is the allocation and legal enforcement of property rights. The choices that

determine property rights are subject to the logic of opportunity costs just as much as the choices made within a market setting by firms and households.

Between them, microeconomics, macroeconomics, and income distribution cover all the critical issues in economic policy. To master any one of these fields requires years of study. In microeconomics, for example, it is necessary to deal with the theory of supply and demand, first by manipulating the graphical representations given in a typical Economics 101 course, and then with more complex algebraic and numerical techniques.

But this level of analysis is required only for specialists who need, for example, to give quantitative answers to questions like "How much will a change in tariffs on steel imports affect employment in the automobile industry?" For most of us, it's sufficient to understand that protecting the steel industry will have an opportunity cost, and that part of that cost will be the loss of jobs in the automobile industry.

Most of the questions of principle involved in public policy can be illuminated by a careful application of the idea of opportunity cost and its relationship to market prices. For this purpose, as I argued above, we need only two lessons.

Lesson One: Market prices reflect and determine opportunity costs faced by consumers and producers.

Lesson One describes the way markets work and explains why, under certain ideal circumstances, Hazlitt's One Lesson economics provides the right answer. Lesson Two is the product of more than two centuries of study of the way markets work under circumstances that are less than ideal and why they may not deliver the desired results:

Lesson Two: Market prices don't reflect all the opportunity costs we face as a society.

The problem of how markets work and why they fail is at the core of most of the economic policy issues that drive political and social debate. I hope this book, and the two lessons it contains, will help to clarify these issues.

Outline of the Book

The book is divided into four parts, two for each lesson.

Lesson One, Part I, shows how a market economy functions under conditions that ensure that prices are equal to the opportunity costs faced by producers and consumers.

Lesson One, Part II, is a series of applications of Lesson One. We will consider how policies based on the concepts of prices and opportunity costs can be used to achieve the goals of public policy.

Lesson Two, Part I, shows that market prices may not reflect the opportunity costs faced by society as a whole. In fact, any market equilibrium is the product of social choices about the allocation of property rights. Market prices tell us nothing about the opportunity costs associated with those choices.

Equally important, not all opportunity costs associated with consumer and producer choices are reflected in the opportunity costs they face. There are many different ways in which market prices can fail to reflect opportunity costs. These "market failure" problems include unemployment, monopoly, environmental pollution, and inadequate provision of public goods. Lesson Two will help to show how these disparate problems can all be understood in terms of opportunity costs.

Lesson Two, Part II, contains applications to a wide range of policy problems. First, we will consider the problem of income distribution. We will show that, more often than not, the best way to help poor people, at home and abroad, is to give them money to spend as they see fit, rather than tying assistance to particular goods and services. In other words, it is better to fix the inequitable allocation of property rights in the first place than to fix the resulting market outcome. Next we will consider how macroeconomic problems, the most important of which is mass unemployment, may be addressed using fiscal and monetary policy. Finally, we will examine a range of public policies more conventionally associated with the idea of market failure.

In an effort to make the book more readable, but still adhere to academic standards of referencing, I've dispensed with the standard, but cumbersome, apparatus of endnotes. Instead, I've included a short section at the end of each chapter, giving sources for factual claims and suggestions for further reading, which may be followed up using the bibliography at the end of the book. I've used footnotes sparingly, to cover peripheral issues and for occasional asides.

For every complex problem there is an answer that is clear, simple, and wrong.
—Attributed to H. L. Mencken

It is difficult to get a man to understand something, when his salary depends on his not understanding it.
—Upton Sinclair, in *I, Candidate for Governor: And How I Got Licked*

Two lessons are harder than one. The appeal of One Lesson economics may be explained in part by the human desire for simple and plausible solutions to complex problems. The appeal of such simple solutions is enhanced, in many respects, when they appear to provide a deeper insight than that possessed by the uninitiated. Many students of economics are so struck by the power of the price mechanism, illustrated in Lesson One, that they never go any further. When they encounter problems such as externalities, unemployment, and the distribution of property rights, they wave them away with superficially plausible but ultimately untenable talking points.

Equally human, though less defensible, is the tendency to ignore facts that threaten your income and social position. For those who benefit from the unfettered growth of industrial production, pollution and climate change externalities represent, in the words of Al Gore, an inconvenient truth. Similarly, defenders of a market economy, like Hazlitt, don't want to admit that mass unemployment is a possibility, unless it can be attributed to the bad actions of governments and unions. Most obviously, those who benefit from the existing structure of property rights never want to admit that these rights were created, and are maintained, by the actions of governments.

The dogmatic certitudes of One Lesson economics will always have plenty of appeal, especially to those who stand to benefit from its prescriptions. But faced with problems like unemployment, growing inequality, and climate change, One Lesson economics has nothing useful to say. To understand how markets work, we must also understand how they can fail, and what can be done about it. In this book, I have tried to show how Economics in Two Lessons can provide the understanding we need. <>

DOMESTIC DEVOTIONS IN THE EARLY MODERN WORLD edited by Marco Faini and Alessia Meneghin [Intersections, Brill, 9789004375888]

This volume sets out to explore the world of domestic devotions and is premised on the assumption that the home was a central space of religious practice and experience throughout the early modern world. The contributions to this book, which deal with themes dating from the fifteenth to the eighteenth century, tell of the intimate relationship between humans and the sacred within the walls of the home. The volume demonstrates that the home cannot be studied in isolation: the sixteen essays, that encompass religious history, the histories of art and architecture, material culture, literary history, and social and cultural history, instead point individually and collectively to the porosity of the home and its connectedness with other institutions and broader communities.

Contributors are Dotan Arad, Kathleen Ashley, Martin Christ, Hildegard Diemberger, Marco Faini, Suzanna Ivanič, Debra Kaplan, Marion H. Katz, Soyeon Kim, Hester Lees-Jeffries, Borja Franco Llopis, Alessia Meneghin, Francisco J. Moreno Díaz del Campo, Cristina Osswald, Kathleen M. Ryor, Igor Sosa Mayor, Hanneke van Asperen, Torsten Wollina, and Jungyoon Yang.

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Excerpt: In recent decades, a wealth of publications has examined the role of religion in early modern society, culture and politics. This includes pioneering work on the importance of lay piety to civic identity in the Renaissance period. Many more studies have focused on the upheavals associated with the Protestant and Catholic Reformations, and in the last thirty years historians of Protestant Europe have expanded their focus to include the family and the home within studies of religious change.

However, the focus on the intimate and meditative nature of Lutheranism, Calvinism and Anglicanism, has tended to distract historians from gaining a proper understanding of those cultural formations that were simultaneously also present in Catholic homes. The same historiographical tradition, emerging from Reformation studies, has been even slower to forge comparisons with regions outside Europe and faiths beyond Christianity. Given the vast array of religious beliefs and practices throughout the early modern world and bearing in mind their distinct patterns of historical evolution, it is evident that a one-size-fits-all model of comparison will not serve to explain what domestic – or private – piety is. We are equally conscious that the use of a European periodization in a global perspective is not unproblematic. However, we are emboldened by the fact that

historians of East Asia have recognized the value of adopting terms and appropriating concepts from the western historiographical tradition. For example, Craig Clunas has experimented with the idea of a Burckhardian Renaissance in relation to Ming China, while Kai-Wing Chow argues forcibly for the relevance of 'early modern' in his study of print culture in China.

This volume examines domestic devotions from a global perspective from 1400 to 1800, focusing on a range of faiths and places around the world. We think that a global outlook on religion is made necessary by recent discussions of the very idea of religion (what makes religion a universal category? How has monotheism – especially Christian monotheism – affected our ideas of what devotion is?). The anthropologist Ugo Fabietti has recently explored what he calls the 'materiality of religions'. His analysis investigates the common functions of objects, images, bodies and substances across faiths.

Analogously, Alexei Lidov has reflected on sacred space, what he defines hierotopy, that is, the set of conditions that make possible contact with the transcendent (or what he defines, in Mircea Eliade's term, 'hierophany'). What are the conditions that make this contact possible within the household? Why do we feel the need to differentiate between domestic devotions and public performances of devotional practices? This volume addresses these fundamental questions from an ambitious transcultural perspective, moving away from a merely European dimension. We have chosen to embrace a global view which is intrinsically more inclusive from an intellectual point of view, while also allowing us to address a much wider range of questions in many fields of knowledge. It is an obvious intention and purpose of this volume to carry out a serious examination of those perspectives that attempt to penetrate the concept of 'religious devotion' in a 'domestic' setting within global history. Our sense of global history implies that we are interested in understanding human actions and reactions, rituals and behaviours in the religious devotional realm in the medium and long term. The presence and development of 'domesticated' rituals (i.e. practised in the tranquillity of one's home, to be understood here as the place where one lived, as we will see) that can be referred to under the name of 'devotions' within human communities across the world is the main subject of our inquiry. Global history, as a reality and not just a historiographical category, is something that implies recognizing universal human traits even in the practices of religion and ritual, at least at some levels, while, however, simultaneously negotiating and maintaining identities and social relationships at an individual and a collective level, thus ensuring the continuation of human and cultural diversity.

One of the advantages of a global perspective is that events, habits or phenomena that were once thought to be unique to a given area, and therefore disconnected from each other, turn out to be not just 'local' matters. Rather, they are, at least to an extent, a product of people and regions that are part of larger networks. In other words, 'things' occur locally, but are not determined necessarily or solely as a result of local influences or factors. On the other hand, local changes can effectively alter the nature of wider networks. In order to develop an improved appreciation for how religions have been connected in the past, we need to be able to better evaluate intensified connections among them in the light of devotional rituals forever present in human contexts, such as the necessity to advocate for the sacred. On the other hand, things are naturally more complicated and require a stronger theoretical effort than simply developing local histories and putting them in connection/ comparison with other local histories taking place somewhere else in the world. How should we proceed then? What and where should we emphasize? Are there recurring problems/processes/rituals/habits that permit generalization? Or is everything that has happened in a given place unlike anything that has happened elsewhere? It can be argued that there are deeply embedded patterns in the way humans approach the sacred, but at the same time one cannot deny the existence of mentalities and habits that present even greater differences than those that we can analyse here. From our point of view therefore, it is not crucial to argue that there is a strict separation between the European and extra-European modes and ways of religious and devotional activities, both analytically and historically, but rather that they inform one another theoretically and empirically. In this sense, the search for patterns or patterned processes of typical individual religious experiences of devotion in global history is part of the intellectual preparation needed for better

understanding a 'global history of devotion'. This should be considered a set of processes not necessarily or not entirely separated from each other, although of course different one from another. The essays contained in this book illustrate instances of 'global histories of devotion' in the past: the study of these histories casts further light upon processes of cultural and religious parallelism, for they bear similarities that legitimately call for comparison. For these reasons, as we shall see below, we have chosen to combine a comparative and a connective approach.

Naturally, putting together experiences and narratives that are so different from each other raises a few questions. What are our aims or intentions in trying to link these disparate facts and circumstances closely together? For whom or for what is this type of research intended? Different authors dealing with different subjects in different areas and time periods take, obviously, different methodological and intellectual positions on these issues. One may argue that we seek to establish positive knowledge about facts, structures and outcomes of these case studies. In fact, this book is a sort of 'mapping exercise' through which a cumulative body of knowledge can be established. In this sense, a positive knowledge about the past is in itself valuable, as it is the attempt to comprehend the spiritual needs of people of the past, and how these needs intersected to shape people's daily devotions in areas as distant as those portrayed by the essays of this volume. The purpose of *Domestic Devotions in the Early Modern World*, therefore, is to illustrate the diverse and heterogeneous ways of practising one's devotion and to demonstrate how different methodological and intellectual approaches, if used in accordance with historical analysis, can help to reinterpret the past.

Important to our approach is the definition of religion in the way Richard Trexler imagined it, namely a 'system of reverential behaviour' rather than a community of beliefs as it has come to be understood in the post-Reformation world. To make his case, Trexler had to define the word 'ritual'; he defined it as verbal and bodily actions that become relatively fixed in the contexts of specific spaces and times. Can the practice of religious devotion be regarded as also being a ritual? Yes, to a certain extent, as it too followed a pre-ordained path. Not always, however, would religious behaviour follow a rational path, nor a predictable one. The power of religious images, the gestures of piety, the spiritual cravings of the weak and displaced, and the rituals that embraced these manifestations of religion, all shaped the intimate, spiritual experience of the devotee. The individual and intimate emotions generated by these rituals cannot, as a consequence, be foreseen; they are often upheld by impulsive, or even volatile spiritual moods that are not subjected to social rule. Furthermore, what mattered the most to the people practising their devotions was not the religion of intellectuals, of theologians, and of the prelates of the Church or formalized institutions, but everyday religion, the miracle-working images, the street processions: no matter how governments and churches try to control them, populations will create their own religious reality in the public life of the streets and, all the more, in the intimacy of their homes.

It becomes clear that to write about rituals and people, and rituals and devotion implies therefore a certain confidence in telling stories. But if we write about religious experiences and devotions in the past – that we know were rather unprompted and unconstrained – we ought to consider the natural and free domestic environment within which these devotions would take place. Therefore, we cannot avoid addressing issues such as the 'home' (what do we call 'home' in a time span of more than 400 years and in a global context?), 'household' (is 'household' to be considered as synonym for 'home' or rather, for 'family'?), 'identity', and even the social space and social roles (within the urban context) where an individual's identity was usually fully explored and put into practice. If the place of every individual in society is shaped by the presence of these crucial factors combined together, and if these factors influence and ultimately shape the interaction of the individual with all socially expressed rituals, such as those performed in religious devotion, then, in the light of this narrative, we should seek to understand them better.

First of all, is the concept of 'domestic' something that can find its exhaustive explanation in the debate of 'private' versus 'public'? Did there exist a clearly defined and definable space that can be called 'private', in which intimate activities such as praying, or meditating, were to take place? If we look back to the medieval

city, we realize that religion was in tune with the urban architecture and the urban layout: everything had to serve God, even civic architecture. Still in the fifteenth century cities testified to this pursuit of urban and 'religious' harmony through a design in which the collective spaces that hosted the ceremonies and festivities each year, through the exposure of sacred images for instance, contributed to renewing the collective representation of the city itself. The medieval city thus appeared as a place where individuals were not 'self-sufficient', but rather sort of captives of a specific social role. In this context privacy much depended on one's social status: the higher this was the more likely one was to enjoy some intimacy. This – in a society like that of the medieval city, made up predominantly of masses of poor and lower status people, and where it was the Church who exerted a strong control over public life – explains why collective spaces were prevalent, outside, as well as within houses. Conversely, the space of the Renaissance city was the product of a territoriality based primarily on concepts of reciprocity and redistribution, a world in which the market, civil life, and even religious sentiments and rituals were often subordinated to the political order, which exerted a strong influence over citizens but let them, to an extent, reappropriate their individual experiences and spaces.

If one turns one's eyes further afield and to a later time period, to extra-European cities, for instance those in South America, one can see how until the end of the eighteenth century, with the founding of hundreds of these new cities, processes of evangelization were in act through the construction of ideal urban models based once again on religious order, where little was left as private: most of the city's spaces were in fact conceived as public. The city of the New World was thus, in essence, replicating a town which was halfway between a medieval and a Renaissance town where public space was always characterized by the presence of an imposing church (or cathedral); where social life and religious practices were largely carried out in missionary churches and 'colonial' houses, but dominated by public spaces, which were closed areas but opened on large patios, onto which the houses faced. In this context privacy was rarely achievable. It must not be forgotten that colonization meant primarily evangelization: attempts to build the ideal city were governed by the idea that the staunchest Catholic values must be represented. To effect these social programs, the authorities often employed the help of the Society of Jesus. From the end of the sixteenth century – in the forefront of the Counter-Reformation program – the Jesuits had the task of evangelizing the Spanish overseas territories (especially Mexico and Central and South America), but missions were also active in Japan, China, and the East Indies.

If we turn to the Middle East and try to understand what lies behind the concept of 'privacy' there, we realize that there was a higher and stricter degree of division (and certainly less porosity) between environments considered 'private' and those deemed 'public'. Considerations of high respect for the privacy of subjects had their roots deep in the past, and with the advent of the Ottomans to power, the relationship between ruler and subjects was not altered: in this, Ottoman law differed radically from contemporary European law, which was more invasive with regard to privacy. A general division between public and private was commonly held and understood, also on the basis of socioeconomic factors, familial and intrafamilial relationships, residential and social status, life experiences and so on; all these factors came together to shape the way privacy was conceived in people's minds. For example, subjects knew that as long as they kept to their private area they were protected from the intervention of state agents even if they committed crimes (in fact, if a crime was committed, it was the neighbourhood who was invested with the task of handing the culprit to the Ottoman agents, not the latter, who could not enter the culprit's home). In fact, Ottoman authorities were expected to operate only and exclusively in a public context. Did the existence of these safely and carefully guarded havens, private spaces undisturbed by the authorities, also favour private devotions? Were the latter domestically expressed and carried out possibly more freely than elsewhere? Did this particular context of spatial arrangements effect, in quantity and quality, a substantial difference from those devotional rituals emerging in contemporary European and South American cities?

Finally, if we turn our attention to East Asia, things yet again were different. The emergence of a private sphere in a relatively late period – compared to the Middle Eastern and European contexts (sixteenth–nineteenth

centuries) – is still a debated subject. Recently, a group of East Asian historians have begun to postulate the possibility that the arguments offered by Jürgen Habermas (who introduced the idea of the emergence of a ‘public sphere’ in Europe only in the eighteenth century) are undoubtedly also applicable to non-European contexts. Historians of old Korea maintain, for example, that before the early modern period (expressed on a European-centred periodization) Korea was a country characterized by a predominantly agricultural economy, inhabited by a society divided between peasants and aristocrats, where religious identity was dominant: here concepts such as ‘privacy’ and individuality were practically non-existent. Although the concept which Habermas expressed in *The Structural Transformation of the Public Sphere*, involving a clear distinction between public and private, has been heavily criticized by some prominent scholars, such as Dena Goodman and especially Katherine Lynch (who argued that in the late medieval and early modern age, there were no strictly distinct public and private areas, but that they were correlated and almost inseparable), Habermas’s postulates have been adopted by a number of critics. These have followed in his steps in formulating the hypothesis of the emergence of a public sphere in China, pre-modern and Tokugawa Japan (1600–1868), and Chosŏn Korea (1506–1800), roughly during the same period in which it emerged in Europe, arguing, at the same time, for the idea of a parallel existence of a private sphere, notable, for example, in the secondary and tertiary teaching institutions called ‘Academies’.

From this brief account of a worldwide distinction between private and public areas, it emerges clearly that the understanding of what we refer to as public and private may vary according to historical periods and places, and that what was commonly regarded as a private or semiprivate area in one given place might not have been considered as such in another one in a different time. It is also apparent that if these differences were not so important in the transition from the medieval to the Renaissance city in a European context, this was not the case with the advent of radical changes in the formation of the bourgeois city in the eighteenth and nineteenth centuries. Here, the representations, forms, functions and use of public spaces, and therefore, likewise of private spaces, also changed on account of profound alterations in the processes of accumulation, exchange and consumption of goods necessary to material life. Even more important to our consideration, therefore, becomes the distinction between public and private within a global dimension: in fact, this issue is crucial to our point of view, since public and private spaces, as social products, largely influenced and characterized individual and collective religious and devotional experiences and processes. If the first, the public spaces – like squares, streets, churches, mosques and synagogues – provided access and enjoyment that were in principle equal for everyone, private places such as homes, on the contrary, were defined by the right of the owners to regulate their access. How, then, was private space organized and used in a place like the city, which, essentially up to the advent of the industrial era, remained, with few exceptions, a place of public and shared spaces? How did change also affect the conditions of existence and usability of private spheres, according to different criteria and specific legislation that obviously differed too, from place to place? Despite the obvious importance of this crucial aspect of the discussion, if we take for granted the existence of a definite ‘public’ space opposed to the concept of ‘private’, we may run the risk of overlaying the concept of public space itself with certain urban features (such as urban layout and civic architecture) – which were in fact very diversified. In turn this may lead to the mistake of not considering the range of different type of people who inhabited them. Observing public space, which exists in all human settlements of any kind and magnitude, only as a container of social practices leads to the misstep of confusing it with the functions to which certain places are destined for.

It is therefore even more necessary to understand in relation to the definition of ‘public’ what the house, the embodiment par excellence of ‘privacy’, meant to all these people, and what a ‘home’ environment signified to them. The home was the site of birth and death, of sickness and health, of conjugal life and reproduction, of child rearing, of hardship and prosperity. Across boundaries of faith and geography devotions evolved that served the needs of the members of a household as they confronted the demands of everyday life. We must pinpoint the necessity of treating the house as ‘constituted by contingent and shifting concatenations of people, spaces, and objects’. In order to shed light on early modern and modern house interiors in a global context, then, studying spatial arrangements as well as the materiality of the household and the house itself becomes

essential. Furthermore, the identification of transitional social spaces is crucial to understanding concepts such as 'domestic' versus 'public', or 'private' versus 'collective'. Of course, a general interest in practices in the micro-space of the house must include domestic work and leisure, consumption, sociability, genre, display, and childrearing in their connections with devotional practice. While the authors of the essays in this volume emphasize how the display of certain religious artefacts, religious paintings, and works of religious art became a true vehicle for the individual and at times typical expression of an otherwise socially patterned ritual like religion, they also illustrate how the transmission and reinforcement of certain cultural ideas and artistic models became part of renewed social rituals within which religion played a major role.

Homes included spaces devoted to work, living, display, and quasi-public sociability, each of which could be filled with specific everyday objects, but also with devotional items. Moreover, the diffusion of certain objects within the house, like religious paintings, devotional images, relics and so on, which were specifically reserved for public or semi-public display, can be regarded as crucial evidence for the circulation of knowledge and new devotional attitudes within a shifting history of devotion. While this concept has already been widely explored by both economic and material culture historians, it is the 'domestic' and 'devotional' approach that is worthy of note here. Again, transformation over space and time is key. More precisely, can we detect a functional differentiation and reorganization of domestic settings into several specialized spaces devoted to practising one's devotions? How does this vary according to geographic areas and time periods? Are there more similarities than differences? And if so, are the similarities pronounced? And what was the role of those who lived in the house in the construction of devotional processes? It is obvious that the question of social differentiation in the domestic sphere also applies to the analysis of devotion.

In this regard, of course, we must take into consideration the concept of human identity. Identity must be here understood as based on two fundamental issues: the first concerns our genealogical inheritance; in essence we all share a common heritage from our remote ancestors, in spite of millennia of migration and the formation of different cultures, languages and so on. This implies that to write about 'differences' in the way devotions were performed on an intimate level in such disparate areas of the world may be, in the end, comparable to an exercise like writing about one common 'devotional' identity. The second aspect concerns our mutual sharing of a single, common natural environment, which, if regarded as the whole world itself, regardless of its geographical, political, ideological, and human-imposed boundaries, is again, our 'home'. In this respect, the concept of human devotion worldwide becomes a subject extremely worthy of attention and makes this book a worthy enterprise for it encompasses an analysis of the multiple ways in which humans around the world manifested their common identity through expressing their natural and inner feelings about their relationship with the sacred.

What has identity to do with the family? Are these two concepts interrelated? Regardless of his or her social and economic condition, place of birth and residence, race, gender and so on, an individual is always a member of a family. A family is here to be understood as a group of persons united by ties of marriage, blood, or adoption, constituting a single household and interacting with each other in their respective social positions, usually those of spouses, parents, children and siblings. The family group should be distinguished from a household, which may include boarders and domestic personnel, or even slaves sharing a common residence. Additionally, however, sometimes the family included not only the parents and their unmarried children living at home, but also children that had married, their spouses, and their offspring, and possibly elderly dependents as well; such an arrangement is called an extended family. This is not the place to discuss each and every implication of the concept of 'household' and 'family' in the given areas explored by the essays in this volume. However, a clear specification must be made about what the household and family respectively represented in terms of shared values and individual identity in a wide context. At its best, the family performed various valuable functions for its members. Perhaps most important of all, it provided emotional and psychological security, particularly through the warmth, love, and companionship that living together generated between spouses and in turn between them and their children. The family also provided a valuable social and political

function by institutionalizing procreation and by providing guidelines for the regulation of sexual conduct. The family additionally provided such other socially beneficial functions as the rearing and socialization of children, along with such humanitarian activities as caring for its members when they were sick or disabled. Remaining on the social side, the family served to promote order and stability within society as a whole. Additionally, on the economic side, the family provided food, shelter, clothing, and physical security for its members, some of whom may have been too young or too old to provide for the basic necessities of life themselves. One school of sociological and historical studies dating from the 1970s, especially of Western families (but not restricted to them), tended to concentrate on the family's economic and instrumental aspects, including the transfer of property at marriage and through inheritance, rather than its ideological or experiential qualities. This version of Western kinship was overturned partly by feminist studies, which instead subjected relations within the household, the control of property, and the concept of privacy to a sustained, and very analytical scrutiny. The notion of the 'private', defined as the world of the family as a haven from the 'public' world of work and competitive economic relations emerged, then, as an ideological construct that was itself a suitable object of analysis. In this regard, the endeavour to explicate kinship as a symbolic system of meanings that carried over into other ideological spheres (such as religion) had a strong influence on subsequent studies. Many later accounts of kinship therefore, both in Western and in non-Western societies, have retained the core of the culturalist approach, while also paying close attention to local experiences and understandings of kinship and providing nuanced depictions of how people in a given culture might have divergent understandings of kinship depending on their age, sex, ethnicity, personal experiences, or other attributes.

Private and Public

The volume is organized into thematic sections, where some of the common questions that emerge across the chapters will be flagged up, thus highlighting some of the possible links between them. Having briefly outlined the implications of a much-needed differentiation in the understanding of concepts such as 'public', 'private', and the definition of 'household', something to which we may attach from now on the concept of 'domestic', the study of devotion within a domestic context becomes crucial for the investigation of how public rituals could be performed in a more intimate setting, by private individuals. Religious festivities, wedding celebrations, and in general all those activities traditionally associated with collective and public gatherings were re-enacted within the home, which as a consequence became a place for socialization, as is the case of early modern Jewish or Muslim homes.

The chapters included in the volume show how domestic devotion was affected by and responded to contingency. It seems legitimate to talk of the micro-politics of domestic devotion as a tool for shaping the social body and social identities. Far from being merely a matter of individual observance, domestic piety involved the family in the broad meaning of kinship whilst also engaging communities or networks of believers. The building or strengthening of social bonds is often pursued through religious identity. This emerges in Torsten Wollina's chapter on the use of devotional books in early modern Damascus. The chapter, addressing the frequently overlooked issue of domestic devotion in the pre-modern Muslim world, relies on the journal by Aḥmad Ibn Ṭawq, also studied in Marion Katz's contribution. Wollina draws from his source a wealth of information on the circulation of devotional books. In particular, he calls our attention to the threats associated with their use. Books were in fact tools for instruction and for the transmission of knowledge and were thus never entirely domestic. Wollina explains how the distinction between sacred and profane space was not spatial, but rather was created by 'the deliberate pronunciation of words'. Books were venerated not only for their content but also as authoritative objects; they were often circulated within a close kinship group, thus reinforcing the latter's identity. A book was a source of blessings that extended to present and future relatives. Books thus connected their owners to 'admirable figures from past generations', conferring the spiritual blessings with which they were endowed upon their present and future owners. As a consequence, the power of the book, and the issues of control related to the circulation of texts, connected in a privileged way the domestic space with the public space of libraries and schools, tightening kinship bonds.

The dichotomy between private and public devotional spaces was also present within the Jewish world. Dotan Arad explores the peculiar case of Jews living in the Ottoman Empire. The relative religious freedom enjoyed by Jews ended with the kingdom of Bayezid II (1447–1512) when newly issued rules forbade the building of new synagogues so that only those existing before the Muslim conquest were allowed. These regulations conflicted with the desire of immigrant groups to preserve their identity and their liturgical traditions. Jews ended up locating their synagogues not in public buildings, but rather in private homes. In Arad's words, synagogues became a 'framework for self-determination'. Unfortunately, locating synagogues in private homes eventually led to conflicts between the owner and the worshippers, thus weakening the community. Hosting synagogues in the houses of private individuals caused the concentration of power in the hands of a few rich people. Arad's case study is also intriguing in that it shows how forms of private devotion could interfere not only with the establishment or tightening of a kinship bond, but also with the general economy of a city, thus making an impact on the dynamics of power at many different levels.

The political dimension of domestic devotions also emerges from Martin Christ's contribution on Johan Leisentrit and his instructions for the sick and the dying. A Catholic priest and the dean and general commissioner for Upper and Lower Lusatia, Leisentrit published his *ars moriendi* under the title of *Catholisch Pfarbuch* in 1578. Leisentrit was the head of the Catholic minority of Upper Lusatia, protected by the Catholic Habsburgs. In order to avoid conflicts with the Lutheran majority, Leisentrit thought it useful to accept some compromises and developments not entirely in line with post-Tridentine Catholicism. He was particularly concerned about the moment of death, when, given the state of despair and confusion, conversions could happen more easily. He thus inserted some Lutheran elements into his *ars moriendi*. In the absence of a central religious authority, it was possible to express religiosity in individualistic ways. In his work Leisentrit shows acute awareness of the fact 'that the bedchamber of a dying person was a liminal space in multiple ways: between public and domestic, sacred and profane, inside and outside, life and death'. Besides, he knew well that a burial code was a public affair, and a confessional marker. Given his peculiar position – he was responsible for both the Catholic and the Lutheran population of the region – it was likely that he wanted to avoid conflicts. Despite this, he built into his work a narrative in which Catholics were persecuted by Lutherans. In order to smooth over the confessional divide, he sought a kind of compromise, so as to thwart attempts at conversion on the death bed, which was a disputed place. As Christ observes, this had an intriguing consequence: 'Leisentrit's accommodating approach, together with the porous boundaries between public and private, throws up the question of what, precisely, a confessional, domestic space was'.

Coexistence

The increasing attention to global or world history almost necessarily implies a study also of how, in a connected world, religious beliefs interacted and related to each other. As a matter of fact, this point was being made by early modern historians themselves: at the same time as the first histories of the world were being written, an interest in the proto-comparative study of religion and of devotional practices emerged. It is arguable that, while public worship is more markedly shaped by official religious institutions, domestic devotion is to a higher degree responsive to the encounters between different religious communities, ideas, and beliefs. In the early modern world, marked by confessional divide (often within the same country) and global connections, the study of domestic piety should also be set in a global perspective. This volume posits itself precisely at the intersection of the contemporary debate between connective and comparative history. As Caroline Douki and Philippe Minard have pointed out in their introduction to the monographic issue of the *Revue d'histoire moderne et contemporaine* entitled 'Histoire globale, histoires connectées: un changement d'échelle historiographique?', we live in a moment of historiographical instability marked by different approaches. However, as recent scholarship has also highlighted, there is no need to choose between the two approaches. If, according to Douki and Minard, in their work on the multiple interactions of the early modern world, 'l'histoire connectée retrouve [...] la fécondité des effets de décentrement qui font la force de la méthode comparative', Heinz-Gerhard Haupt and Jürgen Kocka have stated that 'comparative and entanglement history are being combined in new

ways'. In articulating the complex relations between a global world and local realities, connected history can combine its approach with the methodology of microhistory, creating what have been defined 'jeux d'échelles', or the continuous shifting from the individual case study to its broader context and vice versa. This volume seeks precisely to explore a series of case studies (investigated often with the tools of microhistory) and to set them into a connective context – thus exploring the reciprocal influences of different spiritual systems.

The above-mentioned connective approach can be best appreciated in examples of coexistence (for example, Jews and Muslims in the Ottoman Empire, or Catholics and Moriscos in Spain, Confucianism and Buddhism in Korea, or Catholics and Protestants in France). Such a viewpoint warns against a static conception of confessional beliefs and practices and instead points to the ever-changing and reactive nature of devotion and religious identity. The house is the place where the effects of religious coexistence can be best assessed. On the one hand, religious minorities were often not allowed to display their devotion in public. Even where and when a certain degree of religious toleration was granted, the home was the safest place to perform religious rituals. On the other hand, when religious tolerance was not granted, it was advisable for members of religious minorities to keep in the house a range of religious objects that testified to their adherence to the official religion. This eventually (and inevitably) influenced their practices and beliefs, as the chapter by Borja Franco Llopis and Francisco Javier Moreno Díaz del Campo shows. The authors explore the use of images by Spanish Moriscos after their forced conversion in 1492. They point out that the presence of Catholic images within the household was crucial in avoiding inquisitorial accusations; although this should not prevent us from believing that many former Muslims actually embraced the new faith. Franco Llopis and Díaz del Campo show that simulation – or dissimulation – was a complex issue. It revolved around the status of images in Islamic art and problems such as idolatry and iconoclasm. In many cases, the hatred of images was simply a reaction against the imposition of Catholic faith. In other cases, Moriscos showed a certain degree of flexibility, embracing Catholic beliefs and worship practices that they considered acceptable. For instance, the Immaculate Conception was a favourite as Muslims, too, thought that the Virgin had been conceived without sin. Likewise, St Alexius, a saint who had left his family to travel to Rome to follow the word of God, became symbolic of the Moriscodiaspora and of those who had left their homes to venerate their God. This study shows that the Morisco home was a 'hybrid space of private devotions', one in which the coexistence of Christian and Muslim images created a form of religious syncretism.

Issues of coexistence are also to be found in Korea where, under the Chosŏn dynasty, Confucianism became the state religion, replacing Buddhism after eight centuries. Soyeon Kim analyses a painting from 1562 known as *The Gathering of the Four Buddhas*. After reconstructing the history of the devotion and the iconography of the Four Buddhas, Kim sets the painting into the context of the ambivalent coexistence of the two religions. A 'non-orthodox icon', the Four Buddhas are 'non-orthodox deities that had been celebrated by public worship', and as such, they were connected more to popular beliefs than to Buddhist orthodoxy. The painting was commissioned by prince Yi Chongnin 'for the well-being' of his grandfather, Kwŏn Ch'an. Buddhism still exerted a strong influence on domestic and private piety: it is no surprise then that, two years after the official Confucian funeral rites, a Buddhist private rite was performed for Kwŏn Ch'an which involved a painting displaying a popular Buddhist iconography. If the chapter by Borja Franco Llopis and Díaz del Campo demonstrated what we might call religious eclecticism, this chapter exemplifies how coexisting faiths could be mutually exclusive of each other. At the same time, it allows us to assess a different side of domestic devotion, namely, its deep connections with popular beliefs. This aspect is peculiar to domestic piety: since, as we have seen, the house is intimately connected with humanity's deepest, ancestral concerns, anxieties and hopes, it is no wonder that domestic piety is affected by beliefs deeply rooted in folkloric culture.

Kathleen Ashley, in her chapter on Protestant worship in France, adds further dimensions to the coexistence of beliefs in a time of religious change. She focuses on the case of Etienne Mathieu, a citizen of Chalon-sur-Saône, who was tried by the city authorities in 1594, at a time when Protestant practices were allowed, albeit with many restrictions, in France. The trial was triggered by his defence, during a public discussion, of everyone's

right to practise his or her devotions within the private sphere. In fact, a man had been complaining about his neighbour singing the Psalms in the vernacular version in her house. This raised a complex jurisdictional problem. Huguenots used to sing the Psalms publicly in Marot's version to shape their identity as a group opposed to Catholics. In France, Protestantism was not entirely prohibited; rather, it was allowed under specific rules. But these were constantly changing, a situation that led to 'continuous contention over what behaviours were legal'. What is more, Etienne Mathieu had been a Protestant in the past: his shifting identities made him even more suspect and he was eventually sentenced to abjuration. This proves, as Ashley observes, that the domestic space 'was not off-limits' to regulation by the city authorities. Domestic devotion thus posed serious questions about the ways in which group as well as personal identities were shaped in the early modern world. At the same time, domestic devotion was a crucible for the elaboration of the increasingly complex relationship between civic and religious authorities as well as for the elaboration of the cultural and legal definition of the private sphere.

Women and Devotion

Our focus on the home invites us to pay further attention to female experiences of devotion, being, however, aware that their range of experiences did not confine them to a home environment and to the role of dispensers or educators of religious/devotional habits. Although this book is not intended to figure within the wide panorama of publications on gender studies, the recognition of women as historical actors through their agency, craftsmanship, and religious sensitivity described in some of the essays cannot be underestimated. The analysis and the reach of some case studies prove that women's skill and overall ability to entertain successful social and business relationships for example, within a domestic context, does not necessarily make them ideal subjects for studying phenomena of religious devotion. Instead, women could promote themselves beyond a patriarchal equilibrium and find a place in society. Yet, we cannot but realize that some of our case studies empirically suggest the overwhelming link between the domestic and women's devotion. The study of women's religiosity in early modern Europe is well established as a vibrant field in its own right. This is less the case for Arab countries and even less so for East Asia. We believe that the recovery of this legacy of female religious experience helps to demonstrate conclusively that faith offered one of the most significant vehicles for the formation and expression of female subjectivity in the pre-modern and modern world.

The home proves an ideal place to study female agency and religiosity. In fact, houses were not only the main stage for important life-cycle events such as childbirth and death, but also the least restricted place where women could practice their religiosity. It is true that gender confounded religious ideals and practices or made them more problematic: in eighteenth-century Brazil, for instance, echoes of both Catholic ceremonies and material apparati of Catholic devotion persisted alongside syncretic devotional practices performed by female devotees, as Cristina Osswald's work makes clear.

This theme also bears upon the fundamental issues of the redefinition of domestic space and of the creation of sacred space. The existence, in different cultural settings, of domestic rituals, calls for a comparative outlook. In this regard, the materiality of devotion – in a broad sense – is key, both in the study of devotional artefacts and of domestic rituals. Hence, chapters in this volume pay attention to objects and to rituals such as, for example, those connected to food, and their role in demarcating sacred time and space (a subject explored in contributions that range in their focus from Muslim Syria to the Jewish world).

The definition of sacred space through rituals, practices, objects is thus at the heart of this volume. As many of the chapters suggest, the term 'domestic' seems to allude to a space of one's own, rather than specifically a house. It is thus fascinating to examine the process leading a former Tibetan princess to live like a Buddhist nun. Hildegard Diemberger offers us a rare glimpse into the life of one fifteenth-century Tibetan Princess, Chokyi Dronma (1422–1455), the daughter of a rural nobleman. The analysis focuses on the biography written by a male follower of the princess-nun, which is read comparatively alongside medieval European hagiographies. Diemberger demonstrates that domestic devotions were among the lay religious practices that offered a powerful framework within which a woman could deal with the full range of challenges that impacted on her life as daughter, wife, mother and grandmother; in fact in fifteenth-century Tibet the monastic life offered,

through patronage, a way of promoting oneself in a male-driven universe, as well as a means to pursue one's aspirations if they involved any form of spiritual endeavour. Additionally, devotion performed in the home also meant interaction and negotiation between genders: women performing devotional practices often acted according to spiritual guidance provided by men, and men were frequently relied upon by women to 'create' multiple models of 'governance' of the household and family to support diverse spiritual goals. Although women were juridically located beyond the sacerdotal boundaries of the Church, gender studies have recently offered some of the most interesting paths into the religious world of women in the early modern and modern era, bringing into play women's religious experience per se, their relations with (clerical and lay) men, religious discipline, and the treatment of other marginalized groups.

Even stronger is the role of women in Jewish domestic devotions, as Debra Kaplan's chapter shows. Although the author suggests that the boundaries between private and public were not always clear-cut, it is true that there was a whole set of rituals and chores that were performed by women within the household. In fact, domestic work was infused to a great extent with religious meaning (we only need to think of highly ritualized acts such as the preparation of food); besides, Jewish women had no choice other than to marry. Particularly in crypto-Jewish communities, in which devotion was forcibly domestic, as Dotan Arad's chapter also makes clear, women became 'the leaders [...] who passed on traditions to the next generation'. The authors explore many of the domestic rituals and the ways in which a sacred space was created in the house, drawing interesting parallels with the Protestant 'holy household' studied by Lyndal Roper. As Kaplan suggests, Jewish devotion was thus highly gendered.

Licit and Unorthodox

Many of the chapters in the volume show how, both in Europe and in the wider early modern world, the household was the site of tensions between the laity and religious authorities, or of the interaction between licit and unorthodox practices. Religious hybridization, the survival of local beliefs, the existence of devotional practices that escaped the boundaries of official cultic forms were not peculiar to Europe but could be found all over the early modern world. It is no wonder, then, that religious authorities sought to tame (domestic) devotional practices that were perceived as inappropriate. These did not necessarily fall in the realm of heterodoxy: some belonged to traditions rooted in folkloric culture, or simply bore traces of pagan cultures. In such cases, the authorities tried to reformulate such practices in more orthodox terms. Yang Jungyoon explores the case of Dutch Calvinist authorities trying to reform and spiritualize the production of epithalamia. Nuptial texts were perceived as obscene, besides relying on the classical tradition of erotic poetry; furthermore, 'seventeenth-century vernacular epithalamia [...] played into a long tradition of the ancient custom of singing nuptial songs outside the bridal chamber'. Thus, they were re-written and replaced by biblical texts and images extolling the virtue of chastity. Alongside this, such ideas were disseminated in other genres, such as emblem books, conduct manuals and songbooks, all 'stressing the importance of religious rather than physical consummation'.

A case in point concerning the interaction between local and/or pre-existing beliefs and orthodoxy is that of Brazil studied by Cristina Osswald. In 1720 Tridentine rules were finally applied to Brazil. The house became the centre of orthodox Catholic devotions (the cult of Christ and of Mary) and domestic rituals were strongly influenced by those of the major congregations, such as the Franciscans or the Benedictines, thus stressing the continuities between public and private worship. This was all the more evident in the case of the cloistered beatas, who lived a 'radical form' of religious life, often within the house. The peculiar social and economic structures of Brazil, organized in fazendas and engenhos, allowed for an even more marked overlapping of the boundaries between public and private. In fact, public ceremonies were celebrated in these rather isolated and small communities, thus becoming, in effect, private rites. The difficulty of exerting strict control over such a fragmented reality allowed 'an overly personalized view of worship' and forms of religious syncretism, which were also due to the presence of Indian and African communities. African slaves and Jews who had moved to Brazil after 1497, after Manuel I ordered the conversion of the Jews, kept on practising their rituals. Figures

such as the *pajés*, a figure halfway between a priest and a doctor, continued to act, and old and new rituals were combined 'exaggerating the points of resemblance between the two'. Once again, it is evident how issues such as private and public, licit and illicit, were deeply entangled, and recurred, with only minor differences, across cultures.

Shaping Identities

The benefits of a comparative approach may be seen by juxtaposing devotional practices, such as those from Damascus and Amsterdam: only by comparing and contrasting the experiences of different groups is it possible to discern what is structural and what is contingent about religious practices in the home.

Alongside the use of religion to legitimize power and to promote social harmony, its role in fashioning identities and shaping communities has led to renewed interest in devotional themes. In this vein, Jews are not studied – as has been the case in the past – simply as financiers, moneylenders, Hebrew teachers, and victims of Christian anti-Semitism – though they were often that – but as members of communities which, though never free of the dilemma of negotiating their relations with the dominant religion of the host country, possessed a dynamic culture of their own. The boundaries between Christianity, Judaism, and Islam are seen to be more fluid and porous. Current interest in globalization, mass migration, social inclusion/exclusion and materiality has re-positioned our understanding of the modes of devotion in the early modern and modern period and deserves further attention.

The following chapters illuminate the need to expand our cultural horizons to imagine forms of devotion 'alternative' to the ones with which, as historians of European, or Western civilizations in general, we are probably more familiar, and also offer interesting interpretations of how religious devotion could act as a glue for collective identity, if not as a trigger for the search for a given identity.

Kathlyn Ryor, for instance, examines the importance of providing opportunities for literati artists to explore their cultural knowledge and identity through the medium of painting and relationships with other inspirational community members in late Ming Dynasty China. Assuming that each culture has one identity of its own, the literati artists in late Ming Dynasty China were the people who had created a 'second' identity through their artworks: the techniques employed by the artists were influenced by their religious ideas; and in turn these techniques were shaped by the artists' own domestic devotions. In essence, the artists were creating works in a world imbued with doctrinal and traditional depictions of Buddhist subject matter, reflecting with their ink brushes their beliefs and doctrinal affinities.

Igor Sosa Mayor reviews the practices involving relics enacted by lay people in seventeenth-century Spain, thus reminding us of the uses that were made of relics to help define a collective religious identity. The discussion converges upon the theme of the role of knowledge within the identification and validation of relics in the city of Arjona. Within knowledge transfer the process of validation of masses of relics was scrutinized and widely inspected, through the building of a collective identity. This chapter explores the function of knowledge within this almost professional search for relics and the validation of their identity. Its central argument is that users attached meaning and value to religious and sacred objects such as relics, going through complex social, religious and political processes where knowledge played a key role, and especially religious knowledge, for the latter negotiated and 'consumed' relics in different ways. The chapter argues that 'by means of experiments laypeople were able to prove or reject the possible sacred character of their objects, and at the same time, by doing so, believers were actively seeking experiences with the sacred at different levels – religious, sensorial and moral'. By conducting small experiments, laypeople took the initiative to investigate the qualities of the bones and ashes, and actively sought to challenge some of the positions adopted by the official church about the status of certain relics.

The main focus of the chapter by Marion Katz is again related to 'knowledge', a particular type of knowledge that is the evaluation of the complex of beliefs and practices around the commemoration of the Prophet's birth – the so called *mawlid* – in Syria, and precisely in Damascus, in the fifteenth century. According to Katz, the

interchange between what was essentially a convivial activity, and the religious profile of the family of the house where the mawlid was held, helped to build a sense of identity and belonging among the individuals gathering for the celebration, a coherence thereby communicated to the wider community of devotees. Drawing on the diary of a fifteenth-century Damascene notary, who left a unique glimpse of these ceremonies by recording his daily activities for two decades starting in 1480, Katz explains that the interchange between the gathering of the people and the serving of food was appropriate ‘to any landmark in a Muslim’s life trajectory, and to any auspicious incident that might occur along the way’. The gathering activities, and the festive celebrations involving the preparation and consumption of food, have always been regarded by historians as a means of shaping a community identity and providing a framework for it. Thus, by integrating this approach into the religious aspect of the mawlid, we discover a new devotional relationship between the commemoration ceremony and a widespread feature of people’s religious identity.

The Materiality of Devotion

This section of the book examines devotional objects in different geographical, as well as confessional and chronological contexts. In fact, the book also comprises a series of contributions that focus specifically on the material aspects of modern devotion, exploring how each of the five human senses interacts with texts, holy imagery and many other items of devotion. By investigating the sense-object relationship/interaction from various perspectives, this section of the volume brings together the ideals of early modern and modern mystical beliefs, and the increasingly tangible material practice of piety. In fact, a recurrent theme of the past few years is that materiality is anything but static, much less dead. Conversely, according to a tradition that originated within medieval mysticism, materiality was something which went beyond the purely external, something that ‘transcended’ it, and that relied on the sensory world; thus mysticism enabled the devotee to see through the material things so as to recapture their real essence and inner qualities.

The interplay between the senses is also related to another theme that threads through this volume: the understanding of signs and symbols and of the meanings they conveyed to contemporaries. A simple sign could convey a wealth of meanings which were all interlaced and yet concentrated around the truth of God. For this reason a mere artefact or object could trigger and open the way for a whole series of reflections and thoughts. For instance, a simple image of Christ on the cross could initiate a long array of considerations and mental replications of his suffering.

The three contributions in this section address all of the themes discussed above, though in rather different ways. Accordingly, Suzanna Ivanič’s chapter focuses on the understanding that amulets owned by Prague burghers could be used alongside Catholic items of devotion and Protestant bibles to allow access to the divine, and that the material of which amulets were made could itself act as a viable tool to interface with the transcendent. In her assessment of contemporary inventories and texts of natural philosophy and cosmology, Ivanič discusses the various forms of mediation between the ‘magical’- folkloristic and religious-devotional characteristics of the amulets examined, showing how the natural world – in a period of cross-confessionalism – was ‘infused with divine power’.

The contribution by Hester Lees-Jeffries offers a close reading of John Donne’s poem *Devotions upon emergent occasions* (1624), set in the context of other devotional texts and early modern material culture, and specifically, as the author suggests, on what might be called the ‘early modern textile imaginary’. Lees-Jeffries explores Donne’s poetic and devotional outpourings on death and other life-cycle moments, such as birth and the consummation of marriage, in relation to the ‘shared textile contexts and experiences’ of early modern people. In particular, she draws on Sasha Roberts’ remarks about the ‘ritual and symbolic significance’ of the bed to suggest the ways in which the Incarnation and the *Imitatio Christi*, key themes in Donne’s poetry, might be imagined and meditated upon in textile terms.

Hanneke Van Asperen discusses, likewise, the meditative significance of objects, specifically religious badges and images of pilgrims’ souvenirs in devotional manuscripts, rejecting the idea that such instruments could not

affect the way devotees perceived sacred images in their daily devotions. On the contrary, Van Asperen is at pains to demonstrate that religious badges were crucial to the development of the late medieval/early modern system of 'mental pilgrimage' because of the interplay with our human senses, imagination and memory, and the way human senses could produce a host of holy perceptions. In this respect, when people flicked through the pages of their devotional books and found badges marking some particularly noteworthy passages, the book became a shrine of knowledge, a 'physical container or prayers and religious pictures', bringing the devotee closer to the object of worship.

Conclusion

'Modern historians readily divide piety into public and private, but this neglects the crucial, fertile, common ground of the household'. The meaningful point that was raised by Alec Ryrie is also at the basis of this book, which by adopting a multidisciplinary approach, encompassing global history, art history, history of material culture, history of literature and history of the book, social history and gender studies, is centred on the understanding that the home was of paramount importance to an individual's religious experience.

Temples and churches are the natural habitat of historians of religion. Institutions, public rituals and religious leaders have a way of commanding scholarly attention. And yet if we restrict our gaze to only the most conspicuous aspects of the past we miss much that is of fundamental significance to human life. This volume is premised on the assumption that the home was a central space of religious practice and experience throughout the early modern world. This seems to us to be an uncontroversial if hitherto underexplored claim, which is borne out by the rich and varied evidence presented in this volume.

The contributions to this book, which deal with themes dating from the fifteenth to the eighteenth century, tell of the intimate relationship between humans and the sacred within the walls of the home (the home is understood as the place where one lived, be it the cell of a monastery or one's personal domestic space). The devotional objects and the books explored here were part of a constant dialogue in everyday life. To reproductions of the sacred within the home adults directed their daily prayers in moments of discomfort or difficulty; to them children were taught to address their first prayers; to them children prayed at the invitation of their elders. Nearly everywhere, daily devotions were expressed in many habits of life, such as those related to life cycle events (birth, marriage, death), as well as those connected to ways of dressing or eating, and therefore enmeshed within normal domestic life practices.

Starting from these methodological reflections, this book invites the reader to move beyond a concept of 'domestic devotion' that is clear cut and monolithic. Similarly, the volume also demonstrates that the home cannot be studied in isolation. The chapters instead point individually and collectively to the porosity of the home and its connectedness with other institutions and broader communities, and do so by adopting a flexible theory, one that can explain interactions taking place at different times, locations, cultural levels and so on. In this regard, we believe that the focus on domestic devotion from a comparative perspective is extremely fruitful.

Although the essays gathered in this volume cannot answer all the complex questions pertaining to domestic devotions and the multifarious relations between local cults and global history, they represent, however, a sampling of tentative but convincing suggestions about how and why we might go about unravelling devotional phenomena and constructing global history. This book is therefore dedicated to a new attempt to comprehend one of the most natural, common and shared human experiences – that is, devotion to the sacred, taking place in people's home environments across space and time – using historical enquiry to illuminate single processes of devotion. Many more studies will be needed to specify and explore further the historical processes of global devotional network construction and intensification. We have no doubt more will follow. <>

SCEPTICAL PATHS: ENQUIRY AND DOUBT FROM ANTIQUITY TO THE PRESENT edited by Giuseppe Veltri, Rachel Haliva, Stephan Schmid, Emidio Spinelli [Studies and Texts in Scepticism, De Gruyter, 9783110589603]

SCEPTICAL PATHS offers a fresh look at key junctions in the history of scepticism. Throughout this collection, key figures are reinterpreted, key arguments are reassessed, lesser-known figures are reintroduced, accepted distinctions are challenged, and new ideas are explored.

The historiography of scepticism is usually based on a distinction between ancient and modern. The former is understood as a way of life which focuses on enquiry, whereas the latter is taken to be an epistemological approach which focuses on doubt. The studies in [Sceptical Paths](#) not only deepen the understanding of these approaches, but also show how ancient sceptical ideas find their way into modern thought, and modern sceptical ideas are anticipated in ancient thought. Within this state of affairs, the presence of sceptical arguments within Medieval philosophy is reflected in full force, not only enriching the historical narrative, but also introducing another layer to the sceptical discourse, namely its employment within theological settings.

The various studies in this book exhibit the rich variety of expression in which scepticism manifests itself within various context and set against various philosophical and religious doctrines, schools, and approaches.

Key words: Scepticism; Jewish philosophy; medieval philosophy; early modern philosophy.

Readership: Ancient Philosophy, Medieval Philosophy, Early Modern Philosophy, Epistemology, Jewish Philosophy

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The following book of collected essays is the main result of the First International Conference on Scepticism held from to 11 May 2017 at Universität Hamburg and organised by the Maimonides Centre for Advanced Studies (MCAS) in close cooperation with the Department of Philosophy at the Sapienza University of Rome. It addresses the main elements, strategies, and definitions of scepticism. The book is divided according to a historical framework with special foci on ancient, medieval, and early modern philosophy: Emidio Spinelli (the Sapienza University of Rome) was responsible for the ancient period, Racheli Haliva (MCAS, Universität Hamburg) was responsible for the Middle Ages, and Stephan Schmid (MCAS, Universität Hamburg) was responsible for the early modern period. The direction of the book was undertaken by Yoav Meyrav (MCAS, Universität Hamburg), and the following contains an overview of all the essays included in the present volume, looking into the topics discussed in the conference and elaborated upon for publication.

In his paper "Philo of Alexandria vs. Descartes: An Ignored Jewish Premonitory Critic of the Cogito," Carlos Lévy argues that Philo of Alexandria foresaw and refuted the Cartesian cogito as the solution to the problem of absolute knowledge. After locating the main tenets of Philo's attitude to the Pyrrhonian tradition, which is

illuminated by a comparison with Cicero's respective attitude, Lévy shows how Philo's attitude to knowledge precludes the possibility of Descartes's cogito. Philo would probably have dismissed Descartes's cogito as absurd, as it involves an artificial disconnection between the human self and its metaphysical rootedness in God, only to re-establish it later. For Philo, as for Augustine after him, the problem of knowledge is intertwined with the ethical question of the relationship between God and the human being, at which the human being arrives through grasping the shortcoming of reason and the priority of faith.

In "Sextus Empiricus's use of *dunamis*," Stéphane Marchand embarks upon a terminological exploration of the word *dunamis* in Sextus's corpus. Although not frequent in Sextus's writings, *dunamis* is explicitly connected to the sceptical praxis and its application is telling regarding Sextus's understanding of sceptical discourse, which avoids the dogmatic meaning of *dunamis* as found, for example, in the Aristotelian tradition. Through a careful examination of the instances of *dunamis* in Sextus's corpus, Marchand shows that it can express sceptics' observable ability to carry out their activity, and also function as a lexical tool to uncover semantic equivalence or logical entailment, which may mask weaknesses in dogmatic arguments. Finally, Marchand argues that whenever one finds an instance of *dunamis* that can be understood as if its employment reflects a certain theory, this is in fact part of Sextus's strategy of arguing according to the usage norms of the field within which he argues, without committing to the theory behind this usage.

In his paper "Does Pyrrhonism Have Practical or Epistemic Value?," Diego Machuca examines the Pyrrhonian notions of suspension and undisturbedness and asks whether they are in fact valuable with regard to morality and knowledge. In other words, can these notions really contribute to behaviour that is morally right or wrong, and can they really allow one to attain truth and avoid error? It seems that if this is not the case, then Pyrrhonism is fundamentally useless and perhaps even harmful. In the course of his argument, Machuca argues against this negative assessment, most notably responding to Martha Nussbaum's critique and exhibiting its shortcomings. Machuca argues in favour of Pyrrhonism's value according to the basic Pyrrhonian principle of appearance: it is sufficient to show that Pyrrhonism appears valuable to the Pyrrhonist in order to defend its value.

In "endoxa and the Theology of Aristotle in Avicenna's 'Flying Man': Contexts for Similarities with Sceptical and Cartesian Arguments in Avicenna," Heidrun Eichner offers a fresh analysis of Avicenna's famous "flying man" thought experiment, which is frequently compared to Descartes's argument for the existence of the metaphysical cogito. Eichner argues that instead of a single argument, in Avicenna we find a cluster of "flying man" arguments, which, when discussed side by side, reflect a continuous development in Avicenna's philosophy. This development consists of two contributing factors: Avicenna's attitude towards endoxa-type arguments and the legacy of arguments for the immortality of the soul which stem from the so-called Theology of Aristotle (in reality a medieval Arabic adaptation of Plotinus's *Enneads*). Equipped with these fresh analytical tools, Eichner shows that Avicenna's "flying man" can be understood as a logical inversion of Descartes's cogito; for Avicenna, thinking correctly about a "flying man" is enough to secure his existence as a distinct mental entity.

In "The Problem of Many Gods in al-Ghazālī, Averroes, Maimonides, Crescas, and Sforno," Warren Zev Harvey uncovers a narrative of argumentation and counter-argumentation regarding reason's ability to defend monotheism. In the Muslim tradition, Averroes employed an Aristotelian argument based on the claim that the universe is a unified whole to counter al-Ghazālī's sceptical claim that reason alone cannot prevent the possibility of a plurality of Gods and hence is an insufficient foundation for the theological principle of God's unity. Harvey shows that subsequent argumentations in the Jewish tradition—here reflected in Maimonides, Moses Narboni, Hasdai Crescas, and Obadiah Sforno—are variations on this theme, which is refined, enriched, and opens avenues for philosophical and theological novelties.

In "What is Maimonidean Scepticism?," Josef Stern delves into one of the most heated scholarly debates surrounding Maimonides's philosophy; namely, the place of scepticism in his thought. Stern argues that there are two ways in which Maimonides can in fact be regarded as a sceptic: first, his argumentative method is similar to

the Pyrrhonian method for generating equipollence, and second, he finds a practical value in the suspension of judgment. Regarding the first way, Stern shows that Maimonides thinks that the mere possibility of doubt is insufficient to challenge a knowledge claim; Maimonides prefers to present, in many contexts, two opposing arguments of equal strength between which there is no criterion to decide. Regarding the second way, Stern shows that in Maimonides, suspension of judgment can lead to a state of tranquillity, a kind of happiness, and/or awe and dazzlement that is akin to the kind of divine worship that the dogmatist holds can be achieved through the acquisition of positive knowledge about God.

In “Medieval Scepticism and Divine Deception,” Henrik Lagerlund outlines the Greek and Latin sources of scepticism available in medieval times, tracing the roots of an original form of sceptical argumentation in the Latin tradition; namely, divine deception. Even though there were some influences from earlier forms of scepticism during this time, Lagerlund shows that scepticism was largely reinvented in the Middle Ages according to a new set of considerations that are independent of the ancient tradition. Unlike the Pyrrhonian view, which aims at the suspension of judgment and tranquillity, and is therefore a practical consideration, medieval sceptical arguments revolve around epistemological debates. In other words, it was in medieval philosophy that scepticism became intertwined with epistemology, as it is to this day.

In his paper “Spinoza on Global Doubt,” José María Sánchez de León Serrano proposes a reassessment of Spinoza’s strategy against the radical scepticism adopted by Descartes in his *Meditations*. Whereas scholars tend to see Spinoza’s monism as his main defence against the sceptical threat, Sánchez de León Serrano argues that monism is in fact liable to generate scepticism. Spinoza can only resolve this internal difficulty by showing how the finite human mind can adequately grasp the whole of Nature that contains it.

In “Scepticism in Early Modern Times,” Sébastien Charles challenges the attempt to reduce the phenomenon of scepticism in the early modern period to an appropriation of Sextus Empiricus’s version of Pyrrhonism. Arguing against the univocal meaning of scepticism in early modernity, Charles discusses three authors whose respective forms of scepticism differ from each other with respect to motivation, employment, and argumentation. First, Pierre-Daniel Huet—who is often the subject of debates as to whether he was a Pyrrhonian or an Academic sceptic—is primarily a Christian philosopher who uses sceptical strategies as part of his apologetic project to safeguard the Christian religion from attacks from early modern rationalism. Second, Simon Foucher opposes Pyrrhonism, which he interprets as a form of negative dogmatism. Instead, he adopts what he believes to be the Academic sceptical approach; scientific progress is possible if it is granted that scientific claims are revocable and that they are not apodictic truths. Finally, despite being usually regarded as a radical sceptic, Jacques-Pierre Brissot de Warville conceived scepticism primarily in a propaedeutic role, as a foundation for the natural philosophy of its time.

In “Three Varieties of Early Modern Scepticism,” Stephen Schmid also argues against understanding early modern scepticism as a species of Pyrrhonism. Instead, Schmid proposes a distinction between Pyrrhonian, Cartesian, and Humean scepticism, which represent different stages in the historical development of sceptical ideas. Each stage differs from the others in extent and scope, constructing an argumentative succession which increases in gravity. The object of Pyrrhonian scepticism is the ability to know the nature of things, leaving the question of the fact of their existence untouched; Cartesian scepticism is directed against the very existence of things outside us, but leaves untouched the question of whether we have thoughts with a determinate content in the first place; Humean scepticism takes up this final problem, doubting not only the truth of our thoughts, but also whether what we take to be thoughts about certain things are proper thoughts about these things at all.

In “Narrowing of ‘Know’ as a Contextualist Strategy against Cartesian Sceptical Conclusions,” Nancy Abigail Nuñez Hernandez tackles epistemic contextualism, a contemporary response to scepticism. Epistemic contextualism claims that Cartesian-style sceptical arguments set extremely high standards for knowledge that we do not have to meet in ordinary or scientific contexts. Nuñez Hernandez develops an original proposal to address the main criticisms of this position, arguing that in Cartesian-style sceptical arguments, the meaning of

"know" is narrowed down to such an extent that it does not apply to the vast majority of the instances to which "knowledge" is actually attributed. <>

CITIES AND THE MEANINGS OF LATE ANTIQUITY by Mark Humphries [Brill Research Perspectives, Brill, 9789004422605]

The last half century has seen an explosion in the study of late antiquity, largely prompted by the influence of the works of Peter Brown. This new scholarship has characterised the period between the third and seventh centuries not as one of catastrophic collapse, but rather as one of dynamic and positive transformation. Where observers formerly had seen only a bleak picture of decline and fall, a new generation of scholars preferred to emphasise how the Roman Empire evolved into the new polities, societies, and cultures of the medieval West, Byzantium, and Islam. Yet research on the fortunes of cities in this period has provoked challenges to this increasingly accepted positive picture of late antiquity and has prompted historians to speak once more in terms that evoke Edward Gibbon's *History of the Decline and Fall of the Roman Empire*. This study surveys the nature of the current debate, examining problems associated with the sources historians use to examine late-antique urbanism, as well as the discourses and methodological approaches they have constructed from them. It aims to set out the difficulties and opportunities presented by the study of cities in late antiquity, how understanding the processes affecting them has issued challenges to the scholarly orthodoxy on late antiquity, and how the evidence suggests that this transitional period witnessed real upheaval and dislocation alongside continuity and innovation in cities around the Mediterranean.

Excerpt:

A Tale of Two Cities?

At Harvard University in April 1976, Peter Brown delivered the Carl Newell Jackson lectures, which he published two years later as *The Making of Late Antiquity*. Here he analysed the social, religious and cultural changes that overcame the Roman world between the second and the fourth centuries of the Christian era. He began with a characteristically Brownian flourish: 'I wish I had been one of the Seven Sleepers of Ephesus'. The reference was to a medieval legend, attested in a wide variety of versions from Gregory of Tours to the Quran, that related the fate of seven pious Christians at Ephesus in Asia Minor during the persecution of the Church enacted by the third-century pagan emperor Decius. The seven were blocked up in a cave outside the city and left to die, but instead they fell into a miraculous sleep from which they were revived two centuries later in the reign of that most Christian emperor Theodosius II.

In the lengthiest version of the story, related by Gregory of Tours on the basis of a Syriac original, the Seven are led by Maximian, the son of a local magistrate. They are interrogated in Ephesus by Decius himself, who is enraged at their stubborn refusal to repudiate their faith, and orders them to reconsider their conduct while he travels to other cities. For this purpose, they are sent to a cave on Mt Celion outside Ephesus. When Decius returns to the city, he is furious to find their obstinacy undiminished, and orders the mouth of the cave to be blocked up, thereby abandoning the Seven to their fate. There they fall asleep, until they are awakened at an opportune moment to show the folly of certain Christian sectarians living under Theodosius who rejected the resurrection.

The Seven themselves, however, are unaware that centuries have passed. Thinking that they have only been asleep for one night, they resolve to send one of their number, Malchus, into Ephesus to purchase some food. On approaching Ephesus, he finds, however, a city that is startlingly different from the one he had left:

Approaching the city gate, he saw the sign of the Cross over the gate, and in stunned amazement he asked himself: 'How can it be that since leaving the city yesterday at sunset, Decius' heart has been so changed that he has set up the sign of the cross over the gate?' He entered the city, and heard people swearing oaths in Christ's name; and he saw a church, and priests hurrying about the city, and the walls rebuilt; utterly dumbfounded, he said to himself: 'Do you think that you've entered a different city?'

Appropinquans autem ad portam civitatis, vidit signum crucis supra portam, et stupefactus, miratus est, dicens infra se: 'Numquid ab die hesterni post solis occasum, cum ego egrediebar de urbe, cor Decii inmutatum est, ut crucis signaculo portam civitatis muniret?'. Ingressusque urbem, audivit homines per Christi nomen iurare atque ad ecclesiam aspicere clericosque per urbem discurrere moeniaque renovare, stupensque magis, dicebat ad semet ipsum: 'Putasne, quia in aliam urbem ingressus es?'

Only after he produces coins inscribed with Decius' name, as he attempts to purchase food, does the truth begin to emerge. When Malchus is brought before the city's bishop Marinus and its prefect, he asks them where Decius is, only to be told that Decius is long dead: now at last he realises that he and his companions have slept not for one night, but for centuries. Bishop Marinus returns to the cave with Malchus and finds his fellow martyrs looking just as they had when Decius had ordered them incarcerated. Astonished at the revelation, Marinus calls on the people of his Christian city to rejoice, and sends word of the miracle to Constantinople, summoning the Christian emperor Theodosius himself to visit Ephesus and witness it. The emperor duly arrives, approaches the cave, and prostrates himself before the Seven Sleepers, proclaiming that in them he sees a miracle evocative of Christ's raising of Lazarus—thereby providing compelling evidence of the reality of resurrection in opposition to any sectarians who might deny it.

Their sacred mission now completed, the Seven hand up their souls to God. An offer from Theodosius to bury them in seven golden coffins is rejected by a miraculous vision of the martyrs, leading to a change of the emperor's plans:

Then the emperor built over their remains a huge basilica, and made there a refuge for the poor, ordering them to be supported at public expense. And when bishops assembled there, the emperor celebrated the saints' feast day, and everyone praised God, whose honour and glory is perfected in the Trinity, for ever and ever.

Tunc imperator fabricavit super eos basilicam magnam et fecit ibi receptaculum pauperibus, imperans eos alere de publico. Convocatisque episcopis, celebravit festivitatem sanctorum, et omnes glorificaverunt Deum, cui est in Trinitate perfecta honor et gloria in saecula saeculorum.

The story of the Seven Sleepers neatly encapsulated for Brown the transformations in religion and *mentalités* that he sought to explore in *The Making of Late Antiquity*; indeed, having related their tale, he remarked that his aim in writing the book had been 'to enter into their surprise'. Over some five decades, work by Brown, alongside that of a legion of disciples and collaborators, has inspired other scholars to examine similar types of transformation in a variety of contexts. The result has been to recast the period spanning the third century to the seventh (or, in some formulations, the mid-second to the eighth) in two interrelated ways. First, and in deliberate counterpoint to the famous characterisation of the epoch as one of 'decline and fall' by Edward Gibbon in the late-eighteenth century, it has come to be regarded as an age of dynamic, even positive transformation. Secondly, the period has been redesignated as 'late antiquity', a more neutral term that carries with it none of the negative connotations customarily associated with phrases such as 'decadence', 'Byzantine', or 'Bas Empire'.

The image of Ephesus with which Brown began *The Making of Late Antiquity* suggested furthermore that the transformations of society and culture in late antiquity could be appreciated particularly from an analysis of cities. The tale, as related by Gregory of Tours, is punctuated with arresting images of urban transformation: it begins with a thoroughly pagan Ephesus, visited by the equally pagan Decius; in counterpoint, it ends with a Christian city visited by the pious Christian Theodosius. Moreover, there are significant topographic markers of the change, such as the presence of a cross over the city gate, the existence of churches in the new urban topography, and the construction of a basilica, at imperial expense and with public endowments, over the Sleepers' cave and burial spot. The transformations are so profound that the astonished Malchus is forced to ask himself if he has entered another or different city (*in aliam urbem*).

Already around the same time as the Brownian vision of late antiquity was beginning to exercise dominance, some scholars of urban centres were beginning to see how transformations of topography could indicate wider shifts in late-antique politics, society, and culture. For Ephesus itself, as well as for a number of other cities in

Asia Minor, important contributions were made already in the 1970s by Clive Foss.⁹ In addition, such considerations underpinned analyses of Rome especially, but also of Constantinople and Milan, produced towards the end of his career by one of the twentieth century's most energetic historians of early Christian and Byzantine architecture, Richard Krautheimer. More recently, aspects of urban transformation have commanded considerable attention among archaeologists and historians working more specifically on late antiquity as a distinct historical period. Many important studies of cities—whether dealing with individual cities, providing regional overviews, or examining the topic as a whole—have been published, and, particularly from the 1990s onwards, numerous conferences and volumes of essays have been devoted to examining the theme from a variety of perspectives. Yet, for all that the study of urbanism has burgeoned as part of the renewed interest in the late-antique period, it is precisely amongst scholars working on cities that disquiet first came to be expressed vocally about the essentially positive view of late antiquity championed by Brown and his associates.

A clear statement of this new scepticism was voiced by Gian Pietro Brogiolo and Bryan Ward-Perkins in their introduction to a volume dealing with the concept of urbanism in late antiquity and the early middle ages that was published as part of the European Science Foundation's project on 'Transformation of the Roman World'. They observed that scholars working on cities were beginning to arrive at a less optimistic vision of late antiquity than that which had dominated historical discourse in the shadow of Peter Brown:

We have tended to take a rather bleaker view of the 'Transformation of the Roman World' than is common within the overall project, and, indeed, than is at present fashionable amongst north-European scholars. Towns were so central to Roman styles and structures of life and culture that they were particularly hard hit by the changes that took place in Late Antiquity and the Early Middle Ages. From the perspective of any research into urbanism that starts with the Roman period, it is very difficult to view developments in the sixth and seventh centuries, except for the late-antique christianization of the city, as part of some neutral (or even positive) 'transformation'. The changes that occurred in urban life generally look more like the dissolution of a sophisticated and impressive experiment in how to order society—an experiment developed by the Greeks and Romans and centred on the Mediterranean.

This pessimistic view has been amplified by some subsequent work. Ward-Perkins himself, for instance, produced a vigorous critique of the positive view of late antiquity (exemplified not only by Brown, but also by Walter Goffart's studies that argue for an essentially non-violent process of barbarian settlement in Roman territory), and sought to recast the entire period as one of genuine disruption that caused the collapse of many aspects of Roman civilization. The study of cities remained a central focus for this debate, in which Gibbon's casting of the period as one of 'decline and fall' gained a new vogue. Indeed, the title chosen for Wolf Liebeschuetz's 2001 analysis of the fate of cities (especially from an institutional perspective) between the fifth century and the seventh—*The Decline and Fall of the Roman City*—self-consciously evoked Gibbon. More than a decade later, Adam Rogers's study of late-Romano-British urbanism still evoked the concept of decline (not least in its title), while also offering a challenge to its value as a hermeneutical tool.

One consequence of these debates is that scholars are perhaps now more willing than before to acknowledge that even if late antiquity could be associated with developments that might be couched as 'positive' or 'dynamic' (such as the creation of new forms of religious, political, and cultural expression), these arose concurrently with significant ruptures, and that any forward development of scholarship on the period needed to acknowledge that. In an otherwise positive appraisal of new trends in late-antique scholarship as eschewing old-fashioned teleologies, Aldo Schiavone nevertheless remarked that it 'tends to overshadow an essential point', by 'downplaying the disruptive and catastrophic aspects of the changeover' between antiquity and the Middle Ages. The last decade or so has certainly seen a revival of histories that examine the history of the period in terms of political disruption, while the value of histories of events, and not just synchronic overviews, has been reasserted.

Through such studies it would appear that the Brownian vision of a progressively dynamic late antiquity has entered something of a period of retrenchment and crisis: Brown himself has had to mount a robust defence of his views in the face of mounting scholarly opposition, while in works written for a broader popular audience Gibbonian notions of catastrophic decline and collapse (often somehow connected with the rise of Christianity) remain as tenacious as ever, however much scholars who have devoted their careers to re-evaluating late antiquity along more positive lines might deplore such developments.

In such circumstances, it seems to me that it would be a valuable exercise to review the current state of the discipline with particular reference to cities, where the debate has been especially intense. But this exercise needs to be prefaced by a warning: the range of archaeological and documentary material now available to scholars makes any overview of late-antique urbanism a risky enterprise, since general theses are open to challenge from particular pieces of evidence, not to mention new discoveries. In what follows, therefore, while I aim to delineate general trends both in the development of cities in late antiquity and in the ways in which they have been studied, I also wish to emphasise that the picture emerging from the research of recent decades defies any effort to impose broad, all-encompassing interpretations on the evidence, and instead offers a picture characterised by considerable diversity.

I will begin with a review of the development over the last half century of the discipline of late antiquity as it pertains to cities (section 2). Then I will consider some of the difficulties found in late-antique sources and experienced by modern scholars in defining even what a city was in late antiquity (section 3). Next I will examine key areas of urban change in late antiquity. It is tempting to put religion at the forefront of this survey, since stories like that of the Seven Sleepers highlight it, and because this is an area where the transformations of the period might most easily be viewed in a positive light, as Brogiolo and Ward-Perkins in fact noted. I have chosen, however, to commence my survey of different types of urban change with examinations of the role played by cities in political (section 4) and economic life (section 5), and only then to turn to religion (section 6). I have chosen to approach religion in this way not because I think that its importance has been overstated in much modern scholarship on the period. For instance, I cannot agree with Ward-Perkins' assertion that the importance of religion in modern late-antique studies is some sort of peculiar, faddish obsession that can be rejected by anyone with modern secularist sensibilities. Far from it, religion permeated so many areas of life and experience in late antiquity that any effort to diminish its importance strikes me as running the risk of misrepresenting the texture of late-antique society and culture. Rather, my decision to approach religious factors after political and economic ones is made because I want to situate religious changes within a context of possibilities that was often circumscribed by political and economic considerations: consider, for example, how the church of the Seven Sleepers at Ephesus was built at the orders of the emperor.

An important consideration throughout my analysis will be to push the debate beyond the mere enumeration of topographic features, as if, for example, simply counting the number of churches in cities provides a transparent and easily interpreted guide to the rise of Christianity. To this end I aim to apply to the late-antique evidence a critical approach that has increasingly been applied to ancient cities more generally, which is to see them as stages on which were played out a variety of human actions, ranging from mundane social and economic functions to ritualised performances of political and religious power (section 7). I will conclude (section 8) with a meditation on the current debate on 'decline', 'fall', and 'transformation' as appropriate terms to describe urban evolutions in late antiquity, but here too I want to challenge some accepted parameters for the debate. I will suggest that simple binary oppositions—for instance, between decline and transformation, or between pagan Ephesus and Christian Ephesus as in the tale of the Seven Sleepers—risk obscuring a more complex series of changes experienced in myriad and varied ways in thousands of urban communities across the Mediterranean world and its adjoining territories. To put it another way, we are dealing with something more complex than just a tale of two cities—one at the beginning of late antiquity, the other at its end.

Finally, it should be noted that the approach adopted here is avowedly that of a historian working with both textual and archaeological material, rather than that of an archaeologist. I do not mean to imply that one or

other approach is preferable. On the contrary, it seems to me that the most fruitful way of exploring the debates surrounding cities in late antiquity is through dialogue, between historians and archaeologists, and between scholars working in different disciplines, such as social history, art history, and the history of the liturgy.

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