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# SCRIPTABLE

A Bispectral Review Recent Books



Robert Tenor, editor  
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## Editorial

[Scriptable](#) is an irregular review of what was once called the belles-lettres, where we essay upon a wide assortment of current books and articles with an eye open for “the beautiful jumble of discordant congruencies” derived from the authors and titles under discussion. We cast a wide academic net through the social sciences and humanities, with a strong orientation toward current events, social theory, religious and cultural studies.

With this number we move away from simple reportage of current scholarship to something more ambitious. The body of each issue includes editorial essays examining themes inspired by the works under consideration. Our [Annotated Bibliography](#) will review, list and link the titles under discussion, providing a faithful summary of its content and audience.

Our purpose is to inform and entertain. Through the review essays we hope to visit new and timeworn places through unsettled ideas in currency newly minted. Perhaps to see the outlandish as intimate and to show up the familiar as stranger than before thought. Each issue should surprise.



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## The Electric Shock of New Minimalisms



### **ELFIE SEMOTAN: CONTRADICTION**

with Texts by Henri Cole, Felix Hoffmann, Helmut Lang, Sven Michaelsen, Sarah Mower, Sophie Pechhacker, Rosa Pock, Martin Prinzhorn, Christian Reder, Esther Ruelfs, Elisabeth Von Samsonow, Stefano Tonchi, and with a drawing by Tobias Pils, edited by Felix Hoffmann, c/o Berlin Foundation [Hatje Cantz, 9783775746076] Colophon: This book is published on the occasion of the exhibition Elfie Semotan. Contradiction: 8 Juni — 7. September 2019 / June 8—September 7, 2019 C/O Berlin, Hardenbergstraße 22-24, 10623 Berlin, Deutschland / Germany

### **Biography of Elfie Semotan**

Elfie Semotan was born in Wels, Upper Austria, in 1941. She graduated from the Hetzendorf Fashion School in Vienna in 1960. She wanted to design bags, working for several months for Gertrud Höchsmann. Since the prospects in the fashion industry in Vienna were not promising at the time, she moved to Paris in 1961 working as a model from 1961 to 1971, when she first experimented with taking photographs.

In 1971 she returned to Vienna, commencing her career as a photographer. She married Kurt Kocherscheidt in 1973. Their first son, Ivo, was born in 1974 and their second, August, in 1982.

From 1976 Semotan worked on various advertising campaigns and TV advertisements (for Palmers and Römerquelle, for example), and from 1985 she was a portrait photographer for international magazines like *Vogue*, *Elle*, and

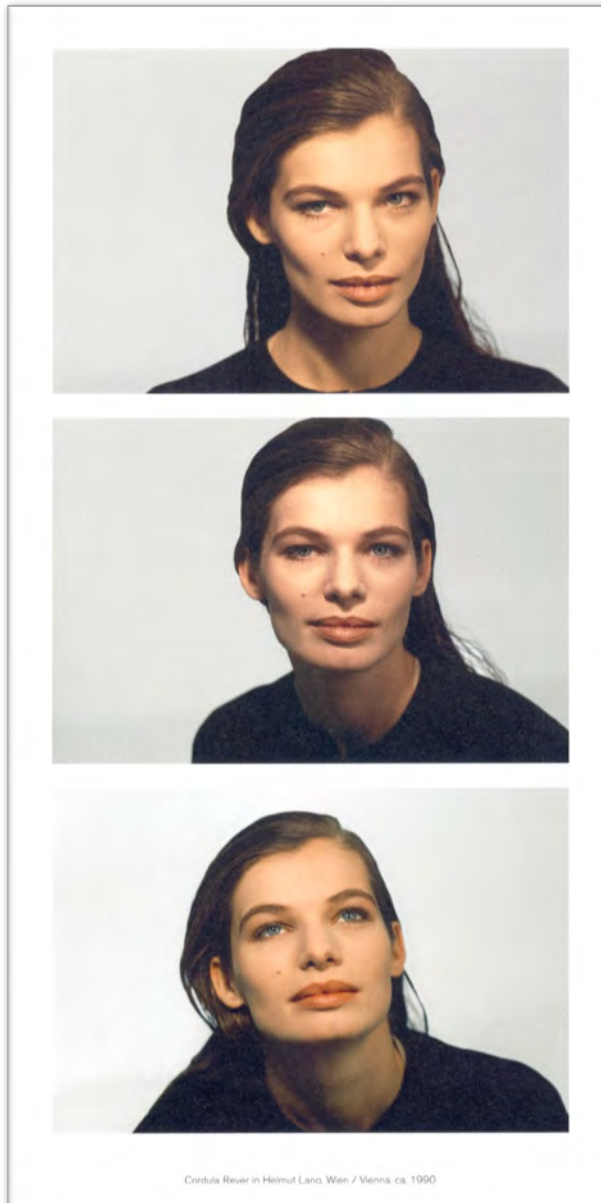
*Marie Claire*, as well as taking travel photographs and artist portraits. In 1986 she began collaborating with Helmut Lang. After Kocherscheidt's death, Semotan worked in New York as a commercial and fashion photographer for *Interview*, *Esquire*, *Jane*, magazine, *Self Service*, *High Fashion* (Japan), *Allure*, *New Yorker*, *Harper's Bazaar*, and *i-D*.

In 1996 she married Martin Kippenberger, who died in 1997 after a short, serious illness. Semotan received the prize for applied art awarded by the city of Vienna in 1999.



In 2003 Semotan took up a guest professorship at the University of Applied Arts in Vienna, in the context of which she took a study trip to Libya. She was awarded the gold medal of service to the city of Vienna in 2004, and went on to receive the Austrian gold decoration for science and art. Semotan currently lives and works in New York, Vienna, and Jennersdorf.

### As Powerful as Words by Elisabeth von Samsonow



The connection between photography—regardless of whether it is fine-art or fashion photography—and family albums is just as obvious as it is ignored. The inclination to stage things, to arrange people in the form of pyramids, rectangles, or bleachers, to direct them, to make them laugh, or, as Roland Barthes has said, to put them in the quite exhilarating role of one who is about to give birth, in the form of an image that is joyfully anticipated as much as it is feared—this particular inclination controls the setting between the photographer and models, with whom Barthes incidentally had no interaction.

Which way is the gaze being directed, how is it being amused or confused, reversed, and what sort of rambling eros glimmers in this eye, in the photographer's eye? Photography is thus the mistress of convention that arranges bodies in space, in the same way that she is the mistress of destruction, subversion, and irony. Her relationship to the objects, models, and people in front of her camera is always perceptible; she is the one who is behind the camera lucida referred to by Barthes. In Effie Semotan's viewfinder sensual elements are broken down into the form that serves to create proximity within the triangle of the photographer, the spectator, and the object.

"No doubt it is metaphorically that I derive my existence from the photographer. But though this dependence is an imaginary one (and the purest image-repertoire), I experience it with the anguish of an uncertain filiation: an image—my image—will be generated: will I be born from an antipathetic individual or from a 'good sort'?"

—**Camera Lucida** by Roland Barthes, translated by Richard Howard [Hill and Wang, 978-0809013982]

Proximity is created when the emotions resulting from the staging, from the special setting, are transported, and also those from the subcutaneous values of tuning and adjusting the things happening in front of and behind the camera. The great sense of empathy that the photographer uses as her operative capital pours forth from the pictures, which are precisely composed, logical, contrived in a sly and coquettish manner, yet also mathematically calculated. Emotions require form. Semotan frequently uses her favorite models—she too has muses. For years she has been working with Cordula Reyer, with her mysteriously beautiful, calm face, heavy eyelids, and large, nonclassical mouth. Reyer became the face of these decades, and Semotan saw her. She foils expectations, for example, by positioning models wearing furs and masks in front of wooden houses, in dark photographs taken in America just before a storm, the masks a brilliant white. This transposition, or transgression, strangely restores something of the fur's original wildness. The compositions are consistently impeccable, and you could even call them exquisite. The interiors are sublime—and yet there is always a mistake, something implausible, something like a fairytale, something never seen before that inspires you to engage in investigative deduction and also contemplation. It was the period when fashion photography and fine-art photography were rapidly converging. The overlapping areas of professional and personal life were part of the program. Semotan's photographs are full of the friends and precedents that led her to appropriate, translate, dedicate, and vary. John Coplans, for example, was her inspiration for a series with jewelry. She presents the rings and bracelets on aged hands, in which the baubles seem to be embedded. Her portraits already have an iconic status, like the legendary portrait of Helmut Lang: instead of in profile, she shows him as a half frontal image. Martin Kippenberger eventually adapted this idea for a poster for his exhibition at Hubert Winter's gallery in Vienna. Her series of a supine Kippenberger imitating the poses of the figures from Theodore Géricault's painting *The Raft of the Medusa* is shocking. It is a more than just a reenactment of a masterpiece in front of Semotan's camera; it is proof of Kippenberger's strong ability to immerse himself in subject matter. At the same time this series reveals what make Semotan's photographs so attractive. It is not incidental that that this series resulted from their relationship as a couple. It is probably this way of creating relationships—the exact opposite of forensic photography—that is at the core of Semotan's works. Kippenberger empathizes with Géricault, who for his part empathized with the shipwreck victims, while Semotan—in the pull of a construction of multifaceted and multidirectional layers of immersion—empathizes with Kippenberger. Photography becomes a language that is as powerful as words. It compensates for the lack of empathy or the ambiguity of emotions.

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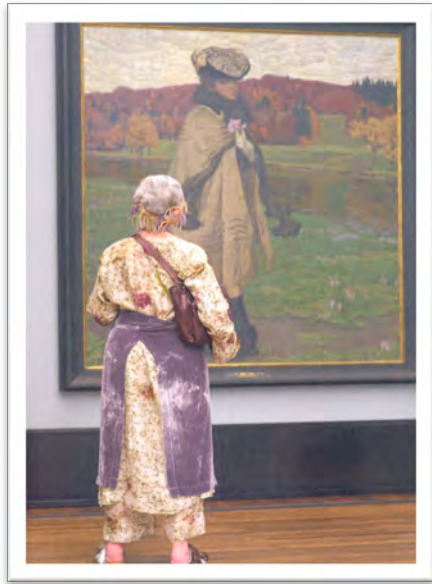


## Image and Gaze fuse into a Fun Study of Museum Angling



Haven't we already seen it all? That was my first reaction when I heard of Stefan Draschan's project *People Matching Artworks*: people standing in front of art, coincidentally wearing similar clothing or with a haircut similar to a figure in a picture. On Instagram, there is the corresponding hashtag #dressedtomatch, under which one finds many photos that are also self-staged. Dresses with Mondrian patterns are actually produced—so why not position such a dress in front of a real Mondrian? Having said this, doing so also quite quickly becomes boring. Since it is redundant, a simple doubling. But this is precisely what does not happen in Draschan's works. His photos instead show constellations of artworks and people that call to

mind the principle of counterparts: two things are related to one another, characterized by a good, unusual combination of similarities and differences. As a viewer, one's eyes begin to switch from the one to the other, to weigh them against each other, to see the one in light of the other. As a result, connotations can also be transferred from one pole to the other; in the swing of the pendulum between the two, the imagination enters the mode of "free play," which Immanuel Kant declared to be the basis of every experience of art. And since the individuals in Draschan's works can generally only be seen from behind, while the artworks are seen from the front, the significance of the interaction that he initiates primarily benefits the latter. The paintings seem more dramatic and refined, the sculptures more momentous and masterful when Draschan photographs them at a moment when one or several individuals with a variant of one motif or stylistic characteristic are in close proximity to them. One might also say that Draschan is a curator with the means of photography. Just as extracting semantic nuances from works by means of a suitable constellation and awakening the works to new life distinguishes every good curator, Draschan succeeds in doing so solely by sensing precisely which audience art respectively comes into its own in a particularly good way. One sees this in a concentrated form in his photos. —Wolfgang Ullrich



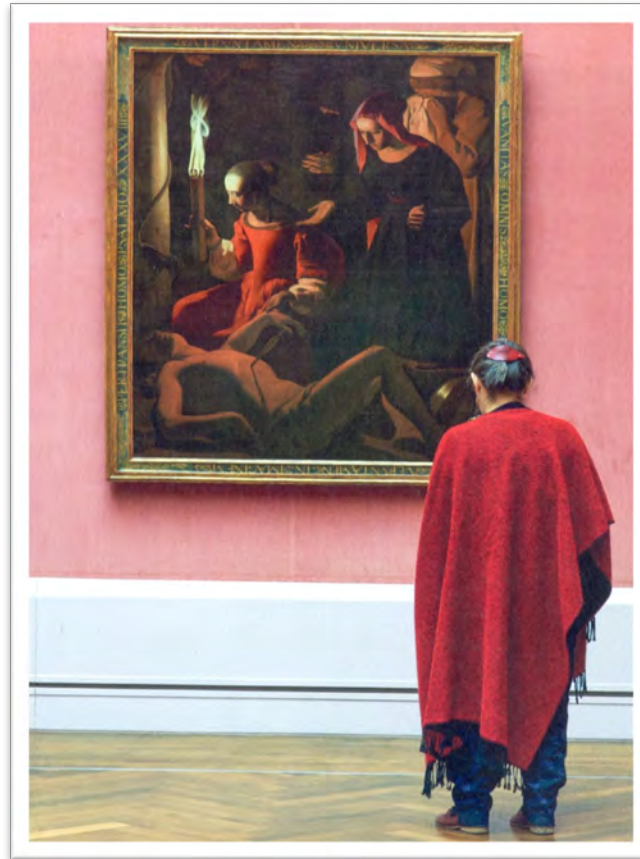
## Stefan Draschan

The photographer and cycling activist Stefan Draschan was born in Upper Austria in 1979, and today divides his time between his home city of Vienna, his adopted home in Berlin, and Paris, where he lived last year while on a fellowship. It is the art museums of the world, however, that are his true home. The tall Austrian remains on the lookout there with his camera day in and day out. What began with an interest in art has meanwhile become his profession—since Draschan's gaze no longer focuses solely on the masterpieces exhibited, but also on the colorful parade of museum visitors.

Through patient observation, he filters out the perfect "match"—the moment at which the artwork and viewer enter into a visual relationship: the stooped older woman in front of Caspar David Friedrich's *Abtei im Eichenwald*

(*The Abbey in the Oakwood*), a tattooed punk in front of a saint on a gold background, or a figure with a red cap in front of a stuffed stag at the Musée de la Chasse et de la Nature in Paris.

For Stefan Draschan—as he once put it himself—these photo works are like a drug. He has thus become a person driven by his passion, who cannot resist pressing the shutter release of his camera: with each subsequent picture, he hones his eye and his feeling for the right moment, in which the title of his work series *People Matching Artworks* becomes a reality. <>



### Display of Moving Film

**THE ART OF FILM PROJECTION: A BEGINNER'S GUIDE** Edited by Paolo Cherchi Usai, Spencer Christiano, Catherine A. Surowiec, and Timothy J. Wagner, Foreword by Tacita Dean and Christopher Nolan [George Eastman Museum, Selznick School of Film Preservation, 9780935398311] offers a beautifully produced volume that is in effect novices textbook to how-to project films.

On December 8, 1975, director Stanley Kubrick sent out a letter to all the projectionists of his film *Barry Lyndon*:

An infinite amount of care was given to the look of “*Barry Lyndon*”; the photography, the sets, the costumes; and in the careful color grading and overall lab quality of the prints, and the soundtrack – all of this work is now in your hands, and your attention to sharp focus, good sound, and the careful handling of the film will make this effort worthwhile.

In the current era of automated de-professionalised digital projection, Kubrick’s letter comes across as an eccentric attempt to exert control on the uncontrollable, yet anyone who works with film can fully testify to Kubrick’s insistence on communicating directly with his projectionist so as to ensure the very best possible projection of their work. Film projectionists are an integral part of the creative process: an impeccable projection is the ultimate fulfilment of a filmmaker’s intention. The exhibition of the film is, after all, the point of contact with the audience; it is the culmination of months, if not years, of labour and endeavour and the final act of trust between like-minded professionals who are engaged in the collaborative business of making a film and who still insist on the very highest level of expertise that their profession requires.



The good projectionist has fallen foul of the same attitudes in cinema that make Kubrick's exactitude appear risible in today's world. The profession has become endangered or has been deskilled into non-existence, which is why this beginner's manual is so overdue. Projecting film prints correctly is a great responsibility and a great skill. When a print is mishandled, it can be easily destroyed. A filmmaker is dependent upon the projectionist's full understanding of how the images and sounds of a film should be perceived. We only notice a film's projection when it goes wrong. Good projectionists are trained to handle history; they must protect the prints in their care, and their greatest skill is to remain unnoticed.

Written with deep knowledge of all aspects of film exhibition acquired by experienced film projectionists, technicians, and museum curators, this book has been edited by the staff of George Eastman Museum with the active participation of students from the L. Jeffrey Selznick School of Film Preservation, who have learned the basics of film exhibition and would like to make their findings available to all. This

manual is expressly addressed to non-specialists. Of course, there have been many specialized publications on this topic; none of them, however, has attempted to explain the art of film projection in a language that is accessible to those who have never entered a projection booth or touched a strip of motion picture film.

Despite its appearance as a technical manual, this book is a cultural manifesto on the importance of film as creative work and a window through which to understand the materiality of film and its demateriality as projected image. Cinema has never been reducible to just the reels of a film but is a contract between the maker and their audience made possible through the act of projection. Cinema will always be an art form that exists in three dimensions; it requires a projector and projectionist, as much as it needs the physical volume of the theatre and an audience to watch it. Knowledge of changeover cues, aspect ratios, and loop sizes is not the arcane information of a lost era but the expertise necessary to project a film correctly today. To disrespect the role of the projectionist is to disrespect cinema itself. The Art of Film Projection at last gives Stanley Kubrick's letter the context and seriousness it had briefly lost, while reaffirming the role of one of cinema's most unsung but essential professionals: the film projectionist. —Tacita Dean and Christopher Nolan

### Protecting Film as Science and Art

Film projection is the ultimate achievement of film preservation. It is the synthesis of a process in which archivists, curators, and technicians gather their expertise and talents in order to conserve, restore, and exhibit motion picture film as a cultural artifact in a private or public collection. The cinematic event is in itself the realization of film curatorship, in that it brings to the screen the results of all previous work undertaken in order to showcase cinema as a living reality, an experience to be shared with present and future audiences. This book is, first and foremost, a guide on how to make this experience happen under the best possible conditions, so that the objects of preservation can be displayed as they should, and remain intact so that others can see them in the future as they are now. The following pages will necessarily adopt a technical language, but it should be clear from the outset that technology is intended here as a tool for the attainment of an aesthetic experience, rather than a goal-in-itself.

It must also be emphasized that this is an introductory manual, whose only aim is to present the essential aspects of film projection in clear, concise, and accessible terms, for the benefit of those who wish to acquire the skills necessary for the exhibition of museum, archival, commercial, and collectors' prints in general, as well as of new artworks made on film. It is emphatically not a compendium on the history and technology of film projection (references to names, dates, and film titles have therefore been kept to a bare minimum). There is a wealth of specialized literature on the subject, and this book has no ambition to compete with it. Those who are already familiar with the topic will only find here a brief – and deliberately simplified – summary of what they already know. As the projection equipment available to film screening venues is so varied, the instructions provided here are meant to serve as very basic guidelines that apply to most, but not all, projection machines. Those who wish to learn the operations of their equipment in greater detail should look for the specific texts on the apparatus at their disposal. We hope, however, that those technicians who have been acquainted for many years with the art of film projection will find these pages useful in explaining to others the most fundamental aspects of their job.

In writing this collective book, the team of museum professionals engaged in the project applied the same principles that inform their activities within our institution, and their collaboration with fellow projectionists and technicians of other film archives and museums. Before entering into the practical manifestations of these concepts in the pages that follow, it is worth giving a brief description of what they are.

We would like to begin by quoting what our esteemed Austrian colleagues Alexander Horwath (former Director of the Österreichisches Filmmuseum in Vienna) and Regina Schlagnitweit (who coordinated the Filmmuseum's exhibition programs) said in response to our question about their own approach to the projection of archival prints. When a print was about to be shown in their museum, they treated it as if it was the last existing copy in any format, and as if that was the last time they would be able to present it to their public. To further paraphrase Regina and Alex, they asked their projectionists to behave as if the print bestowed to their care was the only surviving trace of the film to be exhibited.

This is precisely what our book is about. Once upon a time, it may have been possible to think otherwise, both because it was easier to replace damaged prints, and because the so-called “wear and tear” to the film was regarded as part of its material evolution in the course of history.





4.15 – Unilateral variable area optical soundtrack on 35mm film  
(*Blackmail*, Alfred Hitchcock, UK 1929).



4.17 – Dual unilateral variable area optical soundtrack on 35mm film  
(*The Band Wagon*, Vincente Minnelli, US 1953).



4.16 – Bilateral variable area optical soundtrack on 35mm film  
(*Abismos de pasión* [*Wuthering Heights*], Luis Buñuel, Mexico 1954).



4.18 – Dual bilateral variable area optical soundtrack on 35mm film  
(*Excalibur*, John Boorman, US 1981).

Truthful as it is (prints were seldom treated kindly in the projection booths of commercial theaters), this portrayal of the past could never justify a similar attitude in a cultural organization, and is now alien from the *modus operandi* of a place where the cinematic heritage is preserved for posterity. When film prints were formally acquired as part of archive and museum collections, they should have been treated with the same respect and attention due to other artworks such as paintings, sculptures, and illuminated manuscripts. If they weren't, it was both because cinema was labeled as an "art of reproduction" (therefore justifying the "wear and tear" misconception), and because archivists and curators rarely thought of the projection booth as a place to apply the same exacting standards observed in every other area of their institutions.

For this reason, film projectionists have by and large been unfairly excluded or marginalized from the preservation projects undertaken by the rest of the staff, as if their role was simply to make visible what others had previously done. To compound this state of things, film projection was rarely a focus of attention in the academic world. The much welcome surge of interest in film technology as a scholarly subject, as testified by publications and conferences worldwide, is not a "comeback" – it is the belated recognition that cinema is neither made of "content" nor of mere "objects," but is a complex performance involving a creative work (the film), its carrier (the print), an apparatus (the projector), a physical environment (the theater and its screen), and the people in charge of exhibiting the work (the projectionists).

Films held in museums and archives are now much harder to duplicate in their original medium and format. Laboratory costs have dramatically increased; access to preservation negatives outside the collecting institution's premises has become very difficult, if not impossible. Even when the negatives are available, obtaining copies of good quality from a laboratory other than the one where the duplication work was originally done is extremely challenging if there is no information on the grading to be used for the creation of new elements. With the advent of digital technology, the very



survival of motion picture stock cannot be taken for granted, but neither this nor the other facts mentioned above should be the reasons why it is important to ensure the physical integrity of projection prints. Their status as collection objects should have been a matter of priority from the very beginning of their presence in a collecting institution; the new evidence at our disposal about the economy, technology, and politics of film preservation has given an additional sense of urgency to what ought to have been part of a responsible approach to film conservation at its outset.

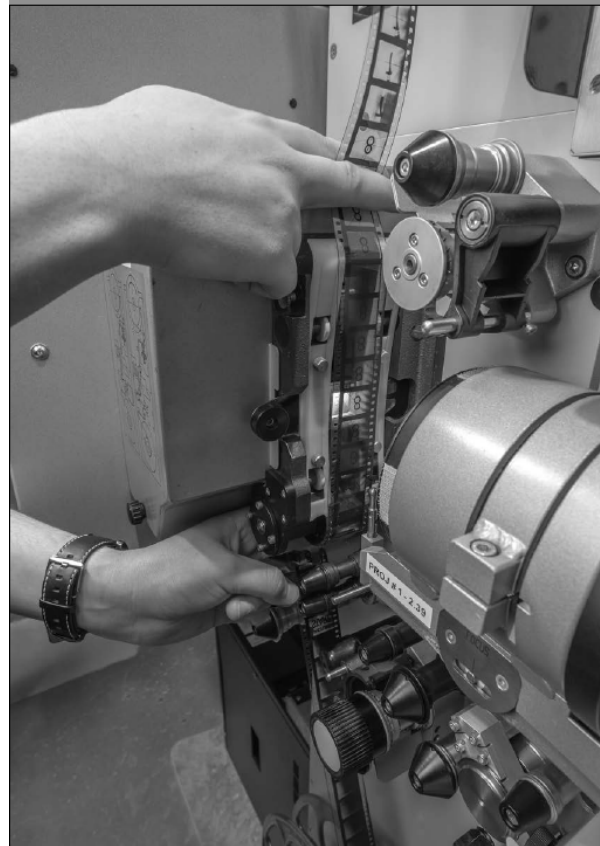
The second principle behind this book is an elaboration of the previous point, in positive terms. Because film preservation on film is now such a rare occurrence, and is so expensive to undertake, it makes no sense to waste so much energy and financial resources on the photochemical duplication of any given title if its brand-new projection print is damaged after a few screenings (or even in a single show, as projectionists know all too well). In early October 2016, the Cinémathèque française presented at the Pordenone Silent Film Festival (Le Giornate del Cinema Muto) a beautifully tinted print of the newly restored *Kean* (Alexandre Volkoff, 1924). A 35mm copy was struck at the Haghefilm laboratories in Amsterdam from the preservation negative; the black & white print was then sent to Prague, where it was manually tinted with a process very similar to the one used in the early decades of cinema. By all intents and purposes, that print is unique. (The film is also available in a high-resolution digital version, but the Cinémathèque française is to be applauded for having taken the hard route as well.) To make another copy would take a significant amount of time, money, and human effort. We would like to see that very same print shown again twenty years from now, and look as stunning as it is did in Pordenone.

This is by all means possible, with the necessary competence, patience, and goodwill. The point is illustrated by an anecdote reported by another eminent colleague in our field, David Francis, formerly Chief of the Motion Picture, Broadcasting and Recorded Sound Division at the Library of Congress in Washington, DC, and previously Curator of the British Film Institute's National Film Archive in London (now called the BFI National Archive). In 1965, a new 70mm Todd-AO print of *The Sound of Music* (Robert Wise, 1965) was screened in London at the Dominion Theatre on Tottenham Court Road (near the BFI's headquarters, where Francis was then employed). The film was a resounding success, and its tenure was extended indefinitely. At that point, the projectionists were offered – in Francis's recollection – a bonus of 10,000 British Pounds if they could make that one print last for the entire run of the film. By the end of its tenure at the Odeon, *The Sound of Music* remained unharmed after about 2,400 screenings. The projectionists received their bonus, and the BFI decided to ask for the print for the National Film Archive's collection, simply to show that a print would last a long time if projectionists were given the right incentive to keep it intact.

As nice as it would be to be able to remunerate film projectionists as much as they deserve, money is not the only thing that makes a print enjoy a long, productive life in a collecting institution. The care and dedication of its staff make the real difference. In another telling anecdote, Robert A. Ogie, Chief Projectionist at what was then called George Eastman House, screened the museum's 35mm print of *Bronenosets Potemkin* (*Battleship Potemkin*, Sergei M. Eisenstein, 1925) to a group of students in the late 1990s. The young viewers were stunned by the exceptional quality of the print and queried Ogie about its history and provenance. He first responded with a proud smile, and then added that the print had been acquired by the museum's founding film curator, James Card, sometime in the 1950s. Since then Ogie had been showing the very same print at least once a year; four decades later, it looked like new. "I was the one who projected that print every time," Ogie said, "and because the film could be found everywhere, nobody ever asked for our print to be loaned in over forty years." There was more than a touch of irony in Ogie's words, but his message

came through loud and clear. With the proper maintenance and care, a film print can indeed be screened many times with no appreciable change to its original condition.

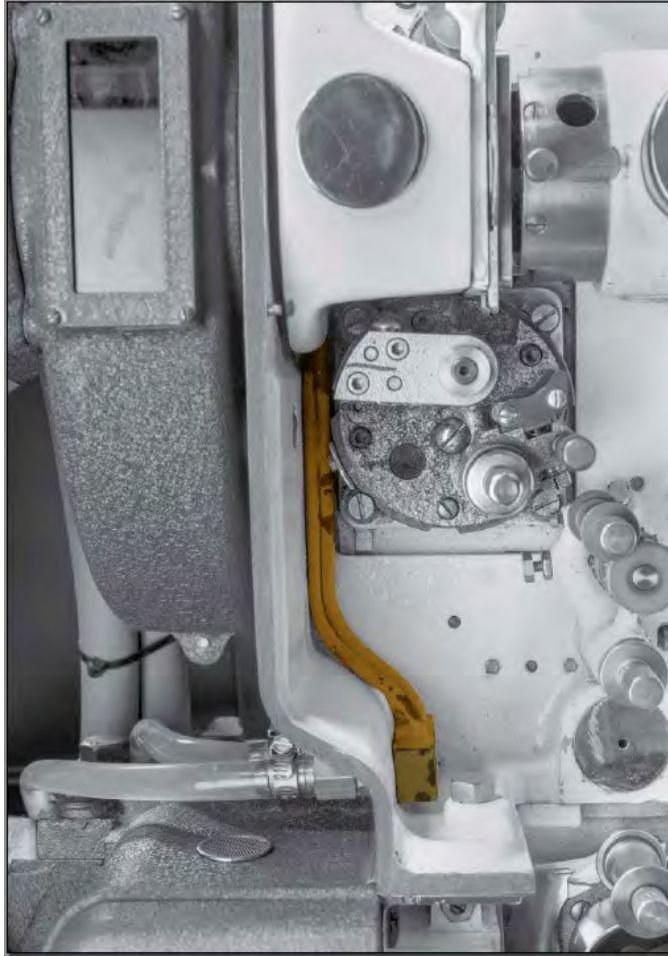
Films are preserved in order to be seen; this applies to both present and future audiences, who have equal rights to enjoy their beauty, now and one hundred years from now, which is what film preservation has always declared as its overarching goal. This book intends to show that this is not only possible but is also not too difficult to learn, once the key aspects of film projection are fully understood. One of its most underrated aspects has to do with what happens before and after the actual projection event. Print inspection is as important as the screening itself, because it is the phase in which the projectionist is given an opportunity to assess the condition of the artifact, prepare it for the screening, and verify its material status after the show, when the print is about to return to the climate-controlled vaults. Detailed condition reports before and after the exhibition of a work or object are customarily made by fine arts curators, who share them with the venue where the object is about to be, or has been, displayed. It is also normal for the receiving venues to examine, discuss, and agree upon the condition reports before the show takes place, as a gesture of understanding and respect for the work that has been previously done to protect the artifact.



This simple procedure can and should be implemented as a matter of course in the exhibition of archival films as well. Inspecting a print involves much more than rewinding it and checking that no tears or abrasions are present on the artifact; on average, a thorough print inspection takes at least half a day of work for a specialized technician. This important task has been unjustifiably neglected by collecting institutions, in the mistaken belief that such work is not a matter of priority. There is only one persuasive argument against this deep-rooted prejudice: print inspection is an aspect of curatorial work of no lesser value than all the others in a film museum. Even the humble act of rewinding a print is an act of curatorship, because it involves a set of decisions that affect the material condition of the film and its future life as a messenger of culture. Film projectionists are curators also because they are in charge of protecting and, when necessary, restoring the film apparatus that makes film exhibition possible. The thorough maintenance of projection equipment on an ongoing basis is in itself an integral part of the film preservation process; securing the availability of replacement parts for the equipment, and being able to build new ones if necessary, is like cleaning and tuning a musical instrument before and after a concert, replacing the strings of a violin or a guitar, or being able to manufacture new parts if necessary.

There is something self-defeating in the attitude that describes film projectionists as an endangered species. The only way to safeguard a form of cultural expression and prevent its premature extinction is to protect and cultivate its own environment. In a film museum or archive, this

environment is a complex ecosystem that consists of film prints and negatives, climatized vaults, equipment, and the personnel working in the institution. This includes the projection booth and its staff. The conservation, restoration, and use of projection equipment should become a mandatory topic for all courses in film preservation; its practitioners should be called curators, and their unique role in championing the cause of cinema should not only be recognized once and for all, but also celebrated in museums, archives, festivals, film societies, and every venue where the history of cinema is presented to an audience. Insofar as collecting institutions have photochemical motion picture films in their collections, and to the extent that they wish to present them in their original medium and format, there is no other way to achieve this goal. It must be emphasized that the same curatorial criteria should be applied to the preservation and exhibition of digital-born works, where



curatorship speaks a language that is technically different, but whose objectives are fundamentally the same as those pertaining to photochemical film.

Despite its unassuming look, this book is the result of a long planning process. Several drafts of the text were discussed, tested, and shared over many years with the students of the L. Jeffrey Selznick School of Film Preservation. For more than two decades, students and staff of the George Eastman Museum – film projectionists, technicians, and curators – learned from each other with their expertise and their questions, their long acquaintance with film artifacts, and the eager curiosity of those who touched these prints for the first time. They have seen nitrate film projected at the museum, both on a regular basis throughout the years, and at the Nitrate Picture Show, an event inaugurated in 2015, in which films made before the 1950s can still be appreciated in all their visual glory. Like fellow travelers, students and staff have written a joint diary of their experiences,

leaving no stone unturned in order to make the art and science of film projection find its long-overdue place of prominence in the realm of film curatorship. As this is a team endeavor, all of its participants – faculty and students – take responsibility for any errors and omissions, in the awareness that writing a handbook for beginners is in many ways more difficult than addressing film specialists, as it must present complex issues in the simplest possible terms. <>

### Expanded Animation: The Ars Electronica Anthology— Maps an Unlimited Landscape

Gerfried Stocker: When the first Ars Electronica Festival for art, technology and society took place 40 years ago, the scientist and computer artist Herbert W. Franke played a leading role. He was an early pioneer of computer graphics in Europe and a visionary thinker about the profound and, as we

say nowadays, disruptive changes that would come about through the spread of computers in our culture.

In his introductory text for the catalog of the first Ars Electronica Festival, he writes in depth about "visual computer art," its beginnings in the 1960s, and the first computer films by James Whitney and Jack Citron; he dedicates an interesting section to "graphic music" and makes some very informative and cutting-edge connections to kinetic art. However, in the course of many pages he uses the term "computer animation" itself only once. There he writes:

Finally, the successes achieved by the Americans in "computer animation" are astonishing. Today, programs are available that make it possible to render every conceivable object — even one that does not actually exist — as a realistic representation. All that is needed is a description of the shape, e.g. by entering spatial coordinates; then it appears on the screen, three-dimensional, with correct perspective, from any angle and in any kind of motion. There is also a choice of different surface forms, such as smooth, corrugated, or transparent; even reflections of an assumed environment and the phenomena of optical refraction are automatically calculated with transparency and represented according to the underlying form of the object. This is also a step towards perfection of the technology of illusion, with which non-existent fantasy worlds can be fabricated for the public.

In making his connections to kinetic art, the "moving works of art," he pursues an idea that was to become (although only much later) perhaps one of the most important aspects of computer art—interactivity--and expresses regret that the "viewer must be satisfied with recording the processes that are presented and has no opportunity to intervene" and continues by introducing great expectations for future computer art:

Information technology and cybernetics are creating a whole new state of affairs here: works of art can be conceived as automata that evolve their own activity or react to actions by the audience. Objects of this kind are considered "cybernetic art."

And vaguely (in accordance with the state of development in the 1970s but convincingly, he predicts that it will be the expansion and connection of these two aspects—the completely new possibilities for visual simulation and animation and the "bidirectional communication" between work and observer—that represent the great potential for the future. How right he was. As in all other areas where digital technologies are used, the field of "visual computer art" is exploding. It has branched off in many independent and heterogeneous directions and become inextricably intertwined with music, sound and interaction. It is algorithmic, auto-generative and now learns on its own. Add to this the easy availability of inexpensive soft and hardware and a still growing number of educational institutions that are revealing multitudes of talented young people.

Today, 40 years later, we might ask how many young people even think of the good old hand-drawn animated films from Walt Disney or Hanna-Barbera Studios when they hear the word animation, with computer-generated imagery having become a ubiquitous matter of course. Meanwhile, the expected "perfection of illusion technology" has become the actual impossibility of recognizing digital simulations or manipulations with the naked eye.

From the little animations designed to help us pass the time while booting up or downloading to the gigantic technological battles of modern movies, from elaborate data visualizations, to epic computer games, to breathtaking imaging methods in medical technology, digital images are expanded, boundless, and omnipresent.

To return to the first Ars Electronica Festival, it is interesting that the passage quoted above remains the only instance of the term "computer animation," which later became so popular, in the many



pages of the first Ars catalog, although the catalog contains a comprehensive discussion of the contingency of the new electronic and digital forms of imaging and image generation. The explanation may be that, as so often happens with technological developments, the time before they can be practically applied is always a phase of far-reaching visions that are then captured and narrowed by the commercial reality of consumer markets. This broad spectrum and potentiality of new possibilities must be rediscovered and redeveloped now that digital image production has been established even in the mainstream film, entertainment, and advertising industry. It is only in this expansion, which does not merely explore new possibilities but also lays claim to an elevated artistic interpretation of the possibilities of a new medium and its forms of expression, that we will find the true core of a new medium or a new form of art.

This book is therefore fully consistent with the tradition of Ars Electronica and the early thought leaders of a "computer culture."

As the result of a successful collaboration between Ars Electronica and the University of Applied Science Upper Austria, Hagenberg Campus and many international experts from the arts and sciences, the book is, to all intents and purposes, the essence of the Expanded Animation symposia that have been taking place since 2013. A series of events which, as the discursive center of the Ars Electronica Animation Festival, have made it their goal to explore the far-reaching potential of technological and artistic development of computer animation and digital film, to think ahead from the status quo and to add artistic and content-related visions to its commercial applications.

The range and expertise of the artists gathered here, along with the fascinating examples of artistic practice, represent an outstanding bridge between the power of storytelling with moving images and the still-expansive horizons of computer culture.

For the foreseeable future, we will be part of a culture completely dominated by images and visual communication. The artistic practices described in this book will be an essential foundation for the cultural inheritance and remembrance of our time.

### Ars Electronica Tackles the Digital Shift in the Context of Media Arts

Animation has become a pervasive element in contemporary moving image culture and in our daily lives, at times visibly recognizable as a simulation and at others almost indistinguishable from real-world content. Since the digital shift, the manifestations of animation have expanded, and the definitions have become unstable. Meanwhile, moving pictures created with computer technology constitute a very diverse spectrum, particularly in hybrid forms, and are products of highly interdisciplinary collaborative activities of individuals from the worlds of industry, research, art, and science. In this unlimited domain, animation is ubiquitous and yet simultaneously undifferentiated. Any attempt to develop a concept of computer animation requires close examination of this dynamic and constantly expanding field.

Over the last 40 years, Ars Electronica has tackled this issue and discussed animation in the context of media arts. Since 2013, the University of Applied Sciences Upper Austria, Hagenberg Campus and Ars Electronica have organized the symposium "Expanded Animation," which aims to address the traversal of borders, hybrid forms, and fringe areas within the field of computer animation. Based on various approaches to that topic, this book contributes to the discussion, focusing on current positions of Expanded Animation in media arts. The book summarizes the examinations presented in the six symposium editions from 2013 to 2018, including theoretical and artist perspectives. It also features a selection of current artworks.

## Six Symposium Expanded Animation

The first chapter reviews and discusses the six editions of the symposium Expanded Animation. This recap is preceded by an introduction to the concept of Expanded Animation and its roots in Expanded Cinema as well as the discussions on that topic at Ars Electronica. The following section provides a selection of six theoretical perspectives. In Stan VanDerBeek: From Collage Film to Cybernetic Cinema Ulrich Wegenast introduces the reader to the complex work of the American artist VanDerBeek, who developed a multitude of concepts ranging from subversive underground film, immersive dome cinemas and global networks to media performances and computer films. In Paracinema and the Dematerialization of Animation Birgitta Hosea reflects on one strand of expanded cinema-the Ili concept of paracinema coined by film theorist Jonathan Walley-by considering the expanded work of VALIE EXPORT and Anthony McCall. Juergen Hagler writes in Anomalies at the Intersection of Animation, Media Art and Technology about how to distinguish different types of animation anomalies, ranging from deconstruction, self-critical reflection, to stereoscopy, virtual reality (VR) or artificial intelligence (AI). These anomalies at the interface of animation, media art, and technology could offer novel qualities that can foster developments in science, art and economy. The aim of Franziska Bruckner's paper: Virtual Hybrid Image, Virtual Hybrid Montage: Notes on the Hybridization of Live Action and Animation within Virtual Reality Environments is to identify potentials and challenges of animated content in virtual reality environments via a method of film analysis designed for animation-film studies.

Rupturing Visions: Towards an Expanded Stereoscopy by Max Hattler investigates the potential of stereoscopic imagery to create experiences for the audience that go beyond the mere re-creation of three-dimensional space, creating visual ruptures as well as confusion in spatial perception. Radical Action and Pure Joy: David O'Reilly's Video Game Everything in the Context of Game Art, Art History, and a new Gamic Avantgarde by Stephan Schwingeler discusses O'Reilly's Everything from different perspectives and situates it in art history. The game serves as an example for a new form of radical gameplay, being one of the first games to embrace the potentialities of videogames as artistic and hybrid material. Diana Arellano describes in her article The Other Face of Animation the work that she and her colleagues have done in the field of facial character animation at the Animationsinstitut, Filmakademie Baden-Württemberg.

## Rupturing Visions Border Art, Science, and Play

The next section features six artist perspectives that are traversing the borders of art, science, and play. From the perspective of a visual artist, Markos Kay explores the intersection of art and science in his work Simulating Scientific Observation in order to create public engagement with scientific theory through a visual communication approach. Abigail Addison presents the project Silent Signal, six experimental animated artworks that explore novel approaches to thinking about the human body and the signals that enable the bodies to operate and to adapt in order to fight disease. The contribution Bringing Art to Everyday: Media Art Nexus NTU Singapore in Review 2016-18, written by Ina Conradi and Marl<sup><</sup> Chavez looks at the emergence of the Art on Campus initiative at Nanyang Technological University Singapore and at the roles of the artists who led the urban media platform, also known as the Media Art Nexus (MAN). The article gold extra: Endeavors in Artistic Diversity by Reinhold Bidner, Sonja Prlic and Karl Zechenter details their work in the artist group gold extra by describing the group's use of animation and the role it plays in a collaborative artistic process. In the contribution Now You Touch it, Now You Don't: Experiments in Virtual Interfaces, Anezka Sebek presents a variety of interface experiments made by her graduate students. Their experiments raise several questions, such as how an interface is felt or how people experience the stories embedded in VR. In Images between Digital Realism and Analog Believability Virgil Widrich



addresses the combination of analog and digital film techniques, which he sees as an unexplored treasure to create entirely different images that make no pretense at realism, but become precise through their abstraction. The last section, Expanded Animation: Selection of Ars Electronica 2011-2018 features a compilation of 41 projects that illustrate current positions. All selected projects were presented at the Ars Electronica Festival, for instance exhibited at Ars Electronica Center or at the CyberArts exhibition, screened at the Ars Electronica Animation Festival or featured at the Deep Space 8K. Of these, about two thirds were male artists, and one third consisted of female artists and groups of male and female artists. The selection also includes 7 Golden Nica winners, 7 Award of Distinction winners, and 19 Honorary Mentions. In total, 28 artists were invited as speakers at the Expanded Animation symposium. The selection comprises a wide range of experimental contributions in an interdisciplinary field at the nexus of art, industry, R&D, and science, including hybrid-blending elements of animation, computer gaming, theater and performance, projection mappings, media façades, site-specific installations, trans-media projects, interactive and reactive works, or VR experiences.

In spite of the vast spectrum, some evolving trends can be noted: first, many works follow the main idea of expanded cinema that regards moving images as an art form in the context of media art or contemporary art. Many of these are exhibits presented in galleries and museums, in site-specific installations or in performances commissioned by art festivals, concerts or public events. This is not a new trend, as these tendencies have been significantly evident in the Prix category Computer Animation in the last two decades. The first example in the presented selection is the video installation Flux (2011) by Candas Sisman, commissioned by Plato Art Space, given an Honorary Mention in 2011. In the following years, four installations were awarded with a Golden Nica: Rear Window Loop (2012) by Jeff Desom, a multichannel installation showing a found footage collage of Alfred Hitchcock's classic film Rear Window, Forms (2013) by Quayola & Memo Akten, an abstract motion sculpture, Walking City (2014) by Universal Everything, a museum installation that formally scrutinizes the human walk cycle, and Idle Times / Temps Mort (2015), by Alex Verhaest. The last-mentioned artwork consists of multiple interactive screens and can be considered a prime example for interactive artworks in the context of animation. The selection presents various forms of works on the blurring border between computer animation, playful installations, and interactive art like Augmented Hand Series (2015), by Golan Levin and his team, or the game Everything (2017) by David O'Reilly. In the realm of expanded cinema, various new presentation forms that go beyond the conventional screens, such as projection mappings, media façades, or experimental devices like Light Barrier 3rd Edition (2017) by Kimchi and Chips, are among the selection.

Furthermore, there are various examples of hybrids between the analog and digital world, ranging from experimental approaches like Rediscovery of Anima (2018) by Akinori Goto without any digital technology, to common hybrids between traditional and digital technologies (e.g., impressively demonstrated by Boris Labbé's recent animated short movies). Beyond that, various experimental works are exhibited that utilize new digital technologies like drones, VR, AI, or realtime technologies. The selected VR works in animation show a broad range of application, from 360° videos to interactive installations, like James Paterson's animation software Norman (2018).

This selection explores the fringes of computer animation and of course, the question arises of whether some of these artworks can be considered part of the expanded field of animation or whether the artists themselves would place their work in that category. Many artworks defy categorization and comparison and are unique in their kind. However, as the evolution of Prix Ars Electronica illustrates, boundaries within computer animation, interactive art, sound art, and hybrid art are blurring. For instance, the oeuvre of Irish artist John Gerrard is primarily a work of

contemporary art. As the artist utilizes new animation technology for his creations, like motion capture, real-time technology or simulation software, several of his installations, such as *Western Flag* (2018), are prime examples for expanded digital animation. Another vivid example is Golan Levin, who won awards in the Prix Ars Electronica category Computer Animation as well in Hybrid Art, Interactive Art and Net Vision / Net Excellence.

Many of the works presented here serve as a basis for the articles in the previous sections.

Franziska Bruckner analyzes the VR experiences *Out of Exile* (2017) and *Zero Days VR* (2017). Juergen Hagler's analysis of artistic anomalies is based on many of the presented works and further examples from Prix Ars Electronica's category Computer Animation. Max Hattler's article discusses the experimental and expanded stereoscopy found in many artworks that were exhibited at Ars Electronica (e.g., *The Chimera of M.* (2013) by Sebastian Buerkner or *Shadowland* (2014) by Kazuhiro Goshima). Markos Kay gives an insight into his artistic work and Stephan Schwingeler's article centers on the game *Everything* by David O'Reilly. The selection offered here fits in perfectly as a supplement to the theoretical and artistic perspectives. <>

### Effective Data Visualization

The moment you publish a book that is based on software, you accept the fact that some of the content is already obsolete and that a second edition is inevitable. This was actually a genius move on my part.

But this edition of [Effective Data Visualization](#) contains a lot more than updated screenshots of Excel. Hang on tight—I included nine entirely new quantitative graphs: overlapping bars (the number-one graph I recommend to the companies I consult), vertical dumbbell dot plots (my number-two most recommended graph), waffle charts, pictographs, bump charts, connected scatterplots, water-falls, tile maps, and combination charts with target lines. Oh my gosh, you are going to learn so much. Of course, the quantitative chart chooser printed on the inside front cover has been updated to reflect these additions so you have a handy reference guide.

Did you look at the inside back cover too? This edition features a qualitative chart chooser as well. In fact, the entire qualitative chapter was scrapped and overhauled. We have packed over a dozen ways to visualize qualitative data into this chapter. You are going to be introduced to compelling ways to show qualitative data that you probably haven't seen before, including journey maps, histomaps, and spectrum displays. As with the rest of the lessons in this book, you won't need anything beyond Excel and PowerPoint to recreate these qualitative visuals. Qualitative data visualization may not be as well developed as the field of quantitative viz, but this chapter and the accompanying chart chooser are steps in that direction.

Even with all the new content to learn from, you'll want to review your favorites, because I've updated and simplified the directions, saving you valuable time you can put toward other ways you save the world. I've also packed each chapter with more support from peer-reviewed research around human perception, cognition, psychology, and data visualization so that you can have more confidence trying out new graph types. Be sure to download the updated sample data set from this book's associated website so you can build amazing visuals right alongside me.

Oh, one more edition addition: Every image is now in full color. Color should make it approximately a million times easier to make sure your screen matches my screenshots. Easy, impactful dataviz. Does it get any better?

### Building a Culture of Effective Data Visualization

The kinds of culture change I've described in this chapter happen consistently when we visualize data effectively. And it's the data nerds who lead the way! But it isn't always easy.

Whether data visualization and good design make a difference in communicating data almost shouldn't even be a question. It has the sort of validity that hits you right between the eyeballs. Once you see what good graphic design can do to data, it can be difficult to go back to the traditional way of reporting.

Beyond how good it looks, we have strong evidence that elements like color and font impact comprehension, that the presence of graphs and photographs increases credibility and persuasiveness, and that certain graph types will be better than others at telling an accurate data story.

Despite these easily accessed credible and compelling arguments, reporting data is steeped in organizational culture. And culture can be hard to change.

I see the struggle happen frequently after people leave my workshops or read my books. This may even happen to you. You get practical, immediately implementable ideas that you can take back to your organization that will lead a data visualization revolution. But then you discover you're the only one in your office who understands how much difference it can make to your ability to communicate your data when they are presented effectively, with smart design and data visualization. And you bump up against a culture that didn't hear the compelling arguments or see the dramatic reporting makeovers that were featured in this book or in my workshops. The rest of the office will need a bit more than your eager evangelizing to join you in the data viz revolution. Many of my past clients have successfully shifted organizational culture around reporting, and I polled them for what worked so that I could pass these strategies on to you and help you feel less alone.

### Acknowledge Fears

First of all, the rest of the office is unlikely to change until their hesitations are acknowledged. Change is hard. It means that people have to take time out of their busy lives to learn new skills. People are already overwhelmed with work, and this would be (at least initially) adding more to their schedules. Even more, some people are afraid they won't be able to learn the new skill and that they'll be left behind and seen as a less valuable employee.

Changing the look of organizational reporting seems like a very tall mountain to climb, because the before and after makeovers in this book are transformational. So people can get intimidated by what appears to also mean a very tall mountain of work. In reality, it's just the makeover that is monumental. Yes, there will be some new skills to learn and a bit more work to do at first, but the amount of time it takes is not proportionate to the size of the transformation you'll get in reporting.

We data viz leaders will have to reassure people regarding their time- and skill-related fears. The Chief Product Office at Tableau, a major data visualization software, wrote about one way to address this fear in Forbes: "To break long-held habits and encourage the use of data beyond a core group of analysts, organizations should invest in educational opportunities to help the entire workforce become more data-literate and explore ways to create a streamlined data experience for newer users." Sometimes people express this fear by being skeptical that good data visualization even has an impact, so we will have to help the skeptics, too.

### Communicate Importance

To get people on board with the revolution, you have to address their fears and hesitations by explaining why clear data visualization is important. The whole point of this chapter, and indeed this whole book, is that it is important to know which graph type is going to showcase your story the best—with the most accuracy and the most clarity. It is important to know how to create those graphs by mastering the tools you already own. This all makes us feel like rock stars.

But the real reason we devote our time and energy to the graph is because it is how people learn. It is how people come to understand information so that they can make decisions and take action. And this clear communication changes the game.

Visualizing data effectively shows that we are credible, professional, and trustworthy. It makes data-driven decision making a true reality, transforming internal culture and external industry leadership. This part of the discussion is most convincingly delivered by the CEO. Our audiences are more informed, but also they are grateful and loyal because we have given them information they need in a format that is useful. We have cooperated with how their brains work.

Beyond this nice transformation to our organizations, data represent lives. It is our job to take care with people, their lives, their data and represent them accurately and clearly so that decisions that affect them are made with as much clarity as possible. Point skeptics to the big picture.

Most employees should be convinced at least of the worth of good data visualization through this discussion of how people consume information and skeptics should be satisfied by the research that supports this discussion. Point them to the references at the end of every chapter. Indeed, sometimes it takes an outside authority, a voice from outside the company, to get some folks on board. Slide this book in their mailbox.

### Make It Easy

Once we have folks conceptually a part of the data viz revolution, we need to deliver on the promise that change won't be that hard. It helps to give them the tools that make it easy. Past clients have used our workshop or this book as a springboard to making graph template files, where others need only pop in their own data to generate a dot plot from the premade graph. Abundant examples of in-house high-impact data visualizations can also support an argument that data visualization is applicable and effective, so share your own work widely. Put this book in the office library, mount chart-chooser posters to the office walls, add great data visualizations in the office newsletter; just keep sharing examples.

In fact, some of my clients have organized regular data visualization meet-ups over lunch or happy hour where folks can bring their works in progress for feedback in a safe, growth-focused space. Others have run data viz-based book clubs to study and apply new ideas. One client organized more targeted trainings in various departments to create multiple data viz go-to gurus so employees had plenty of colleagues to consult. Some even posted regular office hours to allow walk-in consulting. (These very smart moves should be supported by formal changes to guru schedules and responsibilities.)

Common barriers to joining the data viz revolution—lack of time, skill, and resources—are solvable problems with the easy solutions proposed in this section. <>

### Ghosts in the Machine

The human labor powering many mobile phone apps, websites, and artificial intelligence systems can be hard to see — in fact, it's often intentionally hidden. We call this opaque world of employment

ghost work.' Think about the last time you searched for something on the web. Maybe you were looking for a trending news topic, an update on your favorite team, or fresh celebrity gossip. Ever wonder why the images and links that the search engine returned didn't contain adult content or completely random results? After all, every business, illicit or legitimate, advertising online would love to have its site ranked higher in your web search. Or think about the last time you scrolled through your Facebook, Instagram, or Twitter feed. How do those sites enforce their no-graphic-violence and no-hate-speech policies? On the internet, anyone can say anything, and, given the chance, people certainly will. So how do we get such a sanitized view? The answer is people and software working together to deliver seemingly automated services to customers like you and me.

Beyond some basic decisions, today's artificial intelligence can't function without humans in the loop. Whether it's delivering a relevant newsfeed or carrying out a complicated texted-in pizza order, when the artificial intelligence (AI) trips up or can't finish the job, thousands of businesses call on people to quietly complete the project. This new digital assembly line aggregates the collective input of distributed workers, ships pieces of projects rather than products, and operates across a host of businesses. Businesses can collect projects from thousands of workers, paid by the task. Now they can depend on internet access, cloud computing, sophisticated databases, and the engineering technique of human computation — people working in concert with AIs — to loop humans into completing projects that are otherwise beyond the ability of software alone. This fusion of code and human smarts is growing fast. According to the Pew Research Center's 2016 report *Gig Work, Online Selling and Home Sharing*, roughly 20 million U.S. adults earned money completing tasks distributed on demand the previous year.<sup>1</sup> Professional, white-collar information service work, delivered through on-demand work platforms, is already projected to add \$2.7 trillion, or 2.0 percent, to global GDP by 2025.<sup>2</sup> If trends continue at the current rate, economists estimate that by the early 2030s, tech innovation could dismantle and semi-automate roughly 38 percent of jobs in the U.S. alone.<sup>3</sup> Left unchecked, the combination of ghost work's opaque employment practices and the shibboleth of an all-powerful artificial intelligence could render the labor of hundreds of millions of people invisible.

Who does this kind of work? People like Joan and Kala.

Joan works from the Houston home she shares with her 81-year-old mother. In 2012, Joan moved in to care for her mother after a knee surgery left her mom too frail to live on her own. A year later, Joan started picking up work online through MTurk — short for "Amazon Mechanical Turk," a sprawling marketplace owned and operated by tech giant Amazon.com. Joan makes some of her best money doing "dollars for dick pics." That's how she describes labeling pictures flagged as "offensive" by social media users on platforms like Twitter and Match.com.

Companies can't automatically process every piece of content users flag for review, so some of the harder-to-evaluate materials are routed to workers like Joan. On the surface, her task seems simple: click on pictures and assess their content. Is that an X-rated penis selfie that should be removed, or some innocuous G-rated body part? She is paid for each task she completes and decides when she walks away from her computer. Joan, with years of practice, now knows how to piece together an average ten-hour day that will bring in roughly \$40 worth of such tasks.

Thousands of miles away in Bangalore, India, Kala works from her makeshift home office, tucked away in the corner of her bedroom.<sup>4</sup> Joan and Kala do similar tasks, sorting and tagging words and images for internet companies, but Kala picks up work from an outsourcing company that supplies staff to the Universal Human Relevance System (UHRS), an MTurk-like platform used internally by its builder, Microsoft. Kala, a 43-year-old housewife and mother of two with a bachelor's degree in electrical engineering, calls her two teenage sons into the room, points to a word displayed inside a

large text box on her LED monitor, and asks them, "Do you know what this word means? Is it something you shouldn't say?" They giggle as she reads the text out loud to them. They make fun of her pronunciation of "chick flick." Together they decide that, no, this sentence does not contain adult content. Kala clicks "no" on the screen, and the window refreshes with a new text phrase to read to her sons. "They are more qualified to recognize these words than me," she says, laughing. "They help me keep the internet clean and safe for other families." Though she's typically unable to find enough tasks to fill more than 15 hours of work in a given week, Kala returns to UHRS almost every day to see if there are any new tasks that she feels qualified to do. Kala's doggedness and luck in the past have paid off. Now that she's learned how to browse and claim tasks quickly, Kala can make the time she has between making meals and checking her children's homework feel, as she puts it, "fruitful" as she does web research for what she considers extra income.

Content moderation — from sifting through newsfeeds and search results to adjudicating disputes over appropriate content to help technology and media companies figure out what to leave up or take down — is just one example of a new type of work that depends on people like Joan and Kala. Reviewing content is a common, often time-sensitive task generated in the wake of social media companies' attempts to identify family-friendly materials for the billions of people who use their sites every day. There are way too many webpages, photos, and tweets in every imaginable language for people like Joan and Kala to assess them all.

Companies like Google, Microsoft, Facebook, and Twitter use software to automatically remove as much "not safe for work" content as they can, wherever possible. But these software filtering systems, powered by machine learning and artificial intelligence, aren't perfect. They can't always tell the difference between a thumb and a penis, let alone hate speech and sarcasm. Remember that classic moment in the 2012 U.S. presidential campaign when Republican candidate Mitt Romney uttered the phrase "binders full of women!?" Twitter needed workers, doing the same type of work that Joan does, to figure out, in real time, why a hashtag attached to such an obtuse phrase was quickly soaring to the top of its trending topics. Was it a hack? A glitch? Bona fide, frenetic Twitter use? Current AI systems can't reliably tell the difference. On-demand work offers the promise of blending the power of computation with the creativity and dynamism of human insight.

This book is the story of Joan, Kala, and the millions of workers like them who step in when AI falls short. They are the humans behind the seemingly automated systems that we all take for granted. But modern AI systems don't just need humans to answer an unfamiliar or challenging question; they also need humans to help them learn how to answer anything in the first place. For example, do an image search for "camelback couch" and you'll get a whole bunch of pictures of couches with curved backs. Search engines like Bing and Google don't see or understand images in the way we humans do. Furniture aficionados need no more than a second to recognize a swank piece of furniture with a curved back that multiple people can sit on as a camelback couch. The AI systems behind search engines must start with at least a few hundred images of curve-backed couches, each labeled "camelback couch." Then, when the search engine encounters a new picture of a couch, it runs what is called a "classification algorithm," which essentially checks to see if the couch in this new image matches the geometrical patterns of those labeled "camelback" more than those not labeled "camelback." Now, where did the initial set of labeled images, called training data, come from? From people like Justin. With no more than a two-sentence task description as guidance, workers like Justin must claim a job within seconds or lose it to someone else willing to scoop up the job first. Justin's a stay-at-home dad with two young sons, working around his kids' preschool and nap schedules. He readily admits he had no idea what a camelback couch was at the start. "I had to spend an enormous amount of time on Google trying to look up these terms to figure out what they meant before I could answer the questions."



TripAdvisor, Match.com, Google, Twitter, Facebook, and Microsoft are some of the better-known businesses that generate an array of projects that people like Justin are paid to do, task by task, 24 hours a day, seven days a week. New companies crop up every day with business models that depend on workers around the world who respond to open calls routed through software to do this behind-the-scenes work. Businesses that can contract out their day-to-day activities to independent workers instead of regular employees can use ghost work to answer a web-based customer chat query, edit a product review, or do just about any task that doesn't require an employee's full-time, physical presence.

### How Does Ghost Work Work?

A computer program is no more than a list of instructions that tell a computer what to do. When two software programs (or a piece of software and a piece of hardware) need to communicate, they must first establish a common language. They do so via an application programming interface, or API. The API determines the common language by defining the list of instructions that a program will accept and what will happen after each instruction is executed. One could say that the API specifies the computer program's "rules of engagement." For example, there are hundreds if not thousands of different kinds of computers on the market right now, so writing a custom version of a software system for each type would be impossibly complex. But when all (or at least significant fractions) of the machines available obey the same API, programmers can write code once for all of these kinds of machines, because the API ensures that all of the machines understand the same language. These types of APIs are limited to what a computer can do, but the MTurk API enabled software developers to write programs, using only a slightly different set of instructions, that automatically pay humans to do tasks.

Normally, when a programmer wants to compute something, they interact with a CPU through an API defined by an operating system. But when a programmer uses ghost work to complete a task, they interact with a person working with them through the on-demand labor platform's API.<sup>1</sup> The programmer issues a task to a human and relies on the person's creative capacity — and availability — to answer the call. Unlike CPUs, humans have agency: they make their own decisions. While CPUs just execute whatever instruction they are given, humans make spontaneous, creative decisions and bring their own interpretations to the mix. And they have needs, motivations, and biases beyond the moment of engagement with the API. Given the same input, a CPU will always output the same thing. On the other hand, if you send a hungry human into a grocery store, he or she will walk out with a dramatically different bag of groceries than if they were not hungry. In exchange for this impetuosity and spontaneity, humans bring something to work that CPUs lack: creativity and innovation. Joan, Kala, and Justin are members of a growing economy, hidden by APIs and fueled by ghost work.

Less than two decades ago, software developers only wrote code for computers to execute. The MTurk API, and those that followed, allowed programmers to use humans to do tasks that are beyond a computer's capacity, like accurately making a quick judgment call, as Kala and Joan do when they determine what is and isn't adult content. In fact, anyone sitting in front of a web browser could now answer an automated request for help. Businesses call this mix of APIs, rote computation, and human ingenuity "crowdsourcing," "microwork," or "crowdwork." Computer scientists call it "human computation." Any project that can be broken down into a series of discrete tasks can be solved using human computation. Software can use these APIs to manage the workflow and process the output of computers and individuals and even pay people for their contributions once they have completed the task. These people power modern AI systems, websites, and apps that we all use and take for granted.

Imagine a woman in her early twenties — let's call her Emily — standing on a curb in Chicago. Emily opens the Uber app on her smartphone and an Uber driver responds. Neither Emily nor the driver knows that their meeting hinges on another woman, two oceans away — perhaps her name is Ayesha.

Emily and her driver have no idea that Uber's software just flagged his account. The driver — let's say his name is Sam — shaved off his beard last night for his girlfriend's birthday. Now the selfie he took this morning — part of Uber's Real-Time ID Check, rolled out in 2016 to authenticate drivers — doesn't match his photo ID on record. It didn't occur to Sam that a discrepancy between the two photos — one showing him with a beard, one without — would automatically suspend his account. But suddenly, and unbeknownst to him, his livelihood hangs in the balance.

Meanwhile, overseas in Hyderabad, the Silicon Valley of India, Ayesha sits at her kitchen table, squinting at her laptop. She just accepted a job routed from Uber to CrowdFlower's software, and now she is an invisible yet integral part of the ride. CrowdFlower and its competitors with similarly hip-techy names, like CloudFactory, Playment, and Clickworker, offer their platform's software as a service to anyone who needs quick access to a ready crowd of workers. Tens of thousands of people like Ayesha log on to crowdsourcing platforms like CrowdFlower every day, looking for task-based work. Now Ayesha — and any other invisible workers who happen to have responded to CrowdFlower's request — will determine whether Sam picks up Emily.

Uber and CrowdFlower are two links in a growing supply chain of services that use APIs and human computation to put people to work. Uber uses CrowdFlower's API to pay someone to review the results of Ayesha's work, and, if it passes muster, it will process Uber's payment to her within minutes. If it doesn't meet the preprogrammed bar, Ayesha won't get paid for her efforts, nor will she have any meaningful opportunity to lodge a complaint. The API isn't designed to listen to Ayesha.

Ayesha compares the two photos of the driver side by side. A timer in the top right-hand corner of CrowdFlower's webpage winds down, prompting her to speed up. If she doesn't submit a response before the timer runs out, CrowdFlower won't process Uber's payment for the task. Ayesha blinks, glances at the timer, and squints at the thumbnail-size photos: Yes, those are the same brown eyes. The same dimpled cheeks. She clicks "okay."

Sam's account is authorized to pick up Emily just as he pulls up to the curb. Emily stops scanning the congested Chicago traffic and climbs into his car. By the time the car door closes, Ayesha has moved on to the next task. She hopes to net a few more rupees before she ends her workday.

Neither Uber's passengers nor their drivers realize that a person, working far away or perhaps just down the road, might vet their transaction in real time. Imperceptible exchanges like this one determine one out of every 100 Uber pickups in the United States, which means they happen roughly 13,000 times a day. We never saw the ghost work that Ayesha could do for CrowdFlower, but, having spent time with her and workers like her, we can imagine the fleeting market exchanges that consumers like Emily and drivers like Sam will never see. Ayesha is the only artifact of ghost work's presence and, as such, the only one who can help us recover the experience of ghost work after Emily and Sam are long gone. Billions of people consume website content, search engine queries, tweets, posts, and mobile-app-enabled services every day. They assume that their purchases are made possible by the magic of technology alone. But, in reality, they are being served by an international staff, quietly laboring in the background. These jobs, dominated by freelance and contingent work arrangements rather than full-time or even hourly wage positions, have no established, legal status. Sometimes these jobs are given heft as harbingers of the "Second Machine

Age" or the "Fourth Industrial Revolution" or part of a larger digital or platform economy. Other times, they're simply, glibly called gigs.

No employment laws capture the on-demand gig economy's odd mix of independence from any single employer and dependency on a webbased platform. As the taskmasters of the gig economy, on-demand platforms make their money by matching those buying and selling human labor online, generating a two-sided market of myriad businesses and anonymous crowds of workers. And, importantly, as media scholar and sociologist Tarleton Gillespie points out, platforms may not create the content that they host, "but they do make important choices about it." On-demand work platforms can easily become silent business partners more aligned with the interests of those willing to pay a fee to find workers than with the workers searching for jobs.

From the largest firms to the smallest startups, companies rely on this shared pool of on-demand workers amassed by on-demand platforms. They use this assembly of workers to satisfy customers who have grown to expect responses to their requests within seconds. Businesses turn to this pool, instead of traditional temporary staffing agencies, to fill last-minute gaps on their teams. They draw from it to spin up new projects, from testing a new software privacy setting to vetting descriptions of culturally attuned mac-and-cheese flavors. Such ventures are too speculative or loosely understood to justify hiring a full-time employee or the expense of recruiting, even through a temp service. No business wants to invest in launching a new service or product without gauging how consumers will respond. Service industries, driven by the ever-shifting winds of customer taste and satisfaction, can try out ideas generated by ghost work and iterate on responses from other workers, standing in for the average consumer.

### Robots Might Be Coming, but They Aren't Here Yet

Every week, another breathless headline proclaims the end of work. Soon, we are warned, the robots will rise up against us. Automation and its handmaiden, artificial intelligence, are widely understood as processes making human labor obsolete. Robotic arms can move sheets of metal across the factory floor. Software bots can take texted pizza orders. Drones can deliver packages to our doorsteps. These intelligent systems, now hitched to many traditional employment sites, are said to herald the rapid disappearance of humans in the workplace. The inevitable triumph of AI, so the story goes, will make all but the most uniquely qualified workers redundant. We all need to skill up. Now.

Tesla and SpaceX founder Elon Musk, renowned physicist Stephen Hawking, and Google co-founder Larry Page are just a few of the prominent voices in this chorus.' Either they express panic about "summoning the demon" of AI or wax nostalgic about a time before AI, when humans supposedly controlled their own destiny. But arresting headlines obscure a messier reality. While it's undeniably true that robots are on the rise, most automated jobs still require humans to work around the clock, often part-time or on a contract basis, fine-tuning and caring for automated processes when the machines get stuck or break down, as technical systems, like humans, are apt to do.

It's also true that the long march toward automation has historically created new needs and different types of human labor to fill those needs. In this respect, the new, software-managed work world shares features of the factory jobs that assembled cars by placing workers on a production line where and when they were needed most. It also resembles the so-called piecework that women and children did on farms in the 19th century, assembling matchstick boxes for pennies a pop. And it overlaps in obvious ways with the outsourcing of medical transcription and call center work to the Global South that boomed with the expansion of the internet in the late 1990s.

Factory work, piecework, and outsourcing were all precursors to tasks distributed online insofar as they involved jobs that were small, repetitive, and removed from the bigger picture. These jobs came with little stability or support. They were done, most often, by people whom economists might consider expendable or "low skill." The market calls this, unironically, "human capital." Clicking "dog" or "cat" to label an image that will eventually enable an iPhone to recognize a family pet is not that different from turning a screw on what will eventually become a Ford truck. But that's where the job similarities end.

Blue-collar manufacturing jobs have been the most visible targets of AI's advance. The Foxconn factories that make iPhones allegedly replaced 60,000 humans with robots in 2016. Amazon's 20 fulfillment centers reportedly deployed 45,000 robots to work alongside 230,000 people that same year. Yet these numbers confound how many jobs are created by automation. And the media coverage of AI's impact on full-time blue-collar work can distract us from the rapid growth of a new category of human workers to complement or tend to automated manufacturing systems when AI hits its limits.

In the past 20 years, the most profitable companies have slowly transitioned from ones that mass-manufacture durable goods, like furniture and clothing, to businesses that sell services, like healthcare, consumer analytics, and retail. There's more money to be made in selling consumers an experience, from sipping a latte to watching a bit of infotainment, than building a television set. Businesses of all types manage costs by tapping into and maintaining control of a pool of contingent workers.

Having who you want, when you want them, is now a half-century-old strategy for avoiding negotiations with full-time employees and the classification and employment laws that protect them.

This hybrid of humans and AI reconfiguring manufacturing, retail, marketing, and customer service has outstripped familiar employment categories. Unlike the repetitious lockstep of factory-controlled, fulltime manufacturing shift work, these task-based services, such as correctly amending a client's tax return or translating and captioning a video in real time, depend on endless iterations of human discernment and divination that don't fit neatly into a traditional 40-hour workweek. The tasks are dynamic, not merely mechanical, which is why it is difficult to eliminate humans from the task at hand.

AI is simply not as smart as most people hope or fear. Take, for example, the celebrated accomplishments of the AI powering AlphaGo, most recently chronicled in technologist Scott Hartley's book *The Fuzzy and the Techie*. In May 2017, AlphaGo became the first computer program to beat Ke Jie, the reigning world champion of the ancient Chinese board game go. Five months later, AlphaGo fell to its progeny, AlphaGo Zero. But, lest we be too impressed, it's important to keep in mind that the rules of go are fixed and fully formalized and it is played in a closed environment where only the two players' actions determine the outcome. AlphaGo and AlphaGo Zero's human programmers at the Google-backed company DeepMind gave the programs clear definitions of winning versus losing. Winning go is about foreseeing the long-term consequences of one's actions as one plays them out against those of an opponent. So AlphaGo was trained on billions of board positions using a large database of games between human experts, as well as games against itself, allowing it to learn what constitutes a better move or a stronger board position.' AlphaGo Zero was then steeped in all of those prior experiences by playing against AlphaGo, a mirror image of self. But, as Tom Dietterich, a noted expert in artificial intelligence research, suggests, "we must rely on humans to backfill with their broad knowledge of the world" to accomplish most day-to-day tasks. Real life is more complicated than a game of go.

The new online work platforms that channel jobs to Joan, Kala, Justin, and Ayesha upend the mediagenic stories about AI's boundless wisdom and the inexorable rise of robots. Real-world tasks, from identifying hate speech or categorizing a rental as a great springtime wedding venue to correctly amending a tax return, require human discernment. Formalizing the singular, best choice, as you might in a game of go, won't work. For example, it would be difficult, if not impossible, to enumerate every attribute of a wedding venue that would make it the "best." Even if this were possible, people would have different preferences when it came to the attributes of the venue. Moreover, the training data to teach AI to recognize what counts as the "best choice" does not exist. In addition, an endless set of external factors, from vernacular slang and climate-change-induced hurricanes to haphazard tax reform legislation, can intrude and influence the outcome. In many cases, there are too many unknowns to train current AIs to be aware enough or gain enough experience to intelligently respond to all cases of the unexpected. This is why AI must return to humans to backfill decision-making with their broad knowledge of the world.

Anyone who scrutinizes the shadows of AI, as we have done, will find a new world of work in which software manages people doing jobs that computers can't do. As builders create systems to transfer tasks from humans to machines, they surface new problems to solve through automation. For example, it was only after the web became mainstream that companies like Facebook, Twitter, and Instagram faced growing demand to moderate their online content, outstripping the limited capacity of automated moderation tools. At the same time, as novel systems are brought online, they typically face unanticipated problems and fall short of their promise, hence the need for Kala's and Joan's work. Thanks to workers like them, automated moderation software is better, but it is far from perfect. The inevitable glitches that automated processes encounter along the way to perfection generate temporary work for people. Once they have successfully trained artificial intelligence to perform like humans, workers move on to the next tasks engineers assign them that push the boundaries of automation. Since the finish line moves as people dream of new applications for AI, we can't be sure if the "last mile" of the journey toward full automation will ever be completed. We call this the "paradox of automation's last mile."

As AI advances, it creates temporary labor markets for unforeseen and unpredictable types of tasks.' The great paradox of automation is that the desire to eliminate human labor always generates new tasks for humans. What we call "the last mile" is the gap between what a person can do and what a computer can do. Without a doubt, software developers will use ghost work to perform the tasks at hand and push AI to its limits. And it is just as likely that as more companies aspire to give us AI-enabled "smart" digital assistants to manage our calendars and book our flights, we'll need more and more people to step in when AI falls short of our increasingly exacting and extensive demands. In fact, dependency on temporary human labor has always been a part of the history of technology's long march toward automation. Today's engineers aiming to solve problems through algorithms and AI are the latest iteration of the paradox of automation's last mile. On this frontier, the peaks and valleys of temporary work shift constantly, redefining relationships between humans and machines in the process.

The rise of on-demand labor platforms signals the allure of using APIs to organize, route, and schedule work. As the examples in this book suggest, this reorientation to use contingent labor to develop new technologies fueled the recent "AI revolution." When an AI system that powers a phone app or online service isn't confident about what to do next for a customer, it needs human help, and it needs it fast. End users expect software running search engines and social media to respond in milliseconds. Traditional methods of hiring won't do here. So if an AI needs a human in the loop, to make sense of a spike in search terms tied to, say, a sudden natural disaster, it needs to get human input immediately. The disaster will fade into history. The software will have learned what



it needed from the momentary flood of human input. That is exactly what an always-on labor pool, plugged into APIs, provides. Software developers can write code that automatically hires someone to solve an immediate problem, checks their work, and pays them for doing the job. Similarly, scientists and researchers using modern machine learning systems depend on training data that's clear and error-free. They need an automated method to get help generating and cleaning up that data, and they rely on many people around the world to do it. On-demand labor platforms offer today's online businesses a combination of human labor and AI, creating a massive, hidden pool of people available for ghost work. Delivering services and jobs on demand could be an integral part of the future of work. It could also have unintended, potentially disastrous consequences if not designed and managed with care and attention to how it is restructuring the experience and meaning that people attach to their day jobs.

### Ghost Work and the Future of Employment

The dismantling of employment is a deep, fundamental transformation of the nature of work. Traditional full-time employment is no longer the rule in the United States. It used to be that a worker could spend decades showing up day after day to the same office, building a career, with the expectation of getting steady pay, healthcare, sick leave, and retirement benefits in return. Now, centuries of global reforms, from child labor laws to workplace safety guidelines, are being unraveled. In fact, according to the U.S. Department of Labor's Bureau of Labor Statistics, only 52 percent of today's employers sponsor workplace benefits of any kind. In the wake of the Great Recession, Americans have come to realize that the best alternatives to serving food, providing healthcare, or selling goods in brick-and-mortar shops are the growing number of jobs that can be found in the on-demand gig economy. Because this work doesn't fit any ready-made classification in employment law, the terms-of-service agreements for platforms like MTurk and CrowdFlower are almost indistinguishable from the boilerplate dialogue boxes that we all click to update our software, erasing the protections that traditional workers enjoy.

While the Pew Center's best estimate puts the number of individuals involved in ghost work today at around 20 million, there is no corroborating tally of how many people like Joan, Kala, Justin, and Ayesha cobble together contract-based ghost work gigs to make ends meet. When the Bureau of Labor Statistics added a supplemental survey of Contingent and Alternative Employment Arrangements to the U.S. Census Bureau's May 2017 Current Population Survey (CPS), a monthly snapshot of 60,000 eligible households that provides the nation's employment and unemployment data for the U.S. Bureau of Labor Statistics (BLS), it was the first time it had tried to gauge the growth of contingent jobs in more than a decade. According to the BLS's estimates, 10.1 percent of U.S. workers work without an explicit or implicit long-term employment contract. But this survey counts only people who hold an alternative employment arrangement as their primary or stand-alone job. So if a person does ghost work while also holding down a nine-to-five job with a single employer for a set salary or hourly wage — a very common trend among the most active workers we met — they are even harder to identify, let alone count.

The Bureau of Labor Statistics' 2017 Contingent and Alternative Employment Arrangements supplement to the Current Population Survey poses two hurdles for measuring the rise of ghost work. It is hard to really understand what "long-term employment" means to workers in a multiple-choice survey. It might be as hard to know what "primary job" means when so many people hold down multiple jobs to make their rent. The confusion over how to think about old work categories, like "longterm" or "primary job," is reflected in a head count from the Government Accountability Office that diverges with the BLS's numbers. It reported, just two years earlier, that at least 31 percent of the U.S. workforce claims that it does some form of alternative work arrangement that



includes freelancing or independent contract work for hire. Labor economists Lawrence Katz and Alan Krueger estimate that temporary and alternative contract-driven work delivered through self-employed workers or those temporarily employed by staffing agencies — the so-called casualization of the workforce — rose from 10 to 16 percent, accounting for all net employment growth in the U.S. economy in the past decade. The closest we might come to understanding the size and growth of ghost work comes from independent think tanks rather than governmental data.

The most conservative estimates of on-demand gig labor markets come from the Economic Policy Institute. Economist Lawrence Mishel and his research team estimate that between 0.5 and 1 percent of working adults in the U.S., or 1.25 to 2.5 million people, participate in the on-demand gig economy. But they come to that number through a very specific study of Uber drivers and the assumption that Uber and other ride-hailing mobile apps make up the bulk of gig work. A study produced by the JPMorgan Chase Institute found that 4.3 percent of U.S. adults, or 10.73 million people, had worked an online-platform-economy job at least once between 2015 and 2016.<sup>21</sup> A revolving door of temporary tasks defines this job market. No obvious professional title. No ladder. No bonuses. No guarantees. Tasks are finite, built to disappear once a firm has reached its specific target and the people hired to hit it have moved on to other projects.

From software engineering and legal services to commercial media and healthcare, a wide range of businesses now turn to on-demand labor platforms to convert white-collar careers into bundles of projects. Such all-digital information services and knowledge work convert the creative expertise required to think with and massage data into the consumable services delivered online by industries from tech and law to finance and entertainment. Because of these seismic shifts, the days of large enterprises with full-time employees working on-site are numbered. A crowded field of companies compete to sell information services that pair computers and smart devices with artificial intelligence. Companies like Catalant (formerly HourlyNerd), Popexpert, and Upwork use APIs to deliver the larger "macro-tasks" of knowledge work, on demand, to other businesses or individuals. The future of employment wrought by automation will undoubtedly be far more disjointed than traditional nine-to-five work. Some labor economists argue that a new reality of "fissured workplaces" is the ultimate result of turning long-term employment into a series of short-term contracts throughout the 1980s and 1990s. And yet this newly unpredictable reality hasn't dissuaded millions of digital workers around the world from sitting down at their keyboards day and night and performing the countless behind-the-scenes tasks that make our apps seem smarter than they are. This means that the future of business and employment will more likely resemble today's on-demand economy than a dystopian sci-fi film in which humans disappear and robots rule. It will require people to navigate layers of software interfaces and learn to labor in the shadow of AI. It will contain an ecosystem of independent contractors like Joan, typing away in spare bedrooms, cafés, and cinder-block homes in rural India, Knoxville, Tennessee, and Portland, Oregon — or anywhere else a person with an internet connection, a computer, ambition, or financial need can get online. When little attention is paid to the workers behind these jobs, on-demand labor can quickly become alienating, debasing, precarious, and isolating ghost work.

All of the workers we interviewed have something unexpected in common: hope. They hope to use on-demand jobs to control when they work, who they work with, and what tasks they take on. They hope to stay close to their families. They hope to avoid long commutes and hostile work environments. And they hope to gain experience that refreshes their résumé or opens a door to new possibilities. Also true is that many saw few other options for themselves or their families. Full-time employment in their towns often meant an hourly wage at a big-box store, working a fixed shift, adapting to unpredictable work schedules, and without meaningful opportunities to advance. On-demand jobs gave them real-world experiences scheduling meetings, testing and debugging

websites, developing computer expertise, finding sales leads, and managing full-time employees' HR files. What worker doesn't hope to one day fully control both the schedule and the purpose of their workdays?

Ghost Work draws on a five-year study in which we — an anthropologist and a computer scientist and the research team we mustered — investigated this booming yet still largely hidden sector of the economy. It is the culmination of more than 200 interviews and tens of thousands of survey responses collected from workers across the United States and India; dozens of behavioral experiments and social network analyses of on-demand work platforms; and unique studies of this labor market's other key players, namely the people turning platforms into businesses and those hiring workers on them. It exposes a world in which steady work and salaries are being replaced by a chaotic string of small projects and micropayments, and human bosses are being replaced by automated processes that are programmed to oversee a far-flung workforce of anonymous independent contractors. Ghost Work departs from the well-known story about the rise of robots by documenting a more complicated future that is already emerging. It shows how ghost work platforms foster our belief in the magical promise of technology.

As an anthropologist, Mary had her interest sparked by the specter of an atomized world of workers earning money by sorting and annotating thousands of pictures of pointy-eared dogs, hairless cats, and "dick pics." When Mary asked those hiring workers what they knew about the people picking up their tasks, the responses ranged from "I don't know" to "Why would I want to know that!?" As a computer scientist, Siddharth had used on-demand platforms for years to conduct online behavioral experiments, but he knew little about the workers, as the API kept them hidden from him.<sup>24</sup> Who were the people offering themselves up for hire? What motivated them to do what many consider "mindless tasks," and how did they make this ill-defined form of employment pay off? What did this work mean to them? How many tasks flow online through these on-demand platforms? What are the business models that produce the demand for task-based work? What are the overall workings of this task-based economy?

When our research team started asking these questions in 2013, the only people in the conversation were economists, computer scientists, and businesspeople. All three groups evaluated the on-demand labor market on the basis of its ability to enhance efficiency and maximize a company's bottom line. When humans did happen to come up in the discussion, it was in reference to the consumer. What was the quality of the consumer's experience? The engineers and computer scientists building APIs, for companies or for their own experiments to advance AI, wanted to design systems that eliminated what they assumed were costly, superfluous operations that annoyed end users. They were in the business of building smarter, faster software that could automatically match people to services, whether it was a ride, a meal, or tax advice, with an end goal of using the data from each iteration to train future software to automate even more. Few people were tracking what this approach to productivity would mean for the people who vied to do task-based work for hire. They operated from the assumption that the workers needed to generate training data and improve software would disappear once the AI got things right. Companies were building software, after all, not temp jobs.

For the next five years, we did something our respective research fields had not: we learned about the range of ghost work and the lives of people doing it by conducting one of the most comprehensive studies of its kind. **GHOST WORK** is the first book to illuminate ghost work's role in building artificial intelligence and the lives of workers who are invisible yet central to the functioning of the Internet and the future of automation. It offers an intimate, detailed look at the experience of workers in this new economy. We focus on workers living in India and the United

States, the two countries with the largest on-demand labor pools, both with a long, entwined history of technological advancement. Our team interviewed and observed hundreds of people, in their homes and other makeshift workspaces, as they did everything from flag tweets to transcribe doctors' visits. We surveyed thousands more to establish a baseline to help us gauge which practices were typical and which were exceptional. We then scaled up the findings from our interview data by conducting dozens of behavioral experiments and "big data"-style analyses, each with thousands of participants. Throughout *Ghost Work*, the reader will see us toggle between these two types of analysis, combining their strengths to shed more light on those who work in the on-demand economy.

We examined four different ghost work platforms: Amazon.com's Mechanical Turk (MTurk); Microsoft's internal Universal Human Relevance System (UHRS); the socially minded startup LeadGenius; and Amara.org, a nonprofit site dedicated to translating and captioning content for transnational audiences and people with hearing disabilities. Each of these four platforms offers different products and business models. Investigating them alongside one another helped show us that our observations and conclusions hold broadly across the on-demand economy, as opposed to being specific to one category of ghost work. MTurk, as one of the first commercially available ghost work platforms, set the norms for how others would apply human computation to business solutions. UHRS stands in for the internal platforms that every large tech company maintains to meet its own ghost work demands. LeadGenius and Amara illustrate just how complex and sophisticated ghost work can be, as well as how much companies can play a role in designing better conditions for ghost work.

And then there were the workers. Among those working on these platforms, we met people stringing together on-demand projects to re-create the work hours, pay rates, and career development associated with full-time employment. We also met college-educated, stay-at-home parents staving off boredom; first-generation college students working 50 hours a week to save money for a wedding or fund a younger sibling's degree; and people, disabled or retired, looking for alternative routes to employment or extra money to pad their social security checks. We also met engineers and entrepreneurs who founded, designed, and built ghost work platforms.

When we started, we wondered: Who are these people, and how does their work differ from traditional nine-to-five jobs? On many on-demand labor platforms, a requester like Siddharth sees no personal information about a worker — gender, location, age, and prior work experience are all unknown. And workers have no information about the requester beyond the task description. The range of tasks can be endless and can change from one day to the next. APIs can be used to have a human tag a cat photo or run a research experiment, and similar APIs can be used to hire someone to deliver a meal, send a car, or design a website. The moment that the API is called and the work is produced looks automated to both consumers and requesters. But who benefits from this veneer of automation? And who might be harmed?

By the time we finished our study, we understood that people doing ghost work were no different from our friends and family making a living through freelance writing, research, software development, or adjunct teaching. Their work lives were often vulnerable and insecure. Yet the anonymity and remote access of on-demand platforms also made it easier for those marginalized in formal employment — because of where they lived, a perceived disability, or their belonging to a stigmatized minority — to earn an income.

The more closely we looked at the nascent edges of on-demand work, the more we saw people using familiar strategies to stay afloat and create meaningful employment for themselves and their

peers. Sometimes these workers succeed by collaborating with one another. They share strategies for making difficult tasks easier, they swap intel about those with tasks for sale, and they help one another stay awake as they wait for new tasks to come online. We met workers who learned to move forward after their failed forays. Who learned to thwart exploitative business models, labor laws, and APIs designed to be indifferent to their interests. And we noted that businesses have no clue how much they profit from the presence of workers' networks. This book describes the thoughtless processing of human effort through APIs as algorithmic cruelty —literally, computation incapable of thought, let alone empathy. People doing ghost work understand the perils and potential of on-demand work better than any engineer, tech company CEO, policy maker, or labor advocate. They live it every day. And they are the most invested — economically and psychologically — in making it better.

Just as we need companies to be accountable for the labor practices that produce our food, clothes, and computers, so should the producers of digital content be accountable to their consumers and workers. We should demand truth in advertising in cases where humans have been brought in to benefit us — whether it is to curate our news or field complaints about what some troll just posted to our favorite social media site.

Along with a call for transparency, **GHOST WORK** holds lessons for tech entrepreneurs who want a productive workforce, engineers who are building the labor platforms of the future, and policy makers charged with shaping this new commercial landscape. But the still untold story of the invisible workers who power the apps on our phones and the websites we look at should interest a wide range of general readers who've seen some coverage of "gigging it" or "Turk work," not to mention "crowdsourcing" and "microwork," and heard a lot about the rise of robots but want a deeper look at how, exactly, AI reshapes the working world and what, precisely, people do in the shadow of it. We offer a textured, nuanced, and ultimately hopeful account. Among other things, we show how moving beyond the full-time-freelance divide alone could go a long way toward sharing the wealth generated by the internet with those tasked to grapple with the paradox of automation's last mile. We hope, too, that the lessons we learned from the many workers we interviewed in the U.S. and India will help the millions of people who already, or will soon, do this work make the most of it. More than anything, Ghost Work is for anyone who works and wants to see what their future holds.

### Chapter Summary for **GHOST WORK**

The opening chapter offers an "under-the-hood" peek at API-driven work and the industries that use ghost work to train and beef up artificial intelligence or manage larger projects contracted out to people via on-demand labor platforms. It begins by telling the story of Amazon Mechanical Turk (MTurk), the first publicly-available platform to sell businesses and individuals access to a standing army of people signed up to do "microtasks" for pennies a task. Microtasks arose in the early 2000s. The term, arguably, no longer fits the varying size and scope of work delivered via APIs today. But, back in the early aughts, technology giants like Amazon, Microsoft, Google, and Facebook needed ways to find duplicate content, fine-tune spellcheck and develop automated systems for rooting out broken hyperlinks, reviewing flagged content, and responding to customer demands.

By design, many API-managed labor platforms assume that people are interchangeable, anonymous, autonomous agents able to seamlessly plug into any task, anytime, anywhere. This work has been designed by its creators to conceal the humans who are essential to the smooth function of the most popular websites and mobile phone apps. They are latter-day ghosts in the machine, and the machine cannot run without them. However, in practice people with constraints on their time, from childcare to other jobs or lengthy commute to comparable, fulltime service jobs do this work. We

share what we learned about the lived experience of people doing ghost work in the United States and India. Some perform only a few tasks. Others stick with it for years. Everyone we met had a list of tasks that they preferred or tried to avoid. Most had learned the hard way what helps them survive the system's inherent isolation and alienation. We look at what it means to become one's own boss, though not quite independent or self-employed in ways defined by today's official laws and employment classifications. In concrete ways, the platform design sets the terms of engagement for workers. Workers, in turn, contort themselves to fit the flow of tasks. This produces a mix of "Experimentalists," creating value by refreshing the ranks and size of a platform's labor pool, picking up one or two tasks before moving on to other platforms; "Regulars" who routinely work; and an "Always-on" dedicated workers, performing 80% of the tasks.

There are historical precursors to today's ghost work. To understand the needs of those toiling in the wake of AI's advancement, we need to examine the past that frames present day sensibilities of what makes a job valuable work. It took generations of labor organizing and social norms to define and full-time employment as necessary and meaningful. Along the way, technologists and business interests, with a mix of motivations, took aim at automating as much human labor as possible. Neither those advocating for decent, fulltime work nor those building systems to obliterate it noticed that tasks that couldn't be automated or were temporarily needed to keep a system going persisted, typically as contingent, contract-based labor. Chapter 2 lays out necessary historical background that helps explain how automation's shortcomings — not its advances — have defined the meaning and value of human labor. In the late-1800s, textile mills in Lowell, Massachusetts, paid farm families to hand-fashion cloth pieces into shirt flourishes still too delicate to churn out on the factory floor. Similarly, today's companies perfecting search engine queries hire workers to test their latest ranking, relevance, and crawling algorithms. Technological advancement has always depended on expendable, temporary labor pools.

Chapter 3 focuses on algorithmic cruelty. The APIs and platforms guiding ghost work create frustration for those hiring workers, too. This system, as it currently operates, doesn't work well for anyone. But ghost work can lead to negligent — or downright bad — treatment of workers in particular. Using the notion of algorithmic cruelty, this chapter explores workers' experiences of toiling for a computational process instead of a human boss. In this chapter, we talk to fulltime employees subcontracting out work only to learn that they, too, must take on some of the costs and risks supposedly eliminated by ghost work. Then we talk to workers in the U.S. and India who lost their jobs and final paychecks with no explanation and no opportunity to appeal. Readers will learn that no laws regulate or guide ghost work. Joan's need to constantly refresh the API's search results to land new tasks; Justin's frustration sinking unpaid time into web searches so he could complete tasks to which he'd perhaps to quickly committed; the demand for Ayesha's attention to the timer counting down the Real-Time ID Check task; companies decide who gets accounts on their platforms and whether or not workers receive a final payment for tasks completed. Of course, any freelancer will tell you that getting paid is the hardest part of the job. But, according to a national survey we conducted in partnership with Pew Research, 30 percent of those doing ghost work reported not getting paid for work they performed. At least most traditional freelancers and contractors have a human contact at the company, someone to call or email if an invoice goes unpaid. They may even have a contact who will advocate on their behalf if a payment is late. But the opaque employment terms of ghost work have made collecting one's wages even harder. These common experiences of algorithmic cruelty running roughshod through ghost work make clear why many workers feel that their site of employment doesn't care about them (at best) or is exploitative or callous (at worst).



Despite the hardships ghost work almost inevitably entails, people have a range of reasons for returning to it day after day, whether they're experimenting with ghost work, doing it routinely, or making it their source of fulltime employment. Chapter 4 explores the value that people find in ghost work beyond making money. They share their experiences learning something new about themselves, finding future work that might lead to stable employment, feeling productive, a chance to control a work schedule and the types of work that they took on. They avoided the grind of commutes and office politics that they associated with previous 9-5 jobs. They could legitimately claim to be part of "the tech world" even if they lived far from Silicon Valley. They felt more independent and accomplished because they knew their accumulated reputations were hard-won. And many felt part of a team, some for the first time in their working lives. Workers created environments that fostered respect from others, even if not from those assigning them jobs and paying them for work. They learned new skills that gave them hope that they would branch out their employment opportunities down the road.

One of the biggest surprises our research revealed was how hard workers strive to add what the on-demand economy seems bent on deleting — human connection, dignity, and meaningful work. People doing ghost work are not always the atomized, autonomous laborers they are assumed to be. Instead, they often work within a tight social network. As Chapter 5 shows, the thing that unites those most successful at ghost work — those Always on and the Regulars — is their ability to lean on one another. This kind of collaboration flies in the face of the assumptions made by designers of APIs who treat all tasks as equally doable and all humans as interchangeable cogs. Engineers assume better matching algorithms can make it easier for workers to complete tasks. Yet, companies cannot eliminate a worker's desire to invest in her job as something more than an economic transaction. The personal stories of these workers will prove that no automated system can erase the needs for connection, validation, recognition, and feedback. Social relationships remain integral to our work lives, even when we are only bound to each other through digital labor. As previous chapter details, those doing ghost work came to rely heavily on each other often because computational processes, incapable of empathy, bossed them around.

On-demand labor does not have to be atomized and alienating. Chapter 6 shares the profiles of several platforms holding themselves accountable for the jobs they create as they build out software-as-service. The chapter focuses on in-depth stories of two platform-driven services, the social entrepreneurial commercial start-up, LeadGenius, and Amara.org, a not-for-profit site dedicated to captioning and translating video content for many languages around the world. Both on-demand platform services aspire to meet a "double bottom line" of exceptional fiscal gains and positive social impact, offering examples of how this work need not be ghostly and could be done differently today. These two platforms have deeply invested in fostering worker interaction and task collaboration. For example, LeadGenius built a minimum wage, set hours, what they call "scaffolding" mentorship, and advancement back into employment. We've met people who have moved from hourly work to full-time employment in LeadGenius' Bay Area headquarters. Amara allows workers to choose between volunteering and doing paid work, creating a blend of people choosing, project by project, whether to share their "language pride" or earn money on the platform. LeadGenius and Amara create ways for workers to control their own destinies, offering models for how to support teams that are collaborative, cooperative units, even though they neither rely on sharing the same location or investing in the same number of hours, as traditional coops do. Amara in particular points to a possible future that puts the worker in the driver's seat, able to set her schedule, negotiate wages and profit-sharing opportunities, and make decisions about when and how to contribute her time and effort to projects that she values beyond a price tag. Helping workers connect, fostering rather than ignoring or stifling their collaboration, and rewarding them for teaching each other aren't just

the right things to do in ethical terms. They can all improve the quality of work produced via a platform, thus improving customer satisfaction and earnings.

Those doing ghost work shoulder a disproportionate share of the costs in the digital economy. The book's concluding chapter considers both technical and cultural changes that could make the difference between a world dominated by bad temp jobs and a future of valued, sustainable employment in the shadow of AI. It imagines what it looks like to come to grips with the latest iteration of the paradox of automation's last mile and account for the value of the people who fill that void. Platform-driven innovations deliver goods and services to businesses and consumers under the pretense that a magical brew of APIs and artificial intelligence have eliminated what traditional employers used to pay for, namely recruiting, training, and retaining workers. By spending time with hundreds of people doing ghost work, we saw that automation, far from eliminating those costs, shifts them to workers and employers. If the ghost economy extracts value and saves costs by eliminating the traditional stability and security attached to full-time employment, this workforce will require — and deserves — a different set of benefits and safety nets. <>

### We Need a Usable Past for Democratic Future

#### A Spanish Prince's Automaton and an American Novelist's Living History

Don Carlos was seventeen years old in April 1562 when he fell down the stairs and hit his head. He was the heir to the Spanish throne, studying at the university town in Alcalá de Henares. Depending on who you ask, he was either something of a lush lothario or an inbred oddball (his parents were half-siblings). One observer noted his "violent nature, his intemperate speech and his gluttony." But the reports also indicate that he was well liked by the Spanish people, as a teenager at least. His whole life reads like the plot of a modern gothic fantasy television series: allegations of treachery, leading to solitary confinement at the hands of his father, an episode of bingeing and purging, and ultimately death, possibly by poisoning. His life was later the subject of Giuseppe Verdi's great opera Don Carlos.

But all that drama was yet to come, when, while still a young man, engaged "possibly on an illicit errand," as one scholar politely puts it, he tumbled down a disused flight of stairs and knocked himself out on a closed door.

In these early years of Don Carlos's life, relations with the paterfamilias were still good, and the king was devastated by his eldest son's misfortune. He was bedridden by his head injury. Numerous doctors flocked to his bedside, and Don Carlos was subjected to a variety of barbaric surgical procedures, including a misguided attempt to drill a hole in his skull. He eventually fell into a coma and was expected to die.

The local people were very upset by their prince's malady. In an effort to help, they brought Don Carlos the century-old relics of a former member of the local Franciscan order of friars. Since they wanted this friar to be canonized, his body was presented to the prince in hopes of a miracle. The "desiccated corpse" was brought to the prince's bedside, where, unable to open his eyes, he reached out to touch it, then drew his hands across his feverish face.

Suddenly Don Carlos made a remarkable recovery. By the following month, he was back to his usual self. His doctors were stunned. Reflecting on the brutality of his later life, it is unclear if his survival was a blessing or a curse. In any event, the desiccated friar was made a saint.

The prince's own explanation for his recovery was that the figure of a man, "dressed in a Franciscan habit and carrying a small wooden cross," came to his sickroom and assured him that he would

recover. This, scholars suggest, was the inspiration for what must be one of the world's most fascinating objects: an early automaton of a friar.

Today the automaton is held in the Smithsonian. In a history that reads more like a detective story than an academic article, this minor miracle of engineering is described by professor Elizabeth King in the following terms:

made of wood and iron, 15 inches in height. Driven by a key-wound spring, the monk walks in a square, striking his chest with his right arm, raising and lowering a small wooden cross and rosary in his left hand, turning and nodding his head, rolling his eyes, and mouthing silent obsequies. From time to time, he brings the cross to his lips and kisses it. After over 400 years, he remains in good working order.

The workings of the friar are concealed beneath his cloak, fashioned from wood, but the inner levers and cogs are beautifully made, though they were designed to be seen by no one but the maker. This shell gives the figure an air of ghostly mystery, inspiring fear and reverence in all who witness him move about without visible assistance, as if by magic.

No one really knows where the friar came from. King's thesis is that the creator was Juanelo Turriano, an engineer who worked for King Philip. A prodigy from humble origins, he became a distinguished maker of astronomical clocks and other similar instruments, and even designed a system of waterworks for the city of Toledo. After his son's impressive recovery, Turriano could well have been commissioned to build the contraption by King Philip in honor of the Franciscan friar, who was deemed responsible for this miracle.

King ascribes the creation of the automaton friar to what she terms an "ambitious impulse," the ancient and abiding human desire to understand by imitation. She argues that it recalls Descartes's thinking about the connection between body and mind—questioning whether we are driven from without or within. "The automaton forms an important chapter in the histories of philosophy and physiology," writes King, "and, now, the modern histories of computer science and artificial intelligence."

Objects like clocks and automatons are in many ways the predecessors to modern digital technology. You needed to be both an engineer and an artist to build these kinds of machines—technology was often entertaining, inspiring, frightening and useful, all at the same time. In this sense, the path to the modern networked computer was paved with excruciating care and dedication, as well as a little whimsy. It was a journey populated by experimentation with both functional and decorative objects, and those who work with equivalent kinds of advanced technology carry on this tradition today.

Examining this mechanical friar through twenty-first-century eyes, we recognize many themes of our history and our future, our excitement and misgivings about our current relationship with technology. The friar shows how stories from our past can shape our destiny. Our past tells us about our present—how it was just one of many possible futures claimed by those who came before. In this context, both the creation and use of technology express a kind of power relation. King writes about this, in summarizing conversations about the friar with the Smithsonian conservator, W. David Todd:

Would the measure of the monk's power have come from the sight of a king setting him in motion? But Todd and I agree the power flows in the opposite direction, so that once the tiny man is seen to move independently, the operator's status takes a leap, he becomes a kind of god. Either way there is a mutual transfer of authority and magic. Todd, jesting only a little, likens the possession of the monk to owning the pentium chip a couple of years ago. Who commands the highest technology possesses the highest power.

If we accept King's hypothesis, the friar is a product of royal decree and religious fervor, serving as a tribute to divine intervention but made with a very human, highly material skill. Today the leading edges of technological development are occupied by similarly powerful individuals, who use technology to inspire loyalty and also to intimidate. The "magic" of modern technology implies that the trajectory of the digital revolution is objective and unassailable and that the people driving its development are great figures of history. Technological objects, even those that are or seem to be playful or diverting, are designed with a certain purpose in mind, and they can influence us in profound ways.

But Don Carlos's automaton also tells us something about how technology is produced in contemporary society. The friar is a piece of craftsmanship that has lasted four centuries, whereas a comparable artifact today might be built in a Chinese factory, under appalling conditions, complete with planned obsolescence. Such a contrast demonstrates how technology is a field of creativity and skill, especially in its early, innovative stages. But when it is scaled up, it can become an industry of exploitation. The promise of technology has always relied on the meticulous efforts of people like Turriano; yet concealed in many beautiful objects that we see and handle every day is the brutal labor history of places such as Shenzhen that testifies to the power of the process of commodification. Having replaced artisanal automatons with mass-produced robots, we start to treat others and feel like robots ourselves. Our current society reveres some kinds of labor and debases others, and the power of technology to improve our world and livelihood is not equally distributed.

The past lives on in memories and stories and in the objects we use and produce. The networked computer represents an exciting opportunity to reshape the world in an image of sustainable prosperity, shared collective wealth, democratized knowledge and respectful social relations. But such a world is only possible if we actively decide to build it. Central to that task is giving ordinary people the power to control how the digital revolution unfolds.

In the huddle of people attending Don Carlos, amid all the hubbub of miracles and reverence, one doctor did claim that his recovery was due to objective factors rather than divine intervention. "The cure was of natural origins," he bravely argued, only those [cures] are properly called miracles which are beyond the power of all natural remedies ... People cured by resorting to the remedies of physicians are not said to have been cured by a miracle since the improvement in their health can be traced to those remedies.

This pert remark serves as one doctor's message to the future, to those who would come after him. Seek evidence, speak honestly, he seems to be saying, try to shine a light of truth on the events to which you bear witness with integrity. Cause and effect exist in the real world, and humans can both observe this process and sometimes influence it with their agency. Do not be distracted by religious ardor or royal conceit.

We can still see the glimmers of this light, even four centuries later. Turriano created a marvelous and beautiful object that commemorated the recovery of Don Carlos, and he contributed to our collective technological knowledge, the legacy of which lives on in computing today. But his work was made to pay tribute to divinity rather than stand as a testament to human ingenuity and science. It is not hard to imagine how the formidable skills and creativity on display might be used to tackle some of the problems faced by humanity. But only if we take the power out of the hands of kings.

This is not a book about technology per se, nor is it about history or theory. Rather, it is an attempt to read these things together in fresh and revealing ways. The purpose is not to comprehensively or categorically define the nature of the problems we face in digital society or offer prescriptive

solutions; it is to suggest ideas and identify points of conflict. Not to provide definitive or exhaustive histories of certain events or schools of thought but to start a conversation about how certain histories are critical to the task of designing our future. It is written for those who may be knowledgeable about technology but lack an understanding of radical and democratic political traditions, and for those who, while familiar with such theory and practice, are wary of or inexperienced with digital technology. My aim is to find a common language for a more sophisticated discussion about the future of both topics, which must be predicated on an agreed understanding of the past. I mean to anchor the present to the past for a specific purpose: to argue that democratic control of digital technology—building structures that give people more say and control over how digital technology is produced and developed—gives us the best chance of overcoming some of the problems we face today. It is about creating a "usable past" for digital technology, a concept that has its own little history.

Van Wyck Brooks was a writer and critic when American literature came of age in the early twentieth century, a person profoundly committed to literary practice and culture. His voice "exhort[ed] writers to meet their responsibility with courage and dignity—and with pride." This led him, in 1918, to call for the creation of what he called a "usable past." Speaking to his contemporaries in an intelligent and vivid essay, he outlined the need for history that creative minds could draw upon. "The present is a void," he wrote, "and the American writer floats in that void because the past that survives in the common mind of the present is a past without living value."

It is understandable that younger generations are eager to look forward. History can weigh like a millstone; archaic distinctions and practices can drag upon our freedom and agency. But detachment from the past has its own pitfalls. It means that the past that survives is a default genealogy, a mere reflection of the status quo, fixed and irrelevant. It loses its living value, its capacity to help the current generation actively shape a collective sense of self, leaving us isolated without a common sense of purpose or a forum to discuss these ideas. "The grey conventional mind casts its shadow backward," Brooks observed. "But why should not the creative mind dispel that shadow with shafts of light?" For Brooks, the American literary history of the nineteenth century was important to document because it showcased the beauty, daring and distinction of American artists. It was a task to which he devoted years of his life, reading 825 books for his literary history *The Flowering of New England* (1936). This monumental task was part of his aspiration for "cultural centralization" to create a communal language and bring to life a common culture and identity.

### Purposes of Usable Pasts

The purpose of a usable past is not simply to be a record of history. Rather, by building a shared appreciation of moments and traditions in collective history, a usable past is a method for creating the world we want to see. It is about "cutting the cloth" of history, as Brooks put it, to suit a particular agenda. It is an argument for what the future could look like, based on what kinds of traditions are worth valuing and which moments are worth remembering.

A century later, Brooks's challenge to the American literary community retains its relevance in the age of digital technology. The digital revolution is creating experiences that are sometimes exciting, often horrifying, and routinely amazing. But present discussions about our digital future seem to float in a void. A whole set of assumptions about the past, static and dry, occupies our consciousness. It is

as though digital technology sprang from nothing, invading private spaces and public life like a juggernaut. The merit of organizing our lives around screens is rarely questioned, and we wear objects that endlessly track our movements and sometimes literally get under our skin. A commitment to meritocracy saturates public debates about technology, and freedom is understood



in atomized and commodified terms. There is tacit acceptance that governments and corporations will determine the evolution of digital technology. It is also widely accepted that it is easier to imagine the end of the world than the end of capitalism—an assumption that persists even during the most transformative moments in technological development.

Digital technology is treated as a force of nature, without an agenda, inevitable and unstoppable. The past that has survived in the minds of the current generation is one that reflects what has happened rather than what is possible. Society is often treated as an object, which digital technology does things to, rather than a community of people with agency and a collective desire to shape the future. "All our invention and progress seem to result in endowing material forces with intellectual life, and in stultifying human life into a material force," declared Karl Marx. Nowhere in our current society is this observation more relevant than our personal and political engagement with digital technology.

For Brooks, the starting point was to ask: "What is important for us?" His focus was building a sense of identity among the American literary community, to find what was distinctive and valuable about the American voice. His starting point still has value. In the context of the digital age, what is important for us? What is distinctive and worthwhile about digital technology, and how can it be used to enable humanity to flourish?

Another world is possible, where society is collective and humans have agency over their digital futures. But to get there we need to create a past with living value.

In part, the motivation for this book comes from observing the ahistorical nature of discussions about technology. This has, at best, led to a benign yet thoughtless form of technological optimism. "When you give everyone a voice and give people power, the system usually ends up in a really good place," declared Mark Zuckerberg back in the early days of Facebook, with an impressive combination of naiveté and disingenuousness. At worst, and dismayingly, this sees revolutionary moments recast as cultural shifts generated by disruptive thought leaders: history understood as the march of great entrepreneurial CEOs. This kind of thinking sees the future as defined by universal progress rather than by a messy, contradictory struggle between different interests and forces—and never driven by the aspirations of those from below. It reduces the value of human agency to entrepreneurialism and empty consumerism.

History has a role in telling us about the present but not if we use a frame that valorizes those who currently hold positions of power. We need to reclaim the present as a cause of a different future, using history as our guide.

By stitching historical ideas and moments together and applying them to contemporary problems, it is possible to create a usable past, an agenda for an alternative digital future. In times gone by, early adopters, tinkerers and utopians may have wished for—even expected—a brighter and bolder future than where we find ourselves today, and I am keen to reclaim this possibility. This book will attempt to build bridges between technologists, activists, makers, and critical thinkers, to give shape to the "us" in the question "What is important to us?"

The histories in this book are stories of action, of revolutionary thinking but also revolutionary power in practice. They are also cautionary tales and stories of defeat, from which hope can spring eternal. "Knowing that others have desired the things we desire and have encountered the same obstacles," Brooks argued, "would not the creative forces of this country lose a little of the hectic individualism that keeps them from uniting against their common enemies?" Such an aspiration might similarly be extended toward readers of this book. The point is to use history as a guide for

organizing and pursuing digital democracy collectively. On this foundation, we can start to build alternative visions of politics, law and technology.

The phrase "digital revolution" captures something of the transformative nature of the time we find ourselves in, but rhetorically also conceals the commonalities we share with the past. For this reason, it warrants a little explanation. Technology is revolutionizing how we organize production, reproduction and consumption. These changes also contain revolutionary political potential—though much of this remains unrealized—or struggles to find a form under capitalism. I therefore use the term as an accurate reflection of the changes brought about through the adoption of digital technology, but also with some skepticism regarding how fully the possibilities unleashed by this development have been explored.

We live in an age steeped in pessimism, in which phenomena like climate change threaten the lives of billions, inequality grows unchecked, and right-wing populism peddles fear and bigotry. The appetite for radical social transformation to address these trends is often lacking, but with notable exceptions. Left-wing ideas are still popular, and alternatives to capitalism are beginning to look feasible, promising and necessary. Radical proposals for universal government programs and redistribution of wealth have proven attractive to many in major social democracies. Developments in digital technology afford us some glimpses of how this might come about and how human ingenuity and cooperation have the potential to overcome profound challenges.



Marx claimed that revolutions are the locomotives of history. Revolutions transform how we live and work, junking ossified practices in favor of brighter futures. They generate an energy and change that drive us forward collectively, in a world where wealth and privilege might otherwise prefer slothful stasis. Yet, in our current age of rapid technological transformation, capitalism appears to be a constant, prioritizing selfishness over the immense human cost of greed, and squandering the potential of the digital age.

Walter Benjamin offered a reversal of Marx's proposition: revolutions might be the act by which humanity on the train applies the emergency brake. We need social movements that collaborate—in workplaces, schools, community spaces and the streets—to demand that the development of technology be brought under more democratic forms of power rather than corporations or the state. As the planet slides further toward a potential future of catastrophic climate change, and as society glorifies billionaires while billions languish in poverty, digital technology could be a tool for arresting capitalism's death drive and radically transforming the prospects of humanity. But this requires that we politically organize to demand something different.

If we are to explore the possibilities of digital technology, we need greater engagement between historians and futurists, technologists and theorists, activists and creatives. Synthesizing thinking across these fields gives us the best chance of a future that is fair. This is an ambitious project, especially at a time when the powers of capital and state are ranged against it. But as Vincent van Gogh reminded himself: "What would life be if we hadn't courage to attempt anything?" <>

### New York's Buildings Tell many Stories: Here are 27 of Them by Sam Roberts

#### Timeline

-  1661 The Bowne House: Construction probably began this year, because in 1662 the Quaker meeting held there resulted in the arrest of its owner, John Bowne.
-  1766 St. Paul's Chapel: It opened as an outreach chapel of Trinity Church and survived the Great Fire of 1776 and the collapse of the World Trade Center.

- ✚ 1804 21 Stuyvesant Street: Known as the Stuyvesant Fish House, it was built by the grandson of Peter Stuyvesant as a wedding present for his daughter and son-in-law.
- ✚ 1811 City Hall: Far uptown at the time, it replaced the century-old seat of municipal government, which had been converted into Federal Hall and razed in 1812.
- ✚ 1842 Federal Hall: Constructed on the site of the nation's original Capitol, where Washington was inaugurated, it served as the U.S. Customs House and Subtreasury Building.
- ✚ 1845 The Marble Palace: Built for the self-made retailer A. T. Stewart, this architectural gem grew into what was arguably America's first department store.
- ✚ 1848 The High Bridge: Originally called the Aqueduct Bridge, it is the city's oldest. Built to transport water from the Croton River, it was opened to pedestrians in 1864.
- ✚ 1855 123 Lexington Avenue: Once one of nine identical brownstones, it is the only existing building in New York City where a U.S. president was sworn in.
- ✚ 1865 134 East Sixtieth Street: Typical of thousands of nineteenth-century brownstones, it survives because of a woman who became a shaker, but refused to be a mover.
- ✚ 1881 Tweed Courthouse: Justice was blind when the vastly overbudget Italianate landmark became a monument to the corruption of Boss Tweed and Tammany Hall.
- ✚ 1882 Domino Sugar Refinery: The original complex dated from 1856, the current one from a generation later. Once the world's largest sugar refinery, it dominated the waterfront.
- ✚ 1884 Pier A: The last surviving historic pier in Manhattan, it was the headquarters of the dock commissioners. Its clock has been described as the first World War I memorial.
- ✚ 1901 The Asch Building: Prophetically named, the fireproof ten-story stack of lofts was in a district crowded with garment manufacturers. It is now part of New York University's campus.
- ✚ 1902 The Flatiron Building: Who knew? The name of one of the favorite subjects for artists and photographers in the former Theater District actually preceded its construction.
- ✚ 1903 The Lyceum Theater: Commissioned by David Frohman, who, with his brothers, dominated show business, it is the oldest continually operating legitimate theater in New York.
- ✚ 1904 The IRT Powerhouse: Stanford White's industrial colossus generated electricity to drive the subway system for a half century while paying homage to the City Beautiful.
- ✚ 1906 Sixty-Ninth Regiment Armory: Home to the "Fighting Irish," as they were nicknamed during World War I, the Beaux-Arts drill hall broke ground architecturally and for the art inside.
- ✚ 1909 The Bossert Hotel: Called "the Waldorf-Astoria of Brooklyn," it was built by the lumber baron who supplied the timber for Ebbets Field and became a Dodgers hangout.
- ✚ 1909 The American Bank Note Plant: This impregnable complex in what became a notorious South Bronx ghetto was, to the cognoscenti, a veritable moneymaking machine.
- ✚ 1913 Grand Central Terminal: The construction of the city's greatest public space ushered in a glamorous era of rail travel and the elegance of Park Avenue. It also kept the Vanderbilts out of jail.
- ✚ 1914 The Apollo: "I May Be Wrong (But I Think You're Wonderful)" became the theme song of this originally whites-only, fifteen-hundred-plus-seat showcase built for burlesque.
- ✚ 1921 Bank of United States: No plaque or tablet marks this site in the Bronx, another transformative setting that survives, but whose rich history has been all but forgotten.
- ✚ 1923 The Coney Island Boardwalk: Not to be outdone by Atlantic City, Brooklyn coupled the subway with a communal promenade to democratize a former playground for the wealthy.

- 🚦 1930 60 Hudson Street: Here's where the metaphysical internet converges into a tangible mass of lasers, cables, tubes, generators, and servers. You can almost hear the building hum.
- 🚦 1931 The Empire State Building: New York developers played "Race to the Roof" in a contest for the world's tallest building. This one kept the title for decades and remains the most iconic.
- 🚦 1935 First Houses: The name wasn't original, but the concept was. It became one model for solving an ongoing challenge: how to define, create, and replicate affordable housing.
- 🚦 1936 The Hunter College Gymnasium: An earlier effort to achieve what finally happened here in 1946 proved to be an exercise in futility. And what happened here was brief. But it produced a global legacy that endures today.

## Buildings as Emblematic Histories

In my earlier books, I've tried to tell the story of New York through its people (**ONLY IN NEW YORK: AN EXPLORATION OF THE WORLD'S MOST FASCINATING, FRUSTRATING, AND IRREPRESSIBLE CITY**), through its surviving artifacts (**A HISTORY OF NEW YORK IN 101 OBJECTS**), and through a single edifice (**GRAND CENTRAL: HOW A TRAIN STATION TRANSFORMED AMERICA**). In this latest five borough odyssey, I've raised the stakes: Can collective conglomerations of bricks, glass, wood, steel, and mortar reveal the soul of a city? Forged from natural resources and assembled by human ingenuity, can they help illustrate why and how New York, poised to celebrate its four hundredth anniversary, evolved from a struggling Dutch company town into a world capital?

"A bicycle shed is a building," the art historian Nikolaus Pevsner wrote. "Lincoln Cathedral is a piece of architecture." I've stretched the definition of both words in the interests of making our perspective on the cityscape more democratic. Just how many buildings are there in New York City? While the exact number changes from day to day, the best estimate is well over seven hundred thousand. In my list of twenty-seven, while I've included a few other structures that were also built but aren't strictly buildings, most of the other criteria for including them were more exacting: They had to still exist. For the most part, you wouldn't find them referred to in typical tourist guidebooks or even historical reference manuals. You'd be hard-pressed to find most of them displayed on picture postcards. They had to have been transcendent in some way or emblematic of a transformational economic, social, political, or cultural event or era. I arbitrarily chose twenty-seven, but only as a starting point. My goal is to get you thinking about your surroundings, about things we see every day but take for granted, and about history—not by rote but in ways that resonate in issues that we still grapple with today.

This is not an architecture book, although design also says a lot about time and place. While Louis Sullivan postulated that "form follows function," his fellow architect Philip Johnson argued instead that "architecture is the art of how to waste space." Who society embraces as its celebrities of the moment—in any field—can always be revealing, particularly in architecture, where, as Witold Rybczynski has written, the critics marshal partisan opinions, the practitioners aim to persuade rather than to explain, and the public is blinkered by jargon about bousillage, crenellation, muntins, and quoins. "Of course, all professions have their technical terminology," Rybczynski writes, "but while television and movies have made the languages of law and medicine familiar, the infrequent appearance of architects on the big screen is rarely enlightening, whether it's the fictional Howard Roark in *The Fountainhead* or the real Stanford White in *The Girl in the Red Velvet Swing*."

Ultimately, of course, buildings are built by people and reflect their needs and aspirations. "A building has integrity just like a man," Ayn Rand said. "And just as seldom." We customarily attribute

inanimate qualities to people: they might be solid as a rock, wooden, earthy, stone-drunk, steely-eyed, iron-willed, glass-jawed, or gravel-voiced. They may be endowed with edifice complexes. We also humanize insensate objects, infuse them with an organic core that pulsates beyond the physical space defined by foundations or property lines or by height or bulk. We speak of smart buildings, sick buildings, green buildings. "Really tall buildings," Edward Glaeser, the Harvard economics professor, wrote, "provide something of an index of irrational exuberance."

Some designs are dictated by constraints imposed in response to that very exuberance (it's estimated that for one reason or another, about two of every five buildings in Manhattan today exceed the height, bulk, or density limits in effect under current zoning laws), others solely by utilitarian, economic, or technological impediments. Manhattan has no gated communities, per se, but its many apartment houses have doormen instead (some do have courtyard entrance gates, though most were probably rendered inoperable decades ago by rust). Still others, defying Louis Sullivan, seek to distinguish themselves by sacrificing function to form, by following Goethe's metaphor that architecture is "frozen music." And sometimes, architects, perhaps bullied by their patrons, driven by philistine agendas, or victims of their own poor taste, produce an eyesore of a building that was not unbecoming by design, recalling Frank Lloyd Wright's dry observation: "A doctor can bury his mistakes, but an architect can only advise his clients to plant vines."

This book doesn't feature the city's oldest building. Nor could it keep pace with the newest. "Landmark" is loosely defined. It includes some structures that the city's Landmarks Preservation Commission hasn't officially designated. Only a few of the selections are familiar architectural icons, like the Empire State Building, but even in that case I've tried to go beyond its familiar 102 stories to offer insights into the personalities, rivalries, and exploits behind that unparalleled skyscraper's construction. Even if you think you know New York, many buildings in the book may surprise you: the Bronx gymnasium where the United Nations General Assembly first met; the nation's first department store; the only surviving site in the city where a president of the United States was inaugurated; a hidden hub of global Internet traffic; a homeless shelter that pioneered modern art; a nondescript factory that produced billions of dollars of currency in the poorest neighborhood in the country; the oldest city hall in the United States; and the buildings that helped trigger the Depression and launch the New Deal.

Material culture is about more than inanimate objects. Buildings and their components are, for the most part, made by people who decide they need or want them, design them, construct them, live or work or play in them, and, more often than not, are torn down to create another structure that someone else believes will be better. Behind every building is a story, particularly in a society consumed by planned obsolescence. This city never seems to sit still long enough for a complete portrait, but reclaiming and reprocessing property is not unique to New York. Since the twelfth century, wholesale urban renewal was a periodic Chinese tradition, as each incoming dynasty routinely demolished the palaces and emblematic buildings of its predecessor regimes. In New York, what the economist Tyler Cowen called "creative destruction" may have been more piecemeal, but each new developer, too, has always subjugated a misty nostalgia for a utopian past to the commercial imperatives of recycling real estate for a propitious future. What did the building replace? What need was it intended to fulfill? Why was it placed there and erected then? How was it judged by contemporaries and with benefit of hindsight? Why did it survive, what was its enduring impact on the city and its people, and how did the consequences of its construction reverberate around the world?



The architect Robert A. M. Stern once said, "People want to look at buildings and make connections." Explore more closely some landmarks in this book that you may think are familiar and a few other structures that you may have overlooked. Here's hoping it will give you an eyes-wide-open connection to the present through the past.

### Buildings Furnish our Lives

E. M. Forster's rallying cry was "only connect the prose and the passion, and both will be exalted." When Robert A. M. Stern wrote that "people want to look at buildings and make connections," did that suggest that architects impart their passion to the buildings they design, or do the buildings themselves wordlessly communicate that passion as public art? If you believe Winston Churchill, it doesn't really matter. "We shape our buildings," Churchill said. "Thereafter they shape us."

In one way or another, that's true of the landmarks profiled in this book. Some, like the Bowne House in Queens, have survived thanks to prescient historians and civic-minded preservationists or were deemed obsolete only after legal protections against wanton destruction were in place. Others, like Grand Central, had, and continue to have, a monumental impact on urban planning and density. Still others, like Jean Herman's brownstone apartment, might not qualify as official landmarks, but, for better or worse, expose the pitfalls that tenants and developers can face just trying to survive in the city or make what passes for progress. Other buildings endured because they were repurposed or simply too costly to tear down.

What constitutes progress is in the eye of the beholder. Some people crave novelty. Others fear flux. "Buildings long outlive the purposes for which they were built," the architect Edward Hollis wrote, "the technologies by which they were constructed, the aesthetics that determined their form; they suffer numberless subtractions, additions, divisions and multiplications; and soon enough their forms and functions have little to do with one another." In his **THE SECRET LIVES OF BUILDINGS: FROM THE RUINS OF THE PARTHENON TO THE VEGAS STRIP IN THIRTEEN STORIES** (2009), Hollis concluded existentially, "the life of the building is both perpetuated and transformed by the repeated act of alteration and reuse."

New York is not like London or Paris or many other Old World cities, a large part of whose charm is derived from the undeviating low-rise eighteenth- and nineteenth-century block-fronts that temper the hullabaloo of the modern built and mobile urban environment. What drives New York has been its resiliency, its capacity for reinvention, not all at once, but piecemeal, according to the plots laid out in the grid imposed by the Commissioners' Plan of 1811 and by its successors and the developers who conglomerated parcels on which to temporarily leave their footprint. Instead of a uniform look, Alexander G. Passikoff, in his 2011 book about New York, **A FAÇADE OF BUILDINGS**, identified a minimum of thirty basic designs that only hint at the diversity to be found on a door-to-door walking tour of the city. In a congested skyline, much less a pedestrian streetscape, even the most idiosyncratic buildings rarely exist in a vacuum. "Buildings are seldom isolated facts," the sociologist Richard Sennett said. "Urban forms have their own inner dynamics, as in how buildings relate to one another, to open spaces, or to infrastructure below ground, or to nature."

So why these twenty-seven? This is not the list of landmark buildings that have defined New York. It's my list. It's subjective and abridged. The challenge was whittling it down to twenty-seven from scores of other candidates. How, some readers will ask, could I possibly have neglected the Woolworth, Chrysler, and RCA (now Comcast) buildings? The Dakota apartments, the Metropolitan Museum of Art, Fraunces Tavern, the Conference House on Staten Island, Tammany Hall, and Hamilton Grange? My goal was to tell the story of the city through a handful of defining

edifices, but also to stimulate debate: What makes a building transformative? Why do some survive? Which deserve to? What is the cost to society of sacrificing a transformative site to the future? How does the collective legacy of landmarks contribute to our understanding of who we are today? In a world of virtual reality, what is the value of authenticity? <>

## Architecture Is Not a Horse

### PAINTING THE SKY BLACK: LOUIS KAHN AND THE ARCHITECTONIZATION OF NATURE

by Florian Sauter [DE GRUYTER, 9783110567328] was motivated not so much by what I knew about the architecture of Louis Isadore Kahn, but rather by the many questions it raised. Veiled in an intriguing obscurity, the American architect's oeuvre seemed replete with paradoxes both in its theory and practice, while its spatial richness was difficult to grasp. Moreover, Kahn's strange life story demanded answers: how was it possible that one Leiser-Itze Schmuilowksy — a Jew born in Estonia in 1901, who immigrated to the United States at five years of age and was raised, at least from a material perspective, in poverty, but who showed an early artistic talent and fascination for architecture — could realize his first mature project at the unusually late age of 50, and then, within the next two decades, as the result of an exceedingly productive period, flourish into a living paragon and one of the first globally active architects of the 20th century? From an educational perspective, how did he, considered by some the last "heroic architect" and "master," as a teacher inspire a whole generation of laudable architects? What did one of these successors, Charles Moore, mean when he remarked that Kahn in a "kind of rabbinical sense [...] was the grand bearer of a sacred architectural message [...]"? In terms of his buildings, what were the principles he employed to make his architecture endure as a Stoic point of order within the apparently unstoppable flux of daily life? What were his reasons for poetically employing wind, light, water and earth to manifest an elemental architectural reality that increasingly seems lost in the virtual realms of digital technology? How could he be original in both the sense of going back to historical sources and of transcending these to invent something new?

More questions like these could be added, and the few answers I present here only make evident that Kahn purposefully resisted the temptation to make everything explainable. Insistently, a certain mystery prevailed in his works, an inscrutable aura causing astonishment and wonder. Consequently, Kahn's architecture in many ways defies categorical classification, since it possesses manifold dimensions transgressing geographical, historical, and cultural barriers. Essentially, this concealment — and at the same time, this candor — offers a plurality of possible readings and interpretations. One, namely the argument that not only the past, but also nature inspired his creations occupies the center here. Returning to beginnings in both architectural and natural terms, I interpret Kahn's buildings as the result of a general pursuit to comprehend the lawfulness of the natural world; I scrutinize his endeavor to put spatial compositions into an analogy with organisms' principles of growth and form; I illustrate his

## UNIVERSAL AS PHYSICAL

The universal relates only to the physical, whereas the eternal relates to everything which concerns man. This to my mind gives a marked predominance to the universal and it also defines order. Order envelopes all natural laws, and not only those few that we have today; these laws will be revealed one day and their discovery will change existing physical laws (as happened when relativity was defined); the same will happen with all measurable things that we are able to investigate. No-one can explore eternity. —Louis I. Kahn, Lecture in Paris, 1974

engagement with the elements and environmental forces to empower the inert materials of his structures and vice versa to unveil the world through the architectonization of nature; furthermore I exemplify Kahn's increasing willingness to make the surrounding landscape and cosmos an integrated part of the architectural project. On a more theoretical level, I reflect on Kahn's ambiguous attitude with regard to man's position within and beyond nature.

Naturally, the use of nature as an interpretative instrument does not limit the possible interrogations. Nature, a term of very uncertain extent, encompasses a polyphony of meanings ranging from the atomic to the cosmic, the scientific to the spiritual, the formal to the conceptual. It is from this uncertainty — this tendency to change like water — that nature derives its peculiar appeal, which, since time immemorial, has inspired the most adventurous attempts to gain fresh insights into its workings. Because this dialogue between man and the universe is boundless, the aspects of nature presented here might rather be considered particles, since every gaze at the stars and each stroll through the fields only reveals the fragmentary character of the knowledge presented here. By implication, it also goes without saying that an investigation like this can in no way be exhaustive and is necessarily selective. At the same time, though, no unifying theory concerning the relationship of Kahn's architecture with nature has yet been written. This is not surprising in light of the abstract naturalism of Kahn's built oeuvre, which only at second glance reveals itself as more empathic. However, it is quite astonishing considering the architect's extensive use of the term "nature" and related metaphors in his theory.

Because of the frequent application of natural terminologies and allusions, practically every scholar tackling Kahn has unavoidably also targeted my central topic — a particularly strong focus has been placed on the relationship of Kahn's architecture with natural light, his humanist understanding of geometry and nature, and more recently the "grounding" of his works in the land. Incorporating and extending these studies, however, my analysis is more inclusive and unitary. The research is based to a large degree on a re-evaluation of Kahn's archival material at the Architectural Archives of the University of Pennsylvania, as well as that of some of his collaborators and close colleagues, including Anne Griswold Tyng, Robert Le Ricolais, August E. Komendant, Ian L. McHarg, George E. Patton, Luis Barragan, Robert Venturi and Denise Scott Brown. Additional oral information has been gained from the latter, as well as from Carlos Vallhonrat, Blanche Lemco van Ginkel, Balkrishna V. Doshi, and Harriet Pattison. Many phenomenological aspects could only be experienced in reality, and it was important, thus, to visit a vast majority of the discussed projects in situ.

Every attempt to generate new meanings from Kahn's buildings will ultimately not interfere with their present capacity to act as central institutions in the lives of many people. However, historical vision allows relating occurrences that in reality might not have been consciously linked, and beyond a narration of past facts and events, historical writing is unavoidably also a constructive and creative act.' In this sense, I deliberately tried to follow T. S. Eliot's advice that "[t]he past should be altered by the present as much as the present is directed by the past.'" My aim, too, was not merely to present an appraisal of a great architect, but also to deduce in the light of one historic example more general, practical axioms concerning the complex juxtaposition of architecture and nature. In this regard, and based on the hypothesis that man's existential encounter with the natural cycles and elements remains quite constant over time, the present deliberations are also an appeal for an ecologically sound, down-to-earth approach, which takes into account passive strategies, the impulse of the primitive, and works with natural energies rather than against them. Concerning such general considerations, Vincent Scully, Kahn's first biographer, noted:

Indeed, the relationship of manmade structures to the natural world offers [...] the richest and most valuable physical and intellectual experience that architecture can show, and it is the one that has been most neglected by Western architectural critics and historians.

From a practical standpoint, human constructive activity has been in relation to nature since its beginnings, both in terms of connection when seeking to employ the larger environmental forces to ameliorate a building's microclimate, and opposition when exploiting nature's material basis. The very act of building, the setting of the foundations, supposes a connection with, but also a destruction of, the given land. Like mountains, the roof and walls help the rainwater to descend, perforations block or channel the breeze, and louvers shield or welcome the sun's rays. It is important, however, not to abuse nature semantically when setting it into relation with architecture: as much as a building might be envisioned to function like an organism, in which no element can be eliminated without making the entire system fail; as much as an edifice might, in terms of energy use, function self-sufficiently like a plant, a building is ultimately not an organic being. Animals are mobile because of their need for food, but a house rarely moves. Plants, in most cases, possess such small dimensions and great resilience in supporting their own weight that, unlike buildings, they are practically insensible to the effects of seismic force.

Yet, the main difference between a building and an organic configuration is their varied modus of animation. When animal bones break, they tend to knit together on their own, whereas the structure of a building does not mend itself after collapse. In other words, animals and plants are self-activated, whereas a building does not come into being by itself. A building does not grow, since it possesses no innate vital power that stimulates and controls its development. Closely linked with this differentiation is the epistemological meaning of the term nature, deriving from the Greek *physis*, literally "to bring forth," "produce," or "make to grow." Similarly, in Latin, the term *natura* derives from *natus* or *nasci*, again both implicating birth and origin. This focus upon an inner, organic dimension stands in clear contradiction to the more common use of nature today delineating a set of outer, hybrid artificial-natural environments.

All these issues will be discussed in further detail in the main part of this book, which is structured into the four sections of Optimization, Organization, Adaptation and Expression. Following a chronological order, each one addresses a different perspective of Kahn's changing comprehension of nature. In an add-up process the principles employed earlier will not be neglected later, but in a synthetic manner lead to a more holistic recognition of the term's complexity. At the outset, Optimization deals with Kahn's premature phase; it culminates in the discussion of the Yale Art Gallery and his proposal for a helical City Tower in Philadelphia. Reduced to a mechanism, nature, oversimplified and abstracted, appeared as an all-knowable entity. The architectural project resulted from the attempt to make its all-pervasive order and eternal striving for economy applicable in the practical realm. Kahn's idea of optimization did not imply repeating nature's superficial appearance, but rather decoding and employing its inherent laws of creation.



Organization, which centers on the design of the Trenton Bath House and ultimately coalesces in the Richards Medical Research Building, focuses upon compositional questions. Acknowledging nature's hierarchical ordinance, it reveals a shift from a universal to a more individuated space conception. No longer appear Kahn's designs as merely efficient from a structural perspective; now, they also achieve spatial optimization following the imperatives of an orthodox Functionalism and its pursuit to articulate a space's inner character. At the same time, the humanist conception of the system as a whole, where "served" and "servant" spaces were mutually interlinked, was paralleled by Kahn's interest to use geometry as a mediator between the micro- and macrocosm. Notably, this return to classical precepts was extended to the treatment of the larger environment as well, while theoretically the perception of nature as a mere instrument collided with its appreciation as a conscious living thing.



Adaptation, targeting issues of contextual and environmental integration, pays tribute to the formative design agencies effective from without. As form changes with changing conditions, Kahn's buildings as a geological and climatic reality began in the early 1960s to merge more intimately with the given constraints. Analyzing the crucial development of the second wall, the chapter pinnacles in the discussion of the Salk Institute, where Kahn paradigmatically manifested architecture's power to bring nature to presence. Besides, this chapter helps situate Kahn's development in a larger historical context without diminishing his

ability to formulate a highly personal idiom of spatial articulation. While the period saw the decline of Modernism and the search for alternatives by the members of Team X, it was also a time of growing ecological awareness. For many it became evident that mankind's power to change the face of the earth had increased faster than its understanding of the manipulations' profound effects.

Expression, following and further developing the directives of Adaptation, deals in many ways with that which nature is not: it targets the particular human capacity to make architecture with all its implied meanings and metaphors plumb the unfathomable depths of the mind. Most vividly expressed in the design of the National Assembly in Dhaka and the Hurva Synagogue in Jerusalem, this chapter illustrates Kahn's ambition to create buildings that were more than a sole fulfillment of utilitarian needs but relevant to people on a collectively-unconscious level. Attempting to stir the emotions, Kahn did not seek self-expression, however, but abrogated his own preferences by following the natural flow of things to express a sense of in-commonness. In that vein, lastly also Kahn's enigmatic comprehension of "light" as "the source of all being" in contrast to "silence" is being examined.

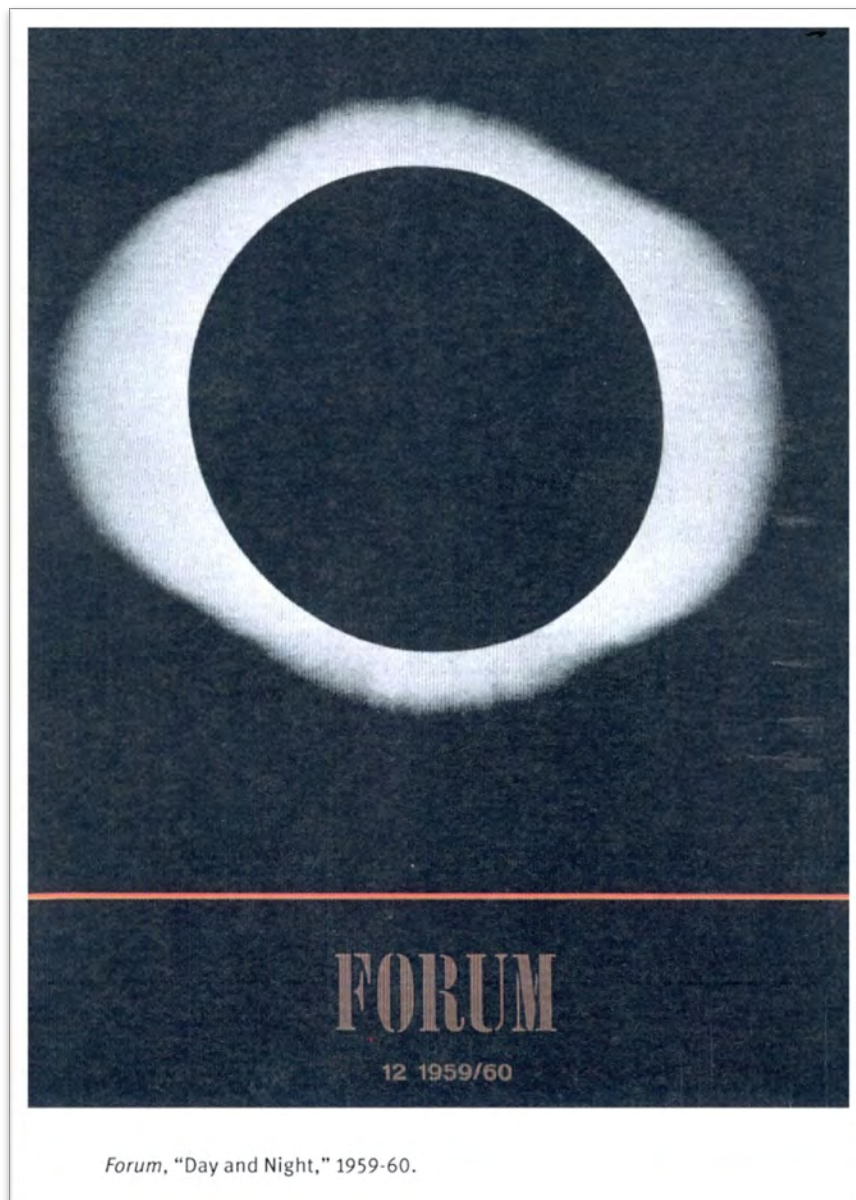
Transferring from theme to thesis, I argue that nature was an essential counterpart to Kahn's work, which, reciprocally involved with the built structure, activated the latter, while it was also itself in this process of domestication raised to a higher level of consciousness in man's perception through it. Offering a kind of Rosetta stone to decipher Kahn's philosophical statements, this focus upon nature shows that his comments were not the expressions of a romantic mystic, but often paraphrased contemporary scientific thought. Bridging the opposition between confronting and participating in nature, Kahn sought to logically integrate nature's laws of creation while believing in a holistic interconnectedness of all life. At the same time, however, he acknowledged that only mankind, endowed with the faculty of choice and judgment, could appreciate the beauty of a flower or gleaming sunset. In sum, Kahn's architectonization of nature did not invent, but rather transform reality through the establishment of carefully calibrated spatial frames that staged the cosmic spectacle we witness every day.



### Domestication of the Elements

Remembering Kahn's words that the design of the Salk Institute was being developed out of "a respect and understanding of the nature of nature," and that he was becoming increasingly "conscious of the architecture of water, the architecture of air, the architecture of light," the statement marks an important moment in the evolution of Kahn's thinking. When he speaks about the "nature of nature," one cannot help but be reminded of the humanist tradition of thought that sees the generative principle in nature, *natura naturans*, as complementary to a natured nature, *natura naturata*. The first of the two Renaissance concepts, *natura naturans*, can be said to have played a dominant role at the beginning of Kahn's mature phase. More than anything he had designed before that date, the Yale Art Gallery and in particular its tetrahedral ceiling defined architecture as based on mathematics and geometry — i.e., following the Platonic tradition, on nature itself. While this attunement to the elements as form would remain dominant in Kahn's work through the geometrical and organizational rigor applied, the experiential reality of the *natura naturata* began to

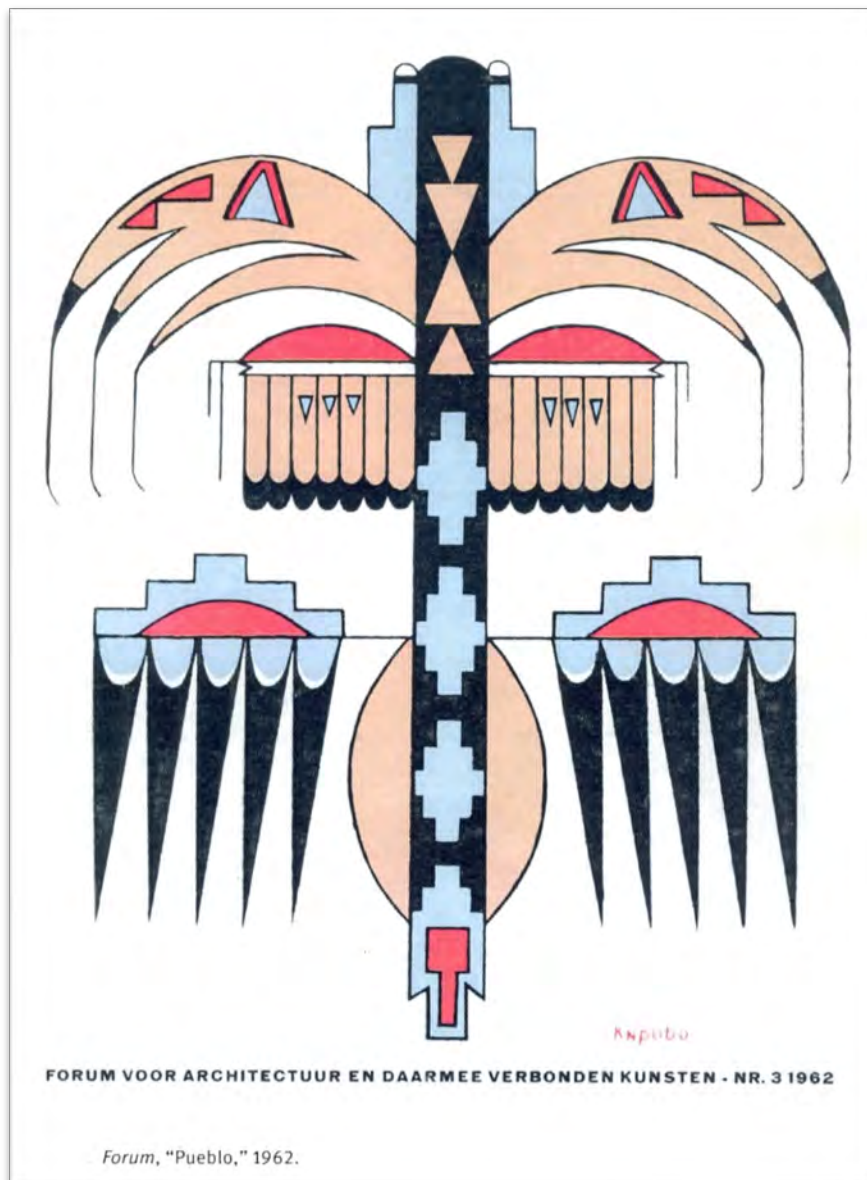
assume a comparable significance by the early 1960s with such works as the Salk Institute, the National Assembly Building in Dkaha, or the Kimbell Art Museum. In these projects, Kahn's more strictly abstract viewpoint was supplemented with a more empirical understanding, where in direct encounter with the world the natural elements were treated as what they actually are — sensually perceivable phenomena, material substances and physical energies that ought to be activated in both a poetical and geophysical sense. Of course, such concerns had not been wholly absent even in Kahn's most Platonic projects: in the City Tower, for instance, it is important to stress the relevance Kahn attributed to the wind's destabilizing influence, accentuating in passing his parallel focus upon the elements not only as form, but also as force.



This elemental shift of focus was influenced from different directions — the general acknowledgment that architecture had to be more than a deterministic affair after the Second World War, the widespread influx of Eastern and primitive modes of thinking, the raising of the issue of Man and the Environment upon the architectural agenda, the heightening awareness that the land formed an



essential part of the well-grounded project, and, at least in retrospect by Van Eyck, who had already on a panel at the 101h C.I.A.M. congress in Dubrovnik quoted Dylan Thomas: "Four elements and five senses, and man a spirit in love." Having personally experienced the elementary in the desert, where "[l]ack of water makes both water and everything that is not water clearer," on the front cover of the "Day and Night" issue of Forum in December 1959 — released just after the C.I.A.M. meeting in Otterlo — he put a solar eclipse, this "simultaneous perception of the sun and moon," while the contents tried to look at the contemporary city in the light of the natural cycles. Figuring on the cover of a later number on the Pueblos was an abstract, cosmological drawing by Knpobo (Cradle Flower), which was described on an adjacent illustration:



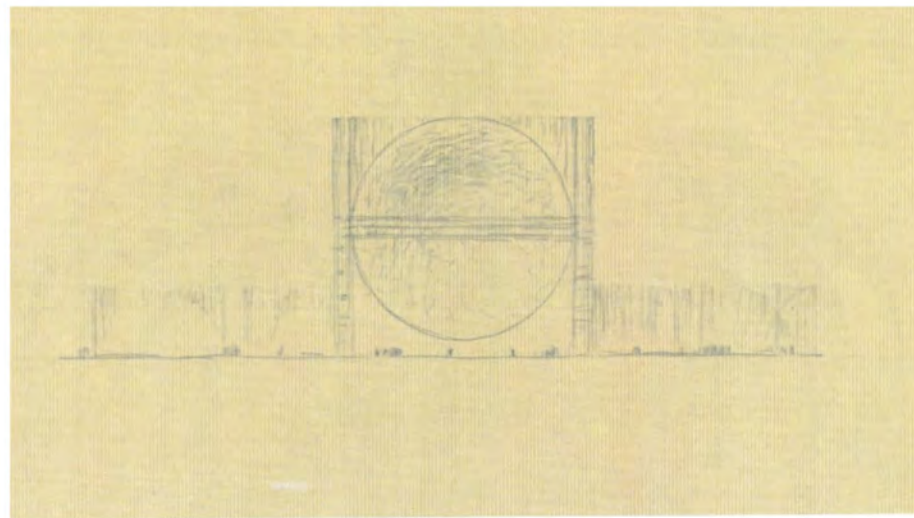
from the elements we receive  
 what we need so that we may live  
 from mother earth our sustenance  
 from the air our breath  
 from water cleanliness and the quenching of our thirst

from fire warmth to dispel coldness  
from the seasons the clouds that bring snow  
and rain to ensure our survival

Van Eyck demanded to treat rain, storm, spring or sunshine as the "materials of architecture," and instead of leveling their differences by means of technology, the natural phenomena "should be gratefully embraced and allowed to 'enter'." Just as for Kahn, this was not sufficient, though, since it lacked the "positive" activation of nature:

The time has come to conceive the places we live in, in the light of the positive potential hidden in the natural cycles. [...] Elimination is not creation. Involving nature positively in a city means a positive expression of the natural cycles (not just taking them into account): the seasons, the elements, the weather — constant and constantly changing.

Like Van Eyck, Kahn had learnt to understand this positive elemental potential during his many travels to parts of the world where the impact of 20th-century technology was negligible, but a psycho-physical affinity to the cosmic order was still immediate. Kahn was enthusiastic about the efforts of the simple builders that had no choice but spiritually cope and physically adapt to the natural cycles which, when architecturally articulated could give rise to details and forms explaining a whole way of life. To think from such an elementary perspective enabled the reclamation of the archaic grounds of architecture that powerfully asserted human order in universal chaos. In that sense, nature was an essential counterpart to Kahn's work, which, reciprocally engaged, activated the latter, while it was also itself raised to a higher level of consciousness in man's perception through it.

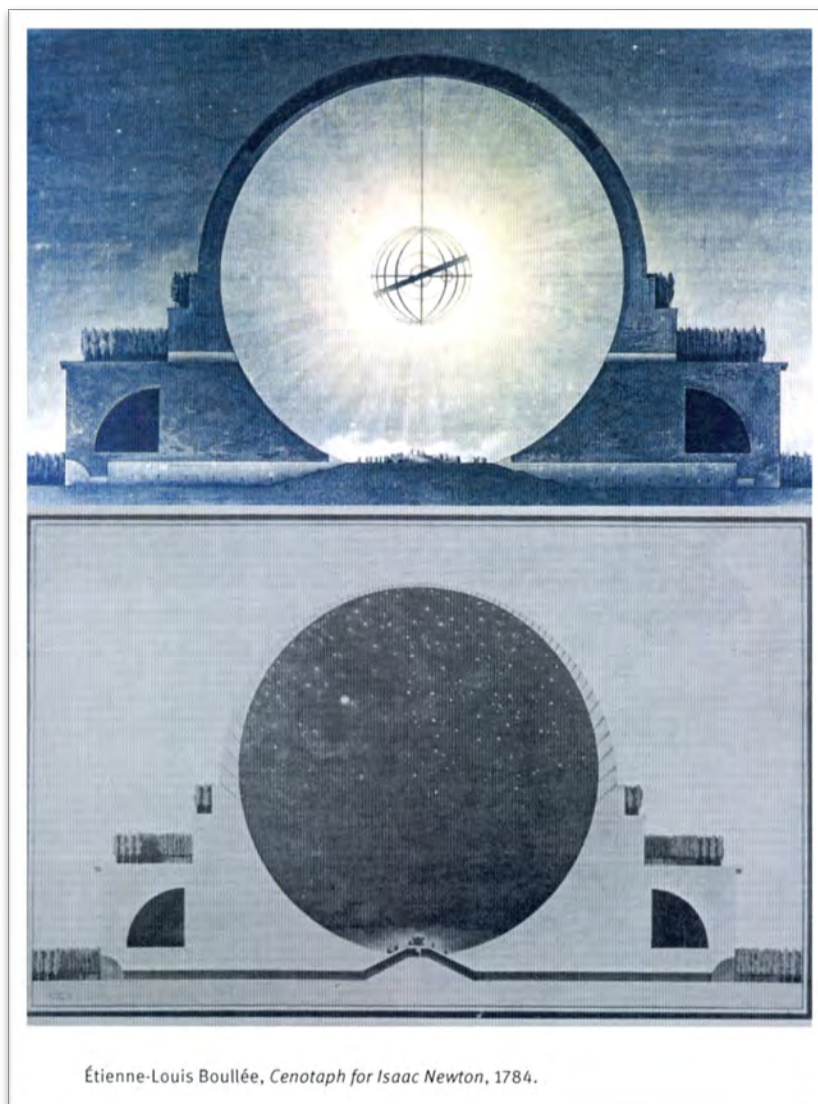


Louis I. Kahn, General Motors Exhibit, World Fair, New York City, New York, 1964.

Kahn's "reverence for the elements — for water, for light, for air — a deep reverence for the animal world and the green world," and the recognition of the elements as "simple everlasting presences that should constantly talk to you," found direct incorporation in his proposal for the General Motors Exhibit at New York's World Fair (1964). Between November 1960 and February 1961, Kahn developed two schemes. The first, an immense spherical space within a cubic volume (Figure 283), was based on Boullée's Cenotaph for Isaac Newton of 1784. However, the Revolutionary Architect's spherical space was a ready afflatus for Kahn not only in terms of form and sublime scale, but also with regard to its conceptual aim of enforcing an existential encounter with nature.



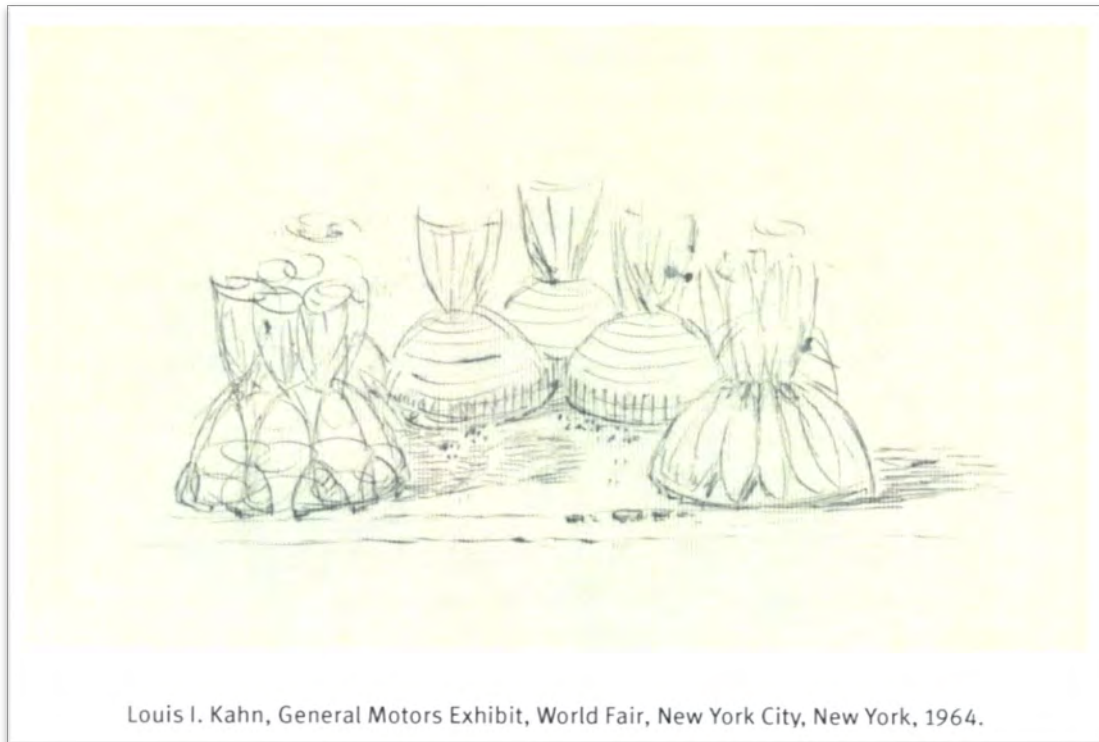
In Boullée's proposal, during daytime the scintillating stars should shine forth through slits in the dome of the firmament to brighten the dark inside, while during the night an armillary sphere with a streaming sun, the ecliptic and the rotation of the earth and the moon should illuminate the immense vacuum of the spherical space with Newton's sarcophagus at the gravitational center. What remained constant was the void, which expressed the scientist's essentially empty cosmos; only a small part of it filled by matter and all interrelated by the forces of attraction. What changed was the *mise-en-scène* of the universe: during the night, an abstract, artificially lit and heliocentric planetary model that underlined the mathematical properties of absolute time and space; by day, a more physical, naturally illuminated and geocentric vision of a miniature cosmos that highlighted Newton's empirical working methods and man's *de facto* experience of being-in-the-world. To recognize and accept this dualism, "to be able to see man as a disappearing nothingness in cosmic space, and at the same time as the cognitive and symbolical center of the latter," according to Titus Burckhardt, "quite exceeds the capacity of the majority."



Interestingly, the same year that Boullée conceived Newton's heavenly resting place, the Montgolfier brothers had broken off man's earthly vessels when flying off in a first *aérostat*. Light as air was also Kahn's second and final proposal consisting of seven inflated pavilions. Although it is easier to

ascertain their curvilinear shape of megalomaniac size that paid tribute to the Baths of Caracalla than it is to establish what content they should harbor, a number of sketches, a short note on these, "[Len] Lye film — [Hayden] Planetarium New York — Nature geographic," besides several sheets of memos by Pattison indicate that Kahn, too, sought to present the forces of life, the "wonder about the world," in both an abstract and a physical manner. Alluding to the fact that "when you see a beautiful thing in nature you feel alive," Kahn imagined his air-filled tent-structures to shelter a wavy promenade that encircled several brewing-pot-like excavations. Each of these bowls was filled with a separate element (Kahn mentioned "Light," "Air," "Water," and "Life" with the "green world" and the "animal world") and pronounced its distinctive features — for instance, water and its change of form in relation to temperature and motion, or, as Pattison suggested in one of her storyboard-like notes:

The Amazon — water gives life — makes plants grow — (the silent view of water); rain an envelopment in a relentless rainstorm (water + sound); water as a force — (the water wheel) — a great expanse of ocean; the lake — the pond; the fountains of Rome — Villa Lante, the geyser, waterfall — Granada Alhambra; the canal ... the oasis, snow, the great dam.



Similarly polyvalent should be the staging of light and its changing "moods" within one of the other elemental greenhouses: "Rainbow, Sun & Shadow, Color of Objects in Sun ... Darkness, Sunless Spaces, Sunny Spaces, Candle Light, Sun Light," and

moonlight ... the poets write moonlight is the sunlight in the darkness; the moon is the embassy of the sun; the moonlight is the light of the sun in its shadow ... the window (man's desire for light) — "The Pantheon" — the dome with its oculus;  
or of air:

a turbulent sky, a tomado, center of a hurricane — shows substance of air; clouds, the sky — a wheat field in Kansas — the sense of air; the windmill (Holland, Spain); San Marco: air

as space ... the feeling of breathing deeper in a large space; air as related to a square — the city square; relation of buildings to each other — a sense of space; a place to breathe. This was the "Nature geographic" part, illustrated by Kahn in forceful color patterns, all characterized by a nebulous quality of pure, primordial energy that recalled the infancy of the universe and the beginning of life on earth.



Notably, in the entrance pavilion, visible in its section, Kahn placed at the bottom center a projector — a modern-day armillary sphere — as it also had been used in the Hayden Planetarium.



Not intended solely for didactic purposes (which were widespread in America at the time as a consequence of the moon-race), Kahn's galactic screenings might have expressed a more personal and artistic approach to the elements.



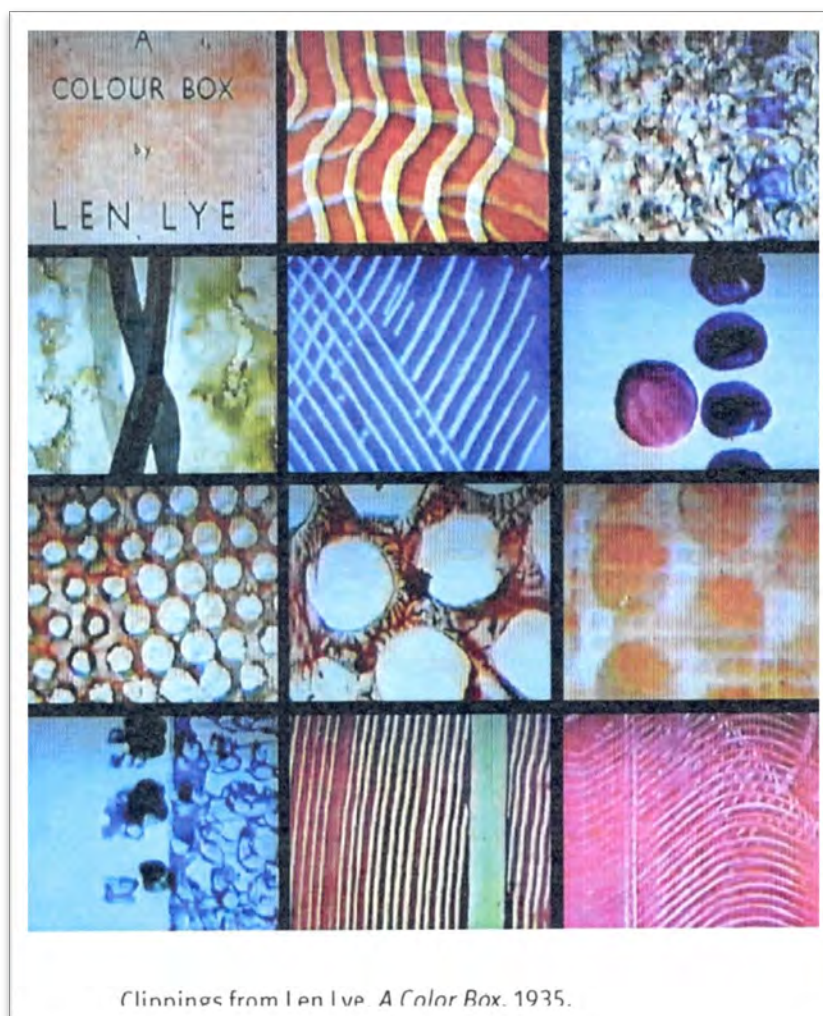
This, at least, may be concluded from the last of his references — "Len Lye film." Starting with "A Color Box" from 1935, the New York-based artist from New Zealand had created vibrant assemblages of simple textures and forms — not unlike Kahn's enigmatic color patterns — which were directly painted, stenciled or scratched onto the celluloid and brought to perplexing new life once the frames were set in motion.





In contrast to such an abstract screening of nature, Kahn in his major works of the 1960s had targeted water, earth, light, and air, on a more direct and concrete basis, though, that enabled a quiet albeit fundamental meditation on how in the beginning one might have confronted the world with amazement and expressed with joy its dazzling beauty. Literally taking hold of Boullée's suggestion that it was the architect's foremost task to make nature present, Kahn conceived his buildings as monochrome and porous backdrops that staged the poetical disclosure of the world. This deliberate activation of nature brought to light the most perplexing sentiments and luscious bounties of the days and seasons.

Historically, the elemental tetrad established by the Pre-Socratics ceased to be the root of everything existing only during the Enlightenment's chemical restructuring of the universe. Nonetheless, in terms of their physical presence, the canonical elements remain at the forefront of our encounter with the world. Even in our post-natural age, water, to take one example, and not hydrogen and two pieces of oxygen, is characteristic of our worldly perception, and as Bachelard, notably a former physics and chemistry teacher, showed in his seminal studies on elemental poetics, of our "imaginative experience," as well. For Pérez-Gómez, at the core of the crisis of modern science stood the problem that "[t]he poetical content of reality, the *à priori* of the world, which is the ultimate frame of reference for any truly meaningful architecture, is hidden beneath a thick layer of formal explanations."





Overall, the natural elements represent the familiar states that matter can adopt: earth, all solids (carbon) — the land; water, all fluids (hydrogen) — the sea; air, all gases (oxygen) — the sky, and fire, all forms of energy (nitrogen) — the sun. To embrace them means to confront the world like early humankind, to return to an atavistic sense of rootedness, and to accept them in all their eerie beauty and existential rage. Yet, to stay with Bachelard, "[a] person who sets a fire, who activates fire, magnifies but also controls and regulates the forces of the world." Architecturally speaking, to tame the flame means to house it. This kind of domestication may occur with all the elements and is articulated through the building's orientation and contextual interrelation, spatial and volumetric composition, choice of materials and constructive detail. Replacing the domination of the elements, as David Macauley in [Elemental Philosophy](#) suggests, their domestication implies control, but also caring. Once thoughtfully harbored, they can become positive-poetic measures to concretize man's experience of being-in-the-world.



Accordingly, just as the elements are real, architecture also addresses the real construction of the world and can holistically mobilize their powers. Emphasizing this argument, Tadao Ando pointed

out that "architecture is the only conceivable form of expression to control light and wind not metaphorically but directly." The Architectonization of nature, for him, but also for Kahn, implied the immersion in an authentic spatial experience that was not insulated by the cocoon of modern comfort, but where weather mattered and was brought to surface. Van Eyck added, "we should not neutralize nature with the aid of technique and form, but intensify it." Once acknowledging the elements' "meaningfully uncomfortable" reality, they define basic characteristics of place, indicate the presence of certain materials, and act according to precise geophysical rules and rhythms. For Kahn, it was clear that the architect should give in and "[n]ever offend nature," since "[t]he only reason why it doesn't leak is because you respected nature."

Each natural element is related to a fundamental architectural correlate — earth to the foundation; water to the roof; air to the space-defining wall, and fire to the energy within and without. Acting as primal causes leading to *à posteriori* architectural effects, consciously expressed, they might turn every gutter into a happening and every one of its drops into a celestial song. At the same time, their distant echoes are transfixed in a building's materials, as Pallasmaa showed:

Stone speaks of its distant geological origins, its durability and inherent permanence. Brick makes one think of earth and fire, gravity, and the ageless traditions of construction. Bronze evokes the extreme heat of its manufacture, the ancient processes of casting, and the passage of time as measured by its patina. Wood speaks of its two existences and timescales; its first life as a growing tree and the second as a human artifact made by the caring hand of a carpenter or cabinetmaker.

Zooming in on each, Aristotle's order by weight is still most comprehensible: earth, the heaviest, at the center; then water, heavier than air; and lastly fire, the lightest. In a permanent dialectic of struggle and cooperation, it is their Janus-faced character that makes them difficult to grasp: differentiated into male (yang — active; fire and air) and female (yin — passive; earth and water), there is a fundamental flux and antagonism to each that makes every statement and its opposite equally true in Heraclitean terms. With bivalent and ambiguous powers, the subtending earth can quake, a flood turn into a desert, a gust ignite a cyclone, and a match the burning forest. In constant exchange, their peculiarities blur into each other as one observes only their combined, synthetic actions.

*Earth* is the one element not identified specifically by a major Pre-Socratic thinker as a singular arche, yet Xenophanes of Colophon noted: "For all things come from the earth, and all things end by becoming earth." (Fr.27) Mother Earth (*terra mater*) not only gives birth to but also buries us in her caverns. Earth gives us a sense of above and below, of hard and soft; it is stable and characterized by the plumb line of gravitational vertigo. In accumulated horizontal layers, it keeps a stratified record of the sedimentary past; its top layer, the soil, is the seat of life.

*Water*, similarly, receptive but more dynamic in its wavy meandering motion, is the only substance of the four that can take on three different physical states according to changing temperatures. Without color, taste or form, its main attributes are ceaseless change and constant flow. The spring of life, it strives to acquire horizontal balance. Water may combine with the others to form clay, fog or alcohol, but it can also dissolve, purify and extinguish them. A thermal moderator, its tranquil surfaces mirror the world with glimpses of the abyss below.

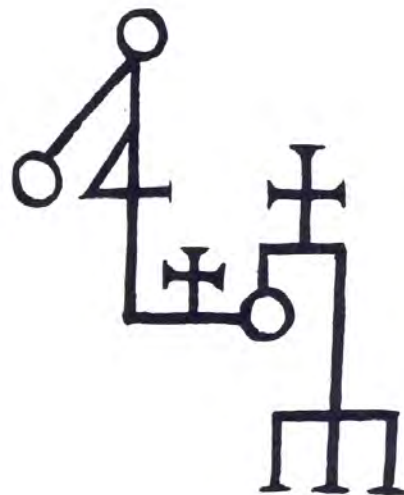
*Air*, this invisible but sensible thickness full of moving gases has no inside and outside. In this fragile abode of ours, the wind, the earth's breath, blows sideways against the vertical currents of convective heat exchange. Opposed to the resistance of earth, amorphous clouds float in the

expanses of the sky. Representative of the weather, air asserts the specificity of each context and fills space without matter.

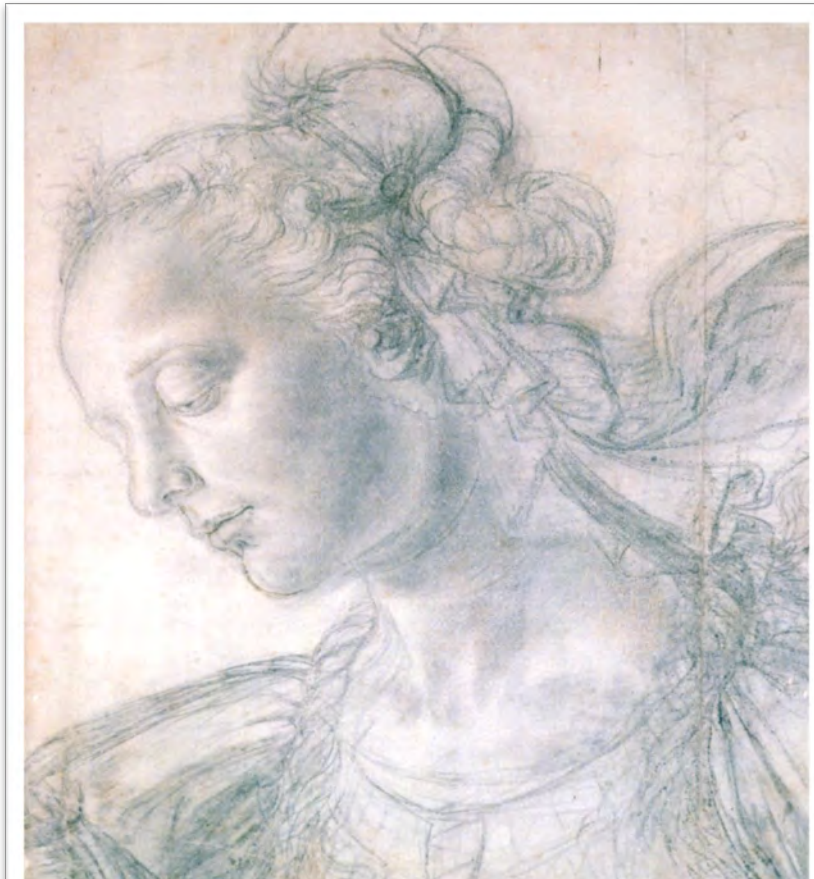
In *fire*, an entity that lacks its own substance, nothing can live and thrive. The sun's radiance cyclically activates the universe with its energizing force. The vital anima of all things living, fire is the Promethean son of man: it transmutes, purifies and destructs matter. Ruled by chaotic Brownian motion on the small scale, the shining solitaires of the heavens move with clockwork-like precision along their interstellar paths. Without light's infinite malleability there is no definition of form.

Plato's addition of a fifth element representing space (aether) underlines that neither of the four others operates in spatial or temporary isolation, but to the contrary, they synergistically interact in a constant dialectic of struggle and cooperation. In space, they gather and wash into each other like watercolors to affect different situations with changing intensities. To think of them as singularities is pointless; like a blacksmith or potter who works holistically with them all, also the architect ought to consider them all at once and not one by one. Fused in a mist-like mellifluous way, they are the universal elixirs, which in a frenzied state of becoming ethereally coalesce. The elements, then, teach not a style, but a way of thinking: with elemental "four-thoughts" one ought to encompass both their inherent dangers and modes of domestication. As Kahn's mature works demonstrate it is a diaphanous architecture that may result; one of soft, blurred boundaries that makes intelligible and brings to presence the elemental condition. Articulating this timeless state, the American architect's diligent tectonic expressions not only invented anew but transformed reality eternally. <>

*Fear these spirits hurled down by the thunderbolt  
of the curse, our fiercest enemies, and be constantly  
on your guard.*



## The Sculptured Imagination in Verrocchio



LEONARDO DA VINCI. HEAD OF THE VIRGIN, BLACK AND RED CHALK WITH PEN AND BROWN INK, METROPOLITAN MUSEUM OF ART, NEWYORK. COURTESY METROPOLITAN MUSEUM OF ART, NEW YORK, HARRIS BRISBANE DICK FUND, 1951, OPEN ACCESS.

The equating of touching and seeing that Verrocchio suggested in his Christ and Saint Thomas occurs also in his drawing of an *Ideal Head of a Woman*, but here the comparison serves a different purpose. In his sculpture the conflation of touch and sight serves to draw the devotee through the material world to the divine. The drawing, by contrast, mimics the effect of a marble relief sculpture between life and marble — representing the act of metamorphosis as if it were occurring before the viewer's eyes — to make the case that perception through the senses is a form of cognition (that one can perceive and come to know an object

simultaneously). Verrocchio's defense of this position is presented through the process of making. By smudging the black chalk with his fingers, he produced a rich tonal range and areas of sfumato. These actions evoke those of the poet conjuring up the beloved in matter such as clouds and rock faces. Verrocchio's intention with this drawing, it will be argued, was to create a portrait of the beloved as carved on the lover's heart, a portrait of Love and of the poetic imagination as if sculptured.

### The Drawing's Role

Verrocchio's drawing shows the head of a woman in three-quarter pose, gazing down and off to the left, her right arm apparently extended. Her hair is bound with ribbons and a veil that flutter in the breeze. Running down both shoulders are plaits of hair, which become disheveled at their ends. Verrocchio began by sketching his figure in black chalk, delineating the woman's head and then stumping (smudging) the chalk in areas within the outlines. Verrocchio's technique is extraordinary. Artists up until this point had used black chalk only to form sharp outlines, but Verrocchio recognized the potential of black chalk for tonal possibilities and stumped the chalk to create a sculptural tonal range. The chalk was supplemented with hatching in light brown ink, mostly applied in tiny strokes across the forehead, left eyebrow, and left cheek; above the left eye; and in the shadows of the neck and collarbone, furthering enhancing the sculptural effects of the black chalk. More definite areas of hatching were made below the nose and around the point of the chin) The drawing was pricked, presumably for transfer, at an unknown date.



Given the pricking, and the resemblance between the woman in the drawing and those in paintings and other drawings by Verrocchio and his workshop, the Christ Church Ideal Head may have been made as a cartoon.' Certainly it served that purpose at some point, as there remains charcoal pouncing dust in its perforated holes. But there is no surviving painting to which the drawing relates directly. Furthermore, there are significant discrepancies between the drawing and the pricking.' Most importantly, the highly finished quality of the drawing, with the considerable attention paid to subtle surface effects (unnecessary in a preparatory study for a painting), suggests that its purpose was much more than merely preparatory and that it stood as a demonstration of the artist's technical virtuosity.

The final decades of the Quattrocento witnessed significant developments in the history of drawing, and it was in the graphic medium that many important attitudes to art making were forged. As Elizabeth Cropper has argued:

Between the lifetimes of Vasari and Cennini, or even Ghiberti, there came into being a new kind of art made by the hand of a new kind of professional who was no longer called an 'artigiano, but an artista (as Michelangelo called himself). Whatever the social, political or economic circumstances of that change, there can be no doubt that drawing was its form of expression, its instrument, its justification, its trace, its nursery, and sometimes its battleground.

In particular, it was during these final decades of the Quattrocento that the idea of disegno as a transcendental idea in the mind was formulated, explored in the technical experimentation of artists like Verrocchio and his contemporaries, as we shall see, and later theorized in writings."

Giorgio Vasari singled out Verrocchio's drawings of heads of women as influential, writing: "[T]here are some drawings by his hand in our book [Vasari's drawing album, his *Libro dei Disegni*] made with much patience and great judgment, and among these are some heads of women, with graceful manner and hairstyles that, because of their great beauty, Leonardo always imitated.

Vasari's practice of collecting Verrocchio's Ideal Heads points to the tendency among sixteenth-century connoisseurs to treat drawings as works of art in their own right, among which those depicting beautiful women were especially prized. Although scholars have assumed that it was only in the sixteenth century that drawings came to be regarded as independent works of art, some held this attitude in the preceding centuries.'] Certainly works on paper were collected earlier, and a number of works by fifteenth-century artists have been identified plausibly as examples of finished drawings, among them works by Leonardo, Francesco di Giorgio, Pisanello, Lorenzo Costa, Jacopo Bellini, and Andrea Mantegna. As we shall see, the poetic context in which Verrocchio's drawing must be understood suggests that his Ideal Head would have been considered an independent object.

### Drawing as Defense of Sculptured Relief

The intricate and varied techniques employed by Verrocchio in his drawing bring about a complex and slow viewing experience that, when combined with the tremendous tonal range produced through his use of materials, suggests that the represented form is undergoing a metamorphosis. Verrocchio's technique demonstrates an interest in evoking actual sculptural materials. His representation of the effects of light on the surface of the woman's face, especially across her cheek, creates a marmoreal luster, achieved by stumping the chalk and leaving some areas of the face untouched. In addition to evoking a marble surface, the parallel lines of hatching in ink blur when viewed from a distance, creating a golden tone that suggests the warmth of living flesh. Through his



processes of making, Verrocchio creates the effect of a woman's head as if between marble and living flesh.

Verrocchio's stumping in his *Ideal Head of a Young Woman* is extraordinary. It is an early — perhaps the earliest — example of sfumato, a technique associated above all with his pupil Leonardo. Verrocchio's use of the technique, however, is different from Leonardo's. Whereas Leonardo blurred the outlines of his forms, creating a haziness that suggests his figures are emerging from the background, as they would in nature, Verrocchio used sfumato solely within the contours of his forms and maintained an outline.' This adherence to a boundary has been interpreted by scholars as a failure on Verrocchio's part to represent a form in the round. But given Verrocchio's demonstrated technical capabilities in his use of sfumato for the areas of flesh tones, which come close to Leonardo's revolutionary procedures, it is worth considering the possibility that Verrocchio chose to represent his forms in this way. Verrocchio's novel use of materials, combined with the unsmudged outlines of his forms, suggests a drawing of a head carved in low relief. Although the figure we are observing seems to shift between stone and living flesh, this metamorphosis is in fact mediated through a specific type of sculpture: Verrocchio's refusal to represent his form in the round suggests that what we are looking at is a sculptured relief, and his drawing can be read as a defense of actual sculptured relief carving. Leonardo celebrated imitated relief at the expense of sculptural relief in his writings on the basis that imitated relief was a form of mental speculation, whereas actual relief required only physical labor (underlying Leonardo's attitude was his belief that painting was superior to sculpture). While Leonardo promoted imitated relief because it was rendered in two dimensions, Verrocchio's drawing suggests something different. His refusal to represent his form in the round implies that through his evocation of a marble sculpture, he was promoting an appreciation of sculptural relief, which he expressed through the graphic medium.

Why did Verrocchio use a drawing to defend sculptural relief? His interest in re-creating textural effects suggests the possibility that Verrocchio sought to establish an analogy between touching and seeing, and thus between drawing and sculpturing. This is supported by a technical point: some of the sfumato in the Christ Church drawing seems to have been achieved by the artist smudging with his finger closely spaced, parallel lines that he had drawn, and thus using his own sense of touch to achieve an effect on the viewer's eye. Verrocchio's practice reinforces quite literally a connection between seeing and touching, implying an assertion of the power of tactility as a mode of knowing. In his innovative use of stumping, and by leaving areas devoid of matter, Verrocchio created sensuous marmoreal surfaces whose effect on the eye evokes the experience of touching, thus the sfumato suggests to the viewer the sensation of touch caressing cold marble and living flesh. In other words, Verrocchio proposes that to look at the woman in his drawing is the same as to touch her, whether she is sculptured or real. This equivalence between touching and seeing in the drawing can be read as a visual argument about perception being a form of cognition, where perceiving something through the senses is the same as knowing.

### Touching as Seeing, Perceiving as Knowing

The link between perception and cognition was one made in Renaissance theories of disegno. Although it has been assumed that this concept of disegno as a method of knowing the world and of representing it was a product of sixteenth-century art theory, the graphic output of several fifteenth-century artists, including Verrocchio, suggests that the notion was already being explored in the late fifteenth century. Moreover, as Carmen C. Bambach has pointed out, twice in his fourteenth century *Libro dell'arte*, Cennino Cennini's use of disegno anticipates the Cinquecento use of the term. In his section on practicing drawing with a quill, Cennino writes: "Do you know what will happen to you if you practice drawing with a quill? It will make you skillful, accomplished and capable of a lot of

drawing of your own invention." And in his chapter on drawing on paper with charcoal, Cennino recommends a system of measurement that could be transferred from figure to figure and to buildings. If his reader did this, Cennino claims, they would be guided by their judgment, and with this they would find the truth. The second of Cennino's maxims on disegno is remarkably similar to that espoused later by Vasari in which he outlines how drawing involves the simultaneous understanding and representation of an object:

Because design, the father of our three arts of architecture, sculpture, and painting, proceeding from the intellect, derives from many things a universal judgment, like a form or idea of all things in nature — which [nature] is most consistent in its measures — it happens that not only in human bodies and those of animals, but in plants as well and building and sculptures and paintings it [design] understands the proportion that the whole has to the parts and the parts to one another and to the whole.

And because from this there arises a certain notion and judgement which forms in the mind that which, expressed with the hands, is called design, one may conclude that this design is nothing other than a visible expression and declaration of that notion of the mind, or of that which others have imagined in their minds or given shape to in their idea.

Leon Battista Alberti also appears to have attributed to disegno the potential to represent and know its subject. This is suggested, above all, by his use of the term *lineamenta* in his treatise on architecture, *De Re Aedificatoria*. As Caroline van Eck has convincingly argued, *lineamenta* is best translated as "design," because this implies how "it can refer both to the mental activity of planning or designing and its material form, a drawn line or even a ground plan." That Alberti intended "intellectual design" by the term *lineamenta* (something created in the mind and realized through drawing) is suggested by his use of the term in his definition of a building, where he sets it against the term *materia*. Later Leonardo espoused the view that drawing was an instrument both of knowing and investigating reality: "this disegno is of such excellence that it not only investigates the works of nature, but infinitely more than those that nature produces. This demands of the sculptor that he finish his images with knowledge." In their attitude toward disegno, then, artists and theorists from the fourteenth century onwards indicated the potential for a close relationship between the idea in the artist's mind and that which they represented in drawing, an opinion Verrocchio appears to have shared and attempted to prove through his practice.

The relationship between representation and thing suggested in Verrocchio's drawing — how to describe something (perception) and know it (cognition), and whether those two were the same or different — was the subject of dramatic transformation during the Renaissance, and it appears likely that Verrocchio would have been familiar with it. It is central, for instance, to the story of Geta and Birria, contained in three commonplace books made in Verrocchio's workshop. As we have seen, in the vernacular version known to Verrocchio and his contemporaries, this comedy of mistaken identity centers around the character of Geta, a foolish servant recently returned home from Athens, who is tricked into believing he is no longer himself. As Geta contemplates his situation, he concludes that word (his name) and thing (his essence) have become separated:

'Who can speak with the voice of Geta if he is not Geta? Well, how could this happen? I know very well that logic does not prevent two people from speaking with similar voices. And it is also very common for the same name to be given to two people' ... [Geta ponders his situation]: 'The voice and the evidence clearly suggest that this is Geta ... Thus have we become two that formerly were one? This I cannot understand' ... [After more thought, he concludes]: 'Undoubtedly, I have found out that I have become two.

The target of satire in Geta and Birria, like its medieval source, is Scholastic thought, in particular, the concept of universals. Geta's concern about his name is closely tied to Peter Abélard's discussion of universals and the issue of names. In a nutshell, the problem of universals (the common designation for individual objects of the same kind) concerns the question of whether things "have any independent reality or exist as mere notions and if that is the case if they are corporeal or incorporeal, if they are independent of the sense or require them, or if they are merely the products of thought." Such issues are central to the story of Geta and Birria for, as Birria, a wise fool and the other servant in the story, remarks: "Geta is crazy ... [thanks to] his great knowledge [(logic)]." In the course of the story Geta is philosophically and metaphorically destroyed. The relationship between object and representation, which I am arguing is central to understanding Verrocchio's drawing of an Ideal Head of a Young Woman, then, was a topic in Renaissance vernacular culture and one with which Verrocchio would have been familiar.

### Perceiving and Knowing through Artistic Practice

In addition to Verrocchio's awareness about the relationship between perception and knowledge from vernacular tales like Geta and Birria, the artist would have encountered it every day through his experience of working with matter. At the heart of Verrocchio's practice was his use of the senses as the gateway to knowledge and understanding of his materials. Over many years Verrocchio would have refined his skills in working with materials to understand how they should be treated. For objects in bronze, for instance, Verrocchio would have used the senses of sight, hearing, and touch to locate the best materials with which to begin preparing his alloy. To recognize pure tin, he would have looked for the whitest and hardest tin he could find, listening for it to "crackle" (like the sound of breaking ice), bending it with his hands, or holding it tightly in his teeth, as the sixteenth-century metallurgist Vannoccio Biringuccio explained it was done. Different types of objects were made from alloys of various proportions, and Verrocchio would have depended on his sense of touch to decide how much to use, by feeling the weight of the alloy. To determine how much tin to use for making the alloy for his bronzes, Verrocchio would have used sight: copper changes from red to white with the addition of tin, and from a malleable consistency to one that is hard and brittle. Verrocchio's skills in alloying bronze appear to have been recognized by his contemporaries: in 1473 Verrocchio was paid for alloying metal for a bell for the Opera del Duomo. Verrocchio would have used his senses also to recognize a good clay with which to make the core for his bronzes. Sight could not help in this, according to Biringuccio, for there was no visible way to distinguish between clays, despite their varied colors. Instead, the modeler would have used touch to find a clay that was suitably fine, lean (but not too lean or it would be too powdery and would not hold together), held its shape well when dried and, above all, resisted fire. A document records that on one occasion Verrocchio sought a very specific type of clay for a work of his in bronze (never completed): clay from a glassmaker's oven. Finally, casting itself required great skill and knowledge, and there was much room for error. Many little things could go wrong, from a badly fitted joint or leaking of the mold through a crack, to a piece of earth or charcoal blocking the gate or filling a hole. Verrocchio would have watched the metal until it turned red or white and began to melt, and he had to be on guard so that the fire did not "form a kind of skin on top." After the addition of tin, he would have recognized when the bronze was ready by sight because it would flash "like the sun," and he would see flames that were "almost white and without smoke," as Biringuccio explains.

As a sculptor in marble, Verrocchio would have developed skills in identifying different types of marbles through sight and touch. Using a variety of mallets, hammers, axes, punches, chisels, drills, saws, files, and rasps, Verrocchio created virtuosic effects in his marble sculptures. To suggest the transparent veil that covers the chest of his female subject in the *Woman with a Posy*, he used a gouge for the tiny folds in the dress, a punch for the delicate border of her partlet, and a pumice

stone, and perhaps earth and straw in bunches, for the polished surface. For the curls and nostrils of the same sitter and the space between the petals of the flowers that she holds, he used a drill.<sup>10</sup> The pitting across the face of Francesco Sassetti, which suggests the sitter's stubble, was produced with a sharp-pointed percussive instrument.



## **BUST OF A WOMAN HOLDING A POSY. 1475-80.**

Florence.

- The folds of the woman's dress are considered the work of a master sculptor.
- The head looks out and slightly upwards and the hands are placed irregularly on the breast.

Verrocchio's understanding of his materials and techniques was acquired through practice, based on years of experience using his senses. Only through countless experiments of working with nature could he acquire the appropriate judgment necessary for making his objects and in an impressive variety of materials. Through this training, the artist developed such sophisticated skills and understanding of matter that an idea could be formed in his mind and represented effortlessly with his hand. The belief that judgment could be trained through experience was one shared by many Renaissance artists, among them Donatello, about whom Pomponius Gauricus (writing in 1504) told the following anecdote: When Marco Barbo, bishop of Vicenza and nephew of Paul II, asked Donatello to let him see his abacus, Donatello invited him to come and see it the next day. When Barbo arrived, however, Donatello had nothing to show him, claiming that he was himself his abacus, which he always consulted and carried with him everywhere without effort. According to Gauricus, Donatello then asserted that if his visitor wanted to see something he should bring him paper and a stylus, then he might admire the result drawn from his abacus. David Summers interpreted Gauricus' story as proof of a belief in an artist's innate sense of judgment with no need for practical training. However, Elizabeth Cropper and Charles Dempsey have rightly pointed out how the story of Donatello's abacus points to the necessary coexistence of training and judgment in the practice of art, where training was the precondition for judgment (that was why Donatello could throw away his abacus). As Pamela H. Smith has emphasized, the development of an artist's judgment required

careful and laborious practical experience, a form of knowledge that she has aptly termed "artisanal literacy" Renaissance artists learned through practice and the errors of others to develop sophisticated skills in working with their materials, the "giudizio dell'occhio" (judgment of the eye) of Donatello expressed in Gauricus' tale.

Verrocchio not only acquired this "artisanal literacy" through his practice; he highlighted it as a theme in his work. Verrocchio's emphasis on sculptural effects rendered graphically in his *Ideal Head of a Young Woman* suggests that he was demonstrating the notion of drawing as both perception and knowledge. In his *Ideal Head of a Young Woman*, the artist pursued the close relationship between sculpture and drawing to suggest that what we are observing is a woman between life and marble. In so doing, Verrocchio appears to be claiming through his graphic practice the potential for drawing to state visually how one could both know and perceive something at the same time. His drawing is a demonstration of a hands-on understanding of the world, acquired through the senses and refined through training, that was a way of knowing, not just describing, the world.

### Representing Metamorphosis

In his evocation of metamorphosis in the drawing of a living woman turning into a marble sculpture or vice versa, Verrocchio was demonstrating the widely held belief that matter was not fixed, but always mutable. Since Aristotle and Theophrastus, marble had been regarded as living, earthly matter suspended in water that responded to the humors." Thus, a rabbi visiting Rome in the first century could explain why the marble columns in Roman churches were covered in tapestries ("so that they might not crack during the heat and not congeal during the cold"). And in medieval Latin editions of Aristotle's *Meteorology*, marble was said to be created from water transformed into stone. The belief was widespread. Dante referred to it in "Amor, tu vedi ben che questa donna" from his *Rime petrose*: "Lord, you know that in the freezing cold/water becomes crystalline stone."<sup>58</sup> Artists were certainly familiar with the theory that marble was made from water. Filarete, for instance, disproved it by cooking a piece of marble from a column from the Roman church of the Aracoeli.

The motif of a lady transformed into matter occurs frequently in vernacular love poetry, where she stands for the poet's imagination. Giacomo da Lentini (c. 1210-60?) - the Sicilian poet whose works were widely available in Tuscan and to whom Lorenzo de' Medici, Verrocchio's patron, devoted the most attention in his *Raccolta Aragona* (the collection of vernacular lyric poetry Lorenzo assembled and sent to Federico d'Aragona in 1477) — wrote in one of his sonnets: "I bear your image in my heart. It seems I bear you [my lady] in my heart, painted as you look ... Feeling great desire I painted an image, my fair, your likeness." For Dante in his *Rime petrose*, the Lady — who represents Poetry — is a stony one: over and over she is compared to stones.' Dante describes his beloved in "Io son venuto al punto de la rota," as an "image of stone" that he held in his imagination, and in "Amor, tu vedi ben" as "a lady carved from some lovely precious stone by the hand of some master carver of stone." Petrarch — whose sonnets were a favorite in Florentine commonplace books — famously refers in two poems (77 and 78) to a portrait of Laura by the painter Simone Martini, executed on paper and presumably in metal-point. And in another, sonnet, Petrarch sees Laura transformed materially from flesh into wood, specifically into a laurel tree. Of course, the topos of the beloved turned into a tree derives from Ovid's telling of Apollo and Daphne, which was well known during the Renaissance. Lorenzo il Magnifico, in his commentary on one of his sonnets (XV), describes how the beloved's image could be preserved in his heart so that it "might endure in the fashion of the hardness of a diamond." And in Lorenzo's *Ambra*, a nymph pledged to the goddess Diana is transformed into stone after Ombrone attempts to rape her.

The close connection between seeing and touching that Verrocchio suggests in his drawing also occurs in love poetry. According to the Renaissance theory of falling in love, little spirits (spiritelli



d'amore) pass from the eye of the beloved into those of the lover, impressing the image of the beloved on the lover's heart. Sometimes the spirits are sent via little arrows that would strike wounds in the lover's heart ("the shot from your eyes pass[ed] straight into my inward parts," as Petrarch describes). The idea of arrows delivering love's wounds occurs also in devotional literature and in descriptions of divine love. The twelfth-century Cistercian, Gilbert of Hoyland, whose sermons were popular in Renaissance Florence, writes how Love pierces the heart through the eyes: "Would that he [Christ] might multiply such wounds in me, from the sole of my foot to the crown of my head, that there might be no health in me! For health is evil without the wounds that Christ's gracious gaze inflicts." And in his Confessions, Augustine writes that God "pierced my heart with the arrow of your [his] love, and we carried your words transfixing my innermost being." This sentence reached a wide vernacular readership, thanks to a paraphrasing of it by Jacopo de Voragine in his *Legenda Aurea*.



Falling in love was often described in terms that mimic the actions of a sculptor, using metaphors of carving, incising, and forming with the hands. For instance, Giacomo da Lentini writes how he "was greatly delighted, my lady, that day when I formed in wax your beautiful image." In his *Amorosa vision*, Boccaccio (whose *Decameron* Verrocchio owned) describes how his lady-love inscribed her name upon her lover's heart. And in one of his sonnets (XIII), Lorenzo il Magnifico praises the beautiful hand of his beloved, with which she drew out his heart, tying it in a thousand knots and remaking it so that he would be inclined to love her:

O pure white, delicate and lovely hand,  
Where love and nature placed those graceful sweets,  
so noble and so lovely that it seems  
That all their other works are made in vain,  
You gently drew my heart forth from my breast,  
Out through the wound the lovely stars had made  
When Love made them so pious and so sweet;  
You entered in behind them, bit by bit,  
And with a thousand knots you bound my heart.  
You formed it new; and when you afterward  
Had made it noble, it won't do

To longer seek to bind it with new knots,  
Or ever think it pleased by something else.

The unknown artist responsible for the so-called "Otto prints" represented the idea in an engraving, showing the beloved holding her lover's heart, which she has taken from his body as he stands, tied to a tree, before her. (The ability of the beloved to reach the lover's heart with her hand was the result of a vein that was believed to run directly from the heart to the ring finger of her left hand and thus serve as "a messenger of the heart's intention," as Lorenzo explained in his *Comento sopra alcuni de' suoi sonetti*.) The connection between touch and falling in love was made in countless love poems, many in the vernacular, with which Verrocchio would have been familiar.

Further proof of Verrocchio's awareness of the role of touch in falling in love can be found in the standard he painted for a joust in Florence in 1475, as recorded by the artist's brother in an inventory drawn up to claim money owed by the Medici after their expulsion in 1494. It depicted a *spiritello d'amore*, the agent that impressed the lady's image on the lover's heart. <>

### The World of Print in the Age of Shakespeare

The printing of vernacular Bibles gave ordinary individuals an opportunity to consider God for themselves and to question traditional teachings from the perspective of their own understanding of scriptural authority. Thus, knowledge was not so much freedom as a cause of the demand for freedoms. The populace was not a passive recipient of policies and initiatives from the more powerful. Yet, while the Reformation was heavily dependent on the ability of publications to overcome traditional constraints on discussion and the spread of ideas, it also reflected the power of the state. Protestant worship was introduced by means of the *Book of Common Prayer* (1549), which contained the forms of Prayer and Church services requisite for every religious event. parliament passed a Uniformity Act decreeing that the *Book of Common Prayer* alone was to be used for Church services, which were all to be in English. After an order of Convocation (the clerical parliament of the established Church) of 1571, cathedral churches also acquired copies of Foxe's *Book of Martyrs*, a highly potent account of the Protestants killed during Mary's reign; and many parish churches chose to do likewise.

As yet, the impact of popular literacy and the print revolution upon oral culture was, while important, still limited. Visual experiences remained highly significant, including with books. Foxe's *Book of Martyrs* was illustrated, and these images were arguably more potent than the text, a point also true of images of witches. While these images fueled the anxieties of the age, other images could be celebratory and consoling. Important aspects of visual culture included pageantry and costume.

About 80 percent of London craftsmen were literate by the 1600s, but literacy rates were lower, much lower, for the poor, for women, and for the rural population. Most people could neither read nor afford books. Thus, printing exacerbated social divisions and gave an extra dimension to the flow of orders, ideas, and models down the social hierarchy. The inability of the poor to express themselves was accentuated. Yet there were also possibilities of expression even if they could be mocked. In *A Midsummer Night's Dream*, Bottom awakes from his encounter with the fairy world, proclaims its uniqueness, and seeks to fix it for posterity in a work of poetry that will be recited:

The eye of man hath not heard, the ear of man hath not seen, man's hand is not able to taste, his tongue to conceive, nor his heart to report what my dream was! I will get Peter Quince to write a ballad of this dream; it shall be called "Bottom's Dream," because it hath no bottom. (Iv, i)

The literate Quince, the carpenter, allocates the parts in "Pyramus and Thisbe," and writes and speaks the prologue. Bottoms muddling of the senses has biblical provenance, and even he dimly realizes it is a mystery.

Education, the world of print, the impact of government, and the role of London all encouraged the gentry increasingly to view politics and society in national terms. London dominated printing, and language was standardized through London-based printing, which reduced the impact of regional linguistic differences. Standardization was related to the interlinked authority of print and the capital.

The impact of print was often indirect and subtle but was nevertheless significant in establishing assumptions. For example, printing changed the law by easing and encouraging the processes by which injunctions, information, and outcomes were recorded and stored. In place of the variations of the oral transmission of information and custom, there came a demand for certainty and precision linked to the written record. With customary law, a largely oral system was transformed into a written one. Such changes enhanced the prestige of text and its capacity to act as a system of validation and thus of arbitration and settlement. Shakespeare referred to a new world in *All's Well That Ends Well*:

They say miracles are past; and we have our philosophical persons to make modern [everyday] and familiar, things supernatural and causeless [inexplicable]. Hence is it that we make trifles of terrors, ensconcing ourselves into seeming knowledge when we should submit ourselves to an unknown fear. (II, iii)

There were textual variations with printing, notably as a result of errors, changes introduced in new editions, and also censorship. Printing, nevertheless, represented a way to fix texts in a fashion different from the instability arising from the continual alterations that resulted from hand-copied texts and, even more, by the oral transmission of information and opinion. Thus, the character of textual memory and of memory as a whole was changed. The more fixed character of print was linked to the more public response to what was published, a response also seen with the development of printed commentary.

### Report and Rumor

It is important to note both the still-thriving manuscript culture of the period and the contemporary understanding of printed texts as unreliable.<sup>32</sup> Nevertheless, at the same time, the culture of print brought new authorities and new processes of authorization. The prestige of print, it has been suggested, was linked to a new stage in the relationship between reality and the fictional in the shape of the perception and strength of particular fictional ideas.<sup>33</sup> Authorization was in part a matter of censorship, which served a range of goals from religious and political control to attempts to regulate the book trade as a business activity. Censorship and licensing, however, were not simply means of restriction but also of legitimation, marking the boundary of what was respectable. Licensing included the granting of commercially valuable privileges to publish, which was a variant on monopoly rights.

This was to be important in the development of novel forms of news reporting. As Shakespeare's plays made clear, much news was not in a form that would be regarded as central today. Instead, it could be repetitive and cyclical, as with the cycle of days on which parish bells were rung and the telling and retelling of familiar tales and superstitions. These activities afforded some security in an insecure world. A sense of news as frequent, even daily, did not represent a secular rejection of a religious world view but, instead, with some similarities to a play, was a common theme in society, offering interest and explanation in the form of narrative continuity. At the same time, print, drama, and greater interest in recording and "telling" time were all aspects of a cultural shift. The

development of time-based forms of publishing) such as astrological publications, news pamphlets, and newspapers, was part of this shift.

As a result, gossip was given new forms and authority. In more conventional forms, gossip was a key element in many of Shakespeare's plots, notably the comedies, and was shown as lethal in *Othello*. Present at all social levels, gossip, as in *Othello*, frequently played on the anxieties of the powerful and forceful.

In England, government concern with rumors was seen in 1580, when a proclamation was issued against the spreading of rumors that invasion by Philip II and the pope was imminent, rumors that were indeed inaccurate. The world of report was shaped by government regulation, entrepreneurial activity, and the purchasing, reading, and viewing decisions of many, for whom such choices were acts of political and/or religious affirmation, as well as signs of interest. In a pattern reminiscent of Casca's speech in the second scene of *Julius Caesar*, branches of knowledge fed by (new) information, such as astrology and the journalistic genre of "strange newes," could be used as vehicles for articulating topical grievances. So also with the use of the occult in *Henry VI, Part II* (I, iv).

However expressed, including on the stage, the information and opinion that circulated were not confined to a system of government-directed control or to hierarchic patterns of deference, and Ben Jonson was to sound a warning in his play *The Staple of News* (1626). Attempts to control the flow and dissemination of unwelcome material stemmed from concern about the political, religious, and, to a lesser extent, social possibilities of print and drama, including its influence on those who could not read or, indeed, afford to go to the theater but who might be swayed by those who could. The nature of the intelligence gathering required by governments was affected by print and the theater.

The development of pamphlets, newspapers, and theater was located within a wider cultural shift that focused attention on What could be presented as news: news from elsewhere. This information became more prominent in the sixteenth century, not only with the increase of public or semipublic forms, such as manuscript newsletters, but also as a result of a greater internalization of news, apparent with the growing number of diarists, many of whom recorded public news. The extent to which this process of engagement with clearly defined news, especially from distant places, was related to institutional developments—such as the increase in public postal links and of mercantile correspondence systems—as opposed to cultural changes, is unclear.

Entrepreneurial activity helped foster a process in which different media joined, overlapped, or separated. In England, the genre of "strange newes" was used to provide accounts of providential tales, and this possibility attracted entrepreneurial publishers. Plot devices in plays that to us may appear far-fetched would scarcely have done so to the readers of such tales. However, although providential tales remained an important topic for report, news and fact were increasingly differentiated from exemplary prose in which morality was seen as defining accuracy, for example, sermons. So also with plays, although they responded to the possibilities of a range of genres. Political information became a valuable commodity that was turned to profit by the writers of newsletters, as well as providing material for satirical works that, in part, dwelt on the contents and implications of morality.

The interest in new developments both at home and abroad, the latter notably due to religious conflict and even warfare from the 1520s, ensured that information circulated more widely. This was a process encouraged by governmental and ecclesiastical activity and by translations of items. Publications, like plays, contributed to and drew on a heightening, focusing, and, to a degree,

polarization of public opinion. They brought a new intensity to the political contention already seen there, notably in the 1580s, 1590s, and 1620s, and both reflected and sustained the particular issues of specific political moments. Thus, Thomas Dekker argued the case in 1606 for a militant Protestantism, one in which anti-Catholicism was taken to the fore, in both domestic and international affairs, in the aftermath of James I's accession in 1603 and the Gunpowder Plot in 1605.<sup>35</sup> Rumor, which Shakespeare brings onstage at the start of *Henry IV, Part II*, was an aspect of public (and private) opinion. It was seen under Elizabeth, but James's court and his personal style of rule through favorites encouraged rumor still more.

### Imagination and Print

A key element in the world of print was provided by the publication of plays. This was very much a way in which Shakespeare's works could be fixed, and he could be identified and also criticized. In 1598, there was the first appearance of Shakespeare's name on the title pages of his printed plays, in the shape of a quarto printing of *Love's Labour's Lost*. The original authored "Complete Works" appeared only after Shakespeare's death, in the "First Folio" text of 1623, that is, a large "Folio" format. This was assembled by Shakespeare's colleagues John Heminges and Henry Condell, both actors in the King's Men, for whom Shakespeare wrote.

The dimension of publication was important, but the plays were staged; they were not appreciated primarily as written texts.

This staging involved adaptation to the constraints of contemporary productions and theaters, but these constraints both offered opportunities and could be pushed against. Moreover, the theatricality included the display that could provide an important component in the visual appeal of the plays. This display was notable in terms of the solemn processions or dances that could end plays: tragedies and comedies respectively. Neither solemn processions nor dances were new features of the culture of the period, but their setting in theaters, in which people were paying to see plays written for commercial ends, was new. The context and the content of national culture were changing. <>

### The New Literary Visualities of Early Modernity:

#### The English Renaissance Book

##### **READING BY DESIGN: THE VISUAL INTERFACES OF THE ENGLISH RENAISSANCE**

**BOOK** envisions early modern English print as a fragile, fragmented material object. In this study, I will explore how the English Renaissance book was culturally coded as both a thing and a medium. Renaissance readers perceived the print book as a thing that could be broken or reassembled, as well as a visual apparatus that had the power to reflect, transform, or deceive. My approach to the hand-press-era book as a phenomenally troubling medium in its own right counters the longstanding binary of print as linear and monologic, as opposed to oral or digital media, often viewed as more hypertextual and dialogic. Early print texts often seem to be caught between sweeping narratives of declension or progression, such as Walter Ong's claim that the visual nature of print led to the death of scholastic rhetoric, or Elizabeth Eisenstein's much-cited characterization of print as an "agent of change," a harbinger of modernity. These binaries, prominent in the works of media theorists and rhetoricians such as Ong, Eisenstein, Marshall McLuhan, and Jay Bolter, still structure - and limit - how we use and discuss books in composition and literature classrooms, in popular conversations about visual media, and in our scholarship. In this study, I instead approach the early modern book as a complex visual, rhetorical, and political spectacle. I situate the culturally and intellectually problematic relationship between visual perception and knowledge in the English Renaissance as



fundamental to how early print books' visual interfaces were constructed, displayed, read, perceived, and dismantled. I argue that the physical, and specifically visual, features of early modern print books expressed conflicting theories of perception and knowing.

We may, however, hesitate to uphold Harman's ahistorical network-in-itself as an ontological solution to phenomenal problems. Harman himself employs the culturally specific, media-centric terminology of a network to describe our encounter with things. Our cultural and material experiences (in this case, digital media) constantly shape our phenomenological assumptions. In other words, material things shape how we perceive perception, even as our cultural and historical models of perception necessarily shape and colour how we approach these things: material things and our experience of them exist in a state of recursion. Like Harman's "network" of perceptual stuff, early modern texts often described the process of perception in material terms specific to print: impressions, engravings, illustrations, and types. This book explores how such metaphors, used to describe visual and cognitive

perception, in turn structured early modern readers' experiences of books and their visual features. The intellectually complex ways that print books patterned visual materials alongside textual matter could even be deemed a political act, one that transformed how people saw and perceived their world: as Jane Bennett describes in

AND IN HER OTHER HAND SHE FAST DID HOLD

A BOOKE, THAT WAS BOTH SIGND  
AND SEALD WITH BLOOD,

WHEREIN DARKE THINGS WERE WRIT,  
HARD TO BE UNDERSTOOD

Edmund Spenser, *The Faerie Queene*, Book I, Canto 10,

Vibrant Matter, "a political act not only disrupts, it disrupts in such a way as to change radically what people can 'see': it repartitions the sensible; it overthrows the regime of the perceptible".

Hence, I build upon the concept of rhetorical vision to investigate the ways that early modern books responded to — and constructed — the phenomenological crisis of visual perception. Debra Hawhee distinguishes "rhetorical vision" from the more commonly studied "visual rhetoric". Rhetorical vision, she proposes, indicates a concern for how rhetoric creates and responds to perception, whereas the term "visual rhetoric" conventionally ties rhetoric to a specific material index. Visual rhetoric has a more material basis, while rhetorical vision, as Hawhee defines it, is a way of perceiving the world through a rhetorical lens. Rhetorical vision "attends" to the "conjuring" of visual images and how they are brought to mind, and hence treats with how rhetoric affects cognition and perception, while visual rhetoric treats with the force of visual media: "put most simply, through rhetorical vision, words come to life". More broadly, as Thomas Rickert advocates, a rhetorical situation or experience may be brought into the realm of the experiential and ambient, as a rhetorical situation is defined by its location, inhabitation, and environing. Rickert shifts rhetoric from ontology (being) to ambience, or a "dwelling" that includes our own "affective" situation in our environs, in an agency that is diffuse. In my analysis, rhetorical vision and visual rhetoric work dialectically, within the book's status as both an object (techne) and an interface (episteme), while being surrounded by a cultural and phenomenal environ that modifies and mediates the reading experience. In other words, I attempt to draw from discussions of the book as a visual media to interrogate how book visuals constructed and called to mind different forms and ideologies of perception and cognition. Reading by Design investigates the following question: how do the visual media of early modern books transform, produce, or uproot structures of knowledge and perception?

## Partial Visions and Visual Rhetorics

The relationship between sight and perception was fundamentally called into question at the same historical moment that print books remediated the visual and material structures of manuscript, iconic, and oral rhetoric. As Stuart Clark has recently explored in *Vanities of the Eye*, Platonic, Aristotelian, and empirical models of sight vied with one another in a culture in which "vision was anything but objectively established or secure in its supposed relationship to 'external fact'." Physiological, diabolical, or psychological forces could undermine visual perception. Further, as Sergei Lobanov-Rostovsky claims, the Platonic "projective" model of sight was not yet passed over in favour of the Aristotelian "receptive" model. Lobanov-Rostovsky describes how, in Platonic thought, the eye projected an "inner fire, which coalesced with daylight to extend from the eye to an object of vision". Alternatively, the Aristotelian eye, made of water, receives images. In the context of readers' sensory interaction with the book as a medium, the question of whether their eyes received book images or projected their own visual perceptions onto them is important to how we explore early modern books' intersection with readers' perceptive gazes. The epistemic problem of vision is discussed at length in classical works that influenced early modern thought and culture, such as Aristotle's *De Anima* and Plato's dialogues. In a notoriously thorny passage of *De Anima*, Aristotle claims that the eye receives form (sensory objects) without matter (meaning). The process of *phantasia*, loosely translated as imagination or fantasy, allows perception to take place without the material presence of the object. The retained image becomes hazy, shadowy, or partial.' In an

For now we see through a glass, darkly;  
but then face to face:  
now I know in part;  
but then I shall know even as also I am known

I Corinthians 13:12

Aristotelian reading process, then, the form of an object, like a book, can be grasped immediately by sight; however, the process of interpretation requires its images to become partial, fragmented, and transformed by cognitive perception.

Neo-Platonic and neo-Aristotelian phenomenologies in vogue in the early modern era had more in common with one another intellectually than the projective-versus-receptive controversy may indicate. Both exhibit a high degree of scepticism regarding the ability of the visual senses to represent truth or lead to understanding. In *Theaetetus*, Plato's Socrates demands, 'What we say a given colour is will be neither the thing which collides, nor the thing it collides with, but something which has come into being between them; something peculiar to each one. Or would you be prepared to insist that every colour appears to a dog, or any other living thing, just the way it appears to you?'

While Aristotle describes the movement from sight to perception as partial and imaginative, Plato casts doubt on the capability for sight to operate as a mode of perception at all. Plato compares the perceiving mind in *Theaetetus* to an aviary full of flying birds. These birds of knowledge swarm about at their own whim, unreliably. Socrates claims that it is possible not to have one's knowledge of that thing, but to have some other piece of knowledge instead of it. That happens when, in trying to catch some piece of knowledge or other, among those that are flying about, one misses, and gets hold of the one instead of the other ... as one might get hold of a dove instead of a pigeon.

As I will discuss at greater length in this project, early modern books often resemble this aviary. They are assembled among fragmented material pieces that surprise and confound the reader's perception. This historical attitude towards the materials of sensory perception is illustrated by Herbert's description of a "broken altar" "cemented with tears" in his iconic shape poem, "The Altar"; by Francis Quarles's description of his Emblemes as reflective of the patterned, mysterious hieroglyphics of creation; and by Henry Vaughan's description of "Hyeroglyphicks quite dismembred, / And broken letters scarce remembred" in *Silex Scintillans*. The partial images and fragmented materials of this book's primary texts recall Plato's description of representation in *The Republic* as the shadowy, unknowable projections of real forms to cave-dwelling prisoners.<sup>1</sup> The partial and subjective sight of Aristotle's *De Anima*, in other words, is not only partial or foggy but also deceptive in Plato's metaphors of visual perception. Early print-book visuals meditate on this sense of partial, fractured, and potentially deceptive sight. But they are not, as is the strain in Platonic and dissenting Puritan thought, necessarily anti-representational. They are instead representations that often point towards the visual construction of their own representational problems. The importance of readerly watchfulness — and a sense of formal playfulness — is a dominant ethos of early modern book visuals. Of course, each text in this study responds uniquely to a culture where iconicity and visual spectacle is both ubiquitous and ubiquitously interrogated.

Conditions of forgery and piracy rendered the book epistemically unstable as a material: as Adrian Johns asserts, book culture was "characterized by nothing so much as indeterminacy" in its variances of physical form and reader reception. Johns describes the early modern understanding of the reading process as filtered through the untrustworthy avenues of the passions and senses, such that those "who failed to control their passionate reading practices, and thereby fell prey to them, could then be diagnosed by a series of symptoms that were likewise understood in terms of the passions". One victim of this circumstance was "Laudian scholar Peter Heylyn," whose "excessive reading engendering blindness as the "Laboratory" of his brain overheated and destroyed the crystalline humour of his eyes". Print visuals, as Johns and I examine, were important to the imaginative and perceptual faculties, yet this imaginative function caused anxiety that vision would overwhelm reason. This tension between the productive, generative features of visual reading and its potential to erase and even blind readers to truth and reason will be an ongoing thread in my investigation. Vision's changing nature in its cultural context was shaped by both the Reformation and by the inheritance of Aristotelian notions of sight that competed with more empirical understandings. Matthew Milner argues that the senses and their "misuse" were certainly feared in a Reformation context, but that Reformers were as much "shaped" by "sensory culture" at large as iconoclasm. The Reformation drew from "traditional Aristotelian theories of perception," but also reshaped and at times undermined them, further destabilizing the role of visual perception.

Early modern philosophical and cognitive theories of sight both drew from and readapted the dominant Platonic and Aristotelian models. In his *Anatomy of Melancholy*, early modern physician-philosopher Robert Burton demonstrates a widely accepted middle ground between projective and receptive theories, as manifested in a tripartite brain. Burton claims that although "there is nothing in the understanding, which was not first in the [outer] sense", the three inner senses of common sense, "phantasie," and memory act to interpret sensory data. Francis Bacon, who famously positioned books as sensory objects in his essay, "Of Studies" — "Some bookes are to bee tasted, others to bee swallowed, and some few to bee chewed and digested" — responded to these visual controversies in his *Novum Organum* and *New Atlantis*. Bacon's *Novum Organum* is credited with the formation of inductive reasoning from visual and sensory observation, a model that is predicated on an epistemologically uncomplicated stance towards sight's relationship to perception and material reality. Bacon chooses to name common obstacles to this new, objective, and clear model of

reasoning from observation "idola," or idols (Novum Organum 79, aph. 38). This loaded term draws from early modern reformist concepts of visual idolatry, as well as from classical theories of vision. As Alistair Crombie outlines in *Science, Optics, and Music in Medieval and Early Modern Thought*, Plato, Aristotle, and Democritus believed that objects gave off "images, copies, or representations" of themselves; Democritus called these images eidola. Bacon's argument for induction from visual or sensory observation thus rather circularly counters the purportedly false visions or simulacra that mediate representation. Bacon more explicitly draws from Plato as he warns against "idols of the cave," a cave that "scatters and discolours the light of nature" (81, aph. 42).

Objective sight and internal prejudice, then, are oppositional in Bacon, yet sight itself is still a questionable, elusive path to knowledge. In the *New Atlantis*, Bacon creates an ideal model of specialized knowledge, Salomon's House, which serves as "the very Eye" of his utopian realm (9). Salomon's house has "Perspective Houses":

where we make Demonstration of all Lights, and Radiations: And of all Colours: And out of Things uncoloured and Transparent ... All Delusions and Deceits of the Sight ... We procure means of Seeing Objects A-farr off; As in the Heaven, and Remote places: And represent Things Near as A-farr off; And Things A-farr off as Near ... We have also Glasses and Means to see Small and Minute Bodies, perfectly and distinctly."

Mediation here comes in the form of clear glasses, telescopes, and microscopes. Mediums, in this passage, further and expand a telosdriven vision and observable knowledge. In another division, the "Houses of Deceits of the Senses," we represent all manner of Feats of Juggling, False Apparitions, Impostures, and Illusions; And their Fallacies. And surely you will easily believe that we that have so many Things truly Natural, which induce Admiration, could in a World of Particulars deceive the Senses, if we would disguise those Things, and labour to make them more Miraculous. But we do hate all Impostures, and Lies: Insomuch as we have severely forbidden it to all our Fellows, under pain of Ignominy and Fines, that they do not shew any Natural Work or Thing, Adorned or Swelling; but only Pure as it is, and without all Affectation of Strangenesse.

Here, representational delusion and fallacy are visually represented to the fellows of Salomon's House. The terminology of "juggling" and "disguise" echo the anti-Catholic, anti-miraculous stance of English reformers, as Catholicism and the Jesuit movement often implied idolatry, deceit, and false miracles in post-Reformation polemics. Reformation politics partially explain why visual delusions need to be forbidden, yet visually represented in this *New Atlantis*: the anti-spectacular movement in English Protestantism necessitated its own forms of political theatre. The "purity" and unaffected nature of the Fellows' representations are both a scientific and ideological value, evoked both by Bacon's epistemologically certain inductive model and its theologically "pure" and native English Protestantism.

Salomon's House parallels the longstanding model of inquiry and pedagogy in the modern academy: one of specialization, an anti-iconic ethos that seeks to remove cultural delusions with its own form of demonstrations, and a singular focus on clarity and precision in academic standards of writing that bespeaks a simplistic relationship among reading, perception, and politics.' Ryan J. Stark observes how rhetorical theory transitioned from a model of "entelechy," or phenomenologically "enchanted" forms, to an empirical model that favoured "clarity" or simplicity above all by the end of the seventeenth century. In this empirical model, rhetoric is ideally a clear glass that transparently reveals the matter or content beyond itself — as Stanley Fish would put it, texts are here "self-consuming artifacts". This idealization of visual observation as a clear, unobtrusive path to a knowledge outside of itself can be encapsulated in the words of William Hinde, who, in the English post-Reformation context, sets the "dumbe and darke images" of stained glass, that "by their painted

Coates and colours, did both darken the light of the Church, and obscure the brightnesse of the Gospell" against the "white and bright glass" that replaced it in church windows. The clear glass becomes an episteme for a content that transcends its own form, rather than the formal, visual device of stained glass, whose images and patterns endlessly capture the gaze of its onlookers.

As Rayna Kalas explores, glass itself was an important metaphor as an episteme in the late medieval and Renaissance eras, signifying "poetry and the imagination" and a material that linked macrocosm to microcosm. Glass, as discourse, was "instrument in shaping reality". Glass frames became a figure for invention, as framed glass was a representation of "created matter" (28). As Hinde's sermon and Kalas's work demonstrate, the figurative meaning of glass constantly took on new shapes throughout the Renaissance as the technological and social aspects of its making changed throughout the era. While the change from stained to clear glass in Hinde's words signifies the social transformation of the Reformation, technical changes in glass transformed its metaphorical purchase. In the fourteenth and fifteenth centuries, convex or "pennyware" mirrors made of glass were available but distorted their reflections, minimizing their images; alongside these mirrors were reflective "steel and silver" that required upkeep but held a more accurate reflection. Nevertheless, glass became a metaphor for a necessarily inaccurate reflection of microcosm to macrocosm, much as the fallen world would not accurately reflect God's creation. By 1570, however, expensive and controversial crystal glass mirrors were imported to England and became a metaphorical reminder of vanity (108-9). Crystal versus older forms of mirrors demonstrated a conflict between an ontological mirror as a reflection of God (though imperfect) and a humanistic representation of material surroundings (108). Hence, my discussion of Caxton's 1481 *Mirroure and Description of the World* links rhetoric to metaphysics, while in chapter 4 mirrors, and the book itself, in the work of Francis Quarles become unwieldy and anxiety-ridden figures of representation.

Because of vision's multifarious and controversial nature in the English Renaissance, I explore how philosophical, scientific, and rhetorical works and ideas intersected with the concerns of my primary texts. It is impossible to discuss the changing nature of visual perception from 1485 to 1650 without including the inherited philosophical and rhetorical theories of Aristotle, Plato, Cicero, and others, or the changing technologies of vision, including glasses, mirrors, optics, telescopes. The visual text, I argue, did not exist in a vacuum but rather connected with transformations in scientific and philosophical ideology — the Platonic gaze, for instance, in my discussion of Caxton's *Mirroure* becomes a telescopic insight in Francis Quarles's *Emblemes*. Through my research into visual perception, I have discovered that scientific and philosophical controversies were threaded throughout book visuals, even to the point of intending readers to choose a particular avenue or experiential attitude towards their text. While *Reading by Design*'s primary concern is with literary and rhetorical history, its connections between philosophies of sight, scientific theories such as the makeup of the eye organ and the nature of glass prism, and textuality do not restrict it to a single field. While we maintain a disciplinary structure to our own epistemologies in the university, the path to knowing in the Renaissance, and in the texts I study, was understood to be collective and overlapping, as the ultimate goal would be to link different forms of knowledge as a microcosm for creation. In many instances, the texts themselves refer to visual controversies in science, philosophy, and rhetoric, and there would be a certain amount of critical oversight without delving into these intersections. This multidisciplinary analysis of visual reading encourages a holistic framework within which to situate problems of perception alongside book materials. This study of perception's role in the composition of texts combines areas of study and historicizes how readers would have visually encountered books; I therefore draw from classical and early modern inquiries of the nature of sight to explore this encounter.



## Glasses, Maps, and Mirrors: The Material Rhetorics of Books

Early modern visual culture's interfaces, of course, extend beyond the space of the book to the materials of daily life in the English Renaissance. As Juliet Fleming investigates in *Graffiti and the Writing Arts of Early Modern England*, writing on public walls, churches, domestic spaces, heraldry, and everyday objects created a sense of textual-visual ubiquity to the point where an empty wall signified an empty mind. While this study primarily focuses on the printed page, it traces how books' spatial features drew from parallel alterations to other visual technologies: mirrors, calendars, maps, telescopes and other optical glasses, and anatomies of the eye itself. The texts in each chapter have been chosen to illustrate how visual technologies, genres, and cognitive-perceptual functions combined in an intended interaction with a text or performance. The following chapters set these visual materials alongside the genres of the pedagogical tract, almanac, chorography, emblem book, and performance, respectively. These genres remediate rhetorical praxis from cognitive to print locations, particularly the methods of imagination and invention, memory, arrangement, and delivery. In addition, these genres, by inhabiting the space for learning and categorizing, timekeeping, spatial visualization, meditation, and spectation, call for readers who were active viewers and perceivers of their texts and who may have integrated reading into the rhythms of everyday life.

Each genre illustrated here also forms both text and viewer into a unique inhabitation and phenomenal field. Each genre calls for a particular cognitive shift and philosophical turn as we perceive it, whether entelechy in the case of Caxton's late-medieval encyclopedia *Mirroure and Description of the World* or a never-ending process of memorialization and forgetting in the chorography *Polyolbion*. In the case of *The Shepheardes Calender*, I argue that readers would have approached this text with the almanac form already in mind, a genre that evoked memory, prophesy, and the inscription of visual space. Francis Quarles's *Emblemes* in chapter 4 asks readers to both meditate upon and evaluate the images alongside the text, creating a sense of double vision and constant vigilance. I turn to the performance *2 Henry VI* in my final chapter, a work that references bibliographical objects and John Foxe's visually magisterial *Acts and Monuments*. This play brings both books and eyes before the eyes and minds of its audience, as it adapts Foxe's *Acts* and interrogates the nature of sight. I analyse this play as a potential adaptation, and as such one that asks viewers to question what they are seeing and to call the visual nature of books to mind as they act as theatrical spectators. These genres demonstrate how the visual elements and composition of texts set up a cognitive and perceptual relationship between reader and text that is constantly interrogated and complicated by the thematics of the works themselves. While I've included canonical texts, such as Spenser's *Shepheardes Calender* and Shakespeare's *2 Henry VI*, my inclusion of non-canonical (but at times popular) sources such as Francis Quarles's *Emblemes* and almanac books alongside interrogates connections between what might have been "everyday" reading and what might have been interpretation. It is my argument that reading and visualization in itself may have called for a certain vigilance and participation in intellectual controversies, even with genres that tend to be uncanonized. The variety of texts and genres featured in this study demonstrate how crises of visual perception underpinned a wide swathe of the reading experience in the Renaissance. The key word here is experience. While Renaissance readers certainly interpreted and actively cutup, inscribed, and catalogued their texts, I will predominantly investigate how these works set up their visual interactions with readers to both create an experience and interrogate forms of knowing. My method throughout is thus one of material epistemology and phenomenology rather than pure historical materialism or reader response. Even with a compendium of material history at our hands about early modern reading practices larger than that assembled by this study and other scholarship, we may never fully grasp how early modern readers could have literally approached these texts in their time. Therefore, this book looks to histories of visual perception as well as the

visual aspects of the texts themselves to imagine the kinds of epistemic and phenomenological frameworks these books would have placed readers within.

Chapter 1 investigates how print illustrations and spatial metaphors, such as mirrors, colours, and measurements, serve to mediate reader and image, cognitive perception and perceived object, and rhetorical invention and imagination in two early illustrated pedagogical texts, William Caxton's encyclopedic *Mirroir and Description of the World* (first edition 1481) and Stephen Hawes's allegorical *Pastime of Pleasure* (Tottel edition 1555). As Herbert Grabes explores in *The Mutable Glass*, mirror or glass metaphors for books had been a particularly English tradition since the late-medieval, preprint era. Mirrors were not the clear, two-dimensional objects we picture today but were often made of bronze or similar materials and formed in a convex shape that could only provide a partial or distorted reflection. Bronze mirrors date from the classical era, and were often handheld, featuring decorative motifs, vignettes, and designs. The mirror as common metaphor for the book suggests reflection and refraction, mimesis and illusion. Through the symbolic language of their material images and visual metaphors, particularly the mirror, Caxton's *Mirroir* and Hawes's *Pastime* portray pedagogy, even rhetoric itself, as problematically dependent on the subjective visual imagination, or "fantasy," of the reader.

Chapter 2 locates Spenser's *Shepheardes Calender* (1579) and the annotated almanac genre it draws from as memory spaces. In the sixteenth century, readers used almanacs as a new, visual, and mnemonic media. Readers employed almanacs for inscription, accounting note taking, chronicling, and prognostication. As Frances Yates and Mary Carruthers famously detail, classical and early modern mnemonic practices shared a common technique: orators would often construct a memory palace or house in the mind, replete with intricately visualized rooms, cabinets, and spaces, to place ideas for later recollection. As Adam Smyth notes, annotated almanacs held specific spaces for the reader to inscribe reminders and commentaries, spaces that effectively operated as little rooms in a visual memory palace ("*Almanacs, Annotators, and Life Writings*"). Early modern calendars and almanacs hence acted as memory machines; however, they were a highly ephemeral form, as readers used, discarded, and finally forgot them at the end of the year. I argue that the *Shepheardes Calender*, situated alongside this generic context, interrogates memory's dual prominence and ephemerality in print, particularly in its visual illustrations and layout.

In the sixteenth and early seventeenth centuries, early modern maps moved from a more ontological construction of space to an epistemological one, from a way to understand time to a means of conceiving space. Engraved print books, like those of John Selden and William Camden, widely reproduced and distributed this early modern epistemological map, which sought to establish England's topographical features and political boundaries. New surveying techniques that could geometrically divide and enclose the English landscape, alongside the emergence of engraved maps, influenced how print spaces responded to problems of vision and knowledge. Chapter 3's analysis of Michael Drayton's *Poly-olbion* (1612) demonstrates that the epistemic question of how to organize space on a map was concurrently a political problem of how to unite or subdivide the English landscape. As indicated by *Poly-olbion*'s title, the visual components of this book represent many competing "Albion" or Britain that, like the tiny figures that inhabit its regional maps, represent, contend, and point out a chaotic multiplicity of British identities. This chapter employs the concept of aporia, or a philosophical agon or boundary, to explore the many graphical and epistemic borders *Poly-olbion* presents to its readers: between vision and knowledge, reader and page, a unified Britain and multiple (poly) Albion. *Poly-olbion*'s aporia are both metaphysical and physical, displayed in its text and in its many graphical borders: maps of topographical spaces and watery rivers, elaborate page-border designs and vignettes, and the boundaries of the page itself.

Chapter 4 draws from a material history of telescopes and optical prisms to trace how the formal duplications of text and page create a sense of visual duplicity in the emblematic poetry and political rhetoric of Francis Quarles. Again, the print page reflects and even magnifies epistemic crisis. Quarles's *Emblemes* (1633) and political pamphlets set up dualistic visual and verbal structures, namely chiasmus, paradox, and mimesis. The duality between telos and trickery in these rhetorical and visual structures portrays sight — and the reading process itself — as potentially duplicitous, as we become lured by sensual visions and optical illusions. Quarles continues this concern with troubled vision in the rhetorical structures of his later political pamphlets. Through situating Quarles's seemingly more metaphysical emblem poems on a continuum with his representation of sight in his political works, such as *The Shepherds Oracle* (1644) and *The Whipper Whipt* (1644), this chapter uncovers the interconnected nature of phenomenal and political vision troubles in Quarles's historical moment.

In the final chapter, I turn my study of the early modern book's vision-perception agon to visual performance in Shakespeare's *2 Henry VI*. In *2 Henry VI*, the rebel Jack Cade's famous lament — that the "skin of an innocent lamb should be made parchment? that parchment, being scribbled o'er, should undo a man?" — has been interpreted by bibliographical scholars such as Roger Chartier as an eloquent, nostalgic, and ahistorical indictment of written culture, specifically print (4.2.79-81). My analysis of *2 Henry VI*'s "undone" materials instead situates this moment within the play's larger context of fractured, decomposable, and broken visual ecologies: optics, print, landscapes, and the performance itself. In this chapter, I analyse moments in *2 Henry VI*, such as the St Alban's "false miracle" scene, Jack Cade's debate with Lord Say, and Margaret's self-representation as an "alehouse sign," as instances of visual and material "undoing" (1.1.103). Simpcox, Cade, and Margaret of Anjou's performances act as metatheatrical — and metabibliographical — representations of visual uncertainty.

It is the aim of these chapters to reveal how previously understudied works such as annotated almanacs, illustrated, vernacular pedagogical texts, and emblems can instead become central to our understanding of rhetorical history and early modern culture, as well as the questions early print books raise about visibility as an episteme. We can trace the problem of vision and knowledge that runs through these materially complex texts as an important intellectual current in more canonized texts. Through this study, I argue that the early modern print book's visual interface and its readers dynamically engaged with one another. By connecting rhetorical and phenomenal history to how we look at early print books, we can view early modern print's visual features as more than unique decorative curiosities or concerns for collectors and bibliographers alone; instead, they are complex elements that defined the early modern book as a vibrant, unsettled, and unsettling medium. <>

## The Future of Reading

When the first Waldenbooks opened in my hometown in the 1970, its self-help bestsellers urged my parents to schedule date nights. A quarter century later, my generation, too, began to feel guilty about letting chores crowd out deep relationships. But what we lusted for wasn't a person. Our fantasy was to reconnect with books.

That love felt star-crossed. One Sunday morning in 1992, the *New York Times* sprawled across my doormat predicted "The End of Books." Could print, asked the novelist Robert Coover, survive the age of "video transmissions, cellular phones, fax machines, computer networks"? Coover wondered, but other essayists judged. In 1994, the window display of an independent bookshop that would be evicted a few months later to make way for a Starbucks led me to a hardcover called *The Gutenberg Elegies*. In its pages, ex-bookseller Sven Birkerts mourned the "focused, sequential, text-centered

engagement" that he worried was being jostled aside by "the restless, grazing behavior of clicking and scrolling.

Soon, newfangled blogs had me mousing through to surveys proving that even if book-length works continued to be read, it wouldn't be by men, or in the bathtub, or off the beach. In 2004, the National Endowment for the Arts released a survey of American reading habits—or rather, the lack thereof. The resulting report, *Reading at Risk*, identified a 14 percent decline in literary reading since 1992, with rates especially low for men and young adults. In 2007, a follow-up report appeared under the title *To Read or Not to Read*. The practice of engaging with texts, the riff on Hamlet suggested, was at existential risk. Once again Americans seemed to be reading less and reading less well, with 19 percent of seventeen-year-olds reporting that they "never or hardly ever" read. Meanwhile, 28 percent of teenagers who did read reported combining the activity with the simultaneous use of other media.'

As magazines migrated from doormats to laptops, articles vied to diagnose the disappearance of a way of life that Americans had once read. Just as often as the death of print journalism, though, journalists lamented the decline of printed books. When Nicholas Carr asked in a 2008 Atlantic article "Is Google Making Us Stupid?," the evidence for answering in the affirmative was the fate of long-form reading. "Immersing myself in a book or a lengthy article used to be easy," Carr confessed, but in the digital era he found himself "getting fidgety," "dragging my wayward brain back to the text." What was lost wasn't just the information that he was no longer absorbing, but the taste for being absorbed.

My first smartphone strafed my pocket with predictions that even if reading survived, eyes would glaze over before the 141st character. Essays of every conceivable length braced us to mourn the habits of mind or even soul that books had once occasioned: the capacity to follow a demanding idea from start to finish, to look beyond the day's news, to be alone. As our shelves emptied out, we feared losing our selves.

Here's what happened instead. Sales of printed books rebounded in the decade that followed—rising as steadily as electronic book sales leveled off.' In the United States, 2011 was the first year in which more ebooks were sold than hardcovers; by 2016, though, hardbacks were outstripping ebooks once again.' And since most of the books we read weren't bought yesterday, it may be even more telling that in that same year, twice as many Americans read glued or sewn wood pulp than read an electronic book.' As I upload this manuscript late in 2018, new industry reports inform me that print sales have increased in the United States for each of the past four years.' Last year, sales revenue from hardbacks and paperbacks outstripped revenue from ebooks by more than \$300 million.' Also late in 2018, the Association of American Publishers reported revenue from hardcover sales up around 3.5 percent, with revenue from digital books down nearly as much.' And in December 2018 as well, gift-givers found best-selling titles ranging from a Richard Powers novel to a Frederick Douglass biography on back order. One culprit turned out to be that most old-fashioned of crises: a paper shortage!'

It's true that bookstore sales and revenues have declined in the past decade. But the fact that the dip began right after the 2008 recession suggests that the culprit is financial, not technological." And it's true that a third of Americans in their late teens and twenties reported reading an ebook in 2017, twice the rate of their counterparts over sixty-five. But the youngest Americans believe, at least, that printed books won't die off when their grandparents do. While in 2012, 60 percent of six- to seventeen-year-olds surveyed had predicted they would always prefer print to ebooks, by 2016, that number had climbed a modest but significant 5 percent. Old media isn't just the province of the old.

More fundamentally, the pages that follow will try to persuade you that the digital-age printed book isn't really an old medium at all. Rather, it's a format being reinvented by booklovers before our eyes. In that sense, our own era continues, rather than breaks with, a tradition of innovation that has seen new formats emerge over and over again for half a millennium.

Like book owning, book borrowing doesn't just appeal to my middle-aged peers. In 2016, the Pew Trust found that adults under thirty-five were likelier than their elders to use a library." One explanation is that parents of young children remain the most frequent visitors, but another is that libraries themselves were changing. Long providers of tax advice and public bathrooms, imaginative librarians now lent out interview suits and fondue sets. As journalist Susan Orlean points out, libraries found themselves stretched in ever more directions to provide "voter registration and literacy programs and story times and speaker series and homeless outreach and business services and computer access and movie rentals and ebook loans and a nice gift shop. Also, books."" Librarians lobbied for public access to research findings; they taught patrons to assess the legitimacy of new sources; they offered floor space to patrons unhoused by hurricanes.

Meanwhile, outside of the buildings officially designated for buying or borrowing them, books began to be handed out by volunteers on subway platforms, donated to barbershops in neighborhoods devoid of bookstores, and read aloud (in programs called Paws to Read or Tails of Joy) in order to calm cats and dogs cooped up in shelters. No longer just a tool to ferry information from one brain to another, reading began to look like a panacea.

Fear seemed to have goaded booklovers into action. And alongside the urge to rescue reading came the itch to understand it. College courses on media history mushroomed. National health institutes funded randomized trials to test whether reading raises serotonin levels, lowers body-mass indexes, or combats insomnia and Alzheimer's.

As scientific journals migrated online, the articles in them variously compared print reading with screen reading, book reading with magazine reading, fiction reading with nonfiction reading, literature reading with the reading of whatever genres they identified as antonyms to the literary. Some credited the curative power of reading to its content (books whose characters ate healthfully seemed to curb their readers' snacking), but others focused instead on its medium (print vs. online), its scale (immersive prose vs. snippeted listicles), or its life expectancy (durable books as opposed to ephemeral articles).

Thus reading garnered testimonials from an unlikely quarter: science. Or more precisely, Science. In 2013, that journal published a study concluding that reading about fictional characters correlates with more sophisticated theory of mind. More specifically, reading about characters in formally ambitious "literary" fiction did—for the authors discovered experimental subjects to be better at identifying the emotions expressed on faces or at understanding others' false beliefs when they had just read prizewinning short stories than when they had just read less esthetically ambitious popular fiction. This latest version of the centuries-old attempt to distinguish trashy escapism from intellectually challenging and therefore morally respectable fiction was widely reported by journalists with their own investment in reading.

Neuroscientists drilled down, wedging readers inside fMRI scanners to measure novels' effects on "brain function and structure." Social scientists scaled up: psychologist Steven Pinker's 2011 book **THE BETTER ANGELS OF OUR NATURE** correlated a centuries-long decline in violence with an increase in fiction reading. Some studies measured effects on health; others on wealth; yet others on civic virtue. Back in 2004, data aggregated by the National Endowment for the Humanities suggested



that Americans who read outside of work and school were likeliest to vote and volunteer. Four years later, a meta-analysis connected the frequency with which Canadians read books to the rate at which they donated and helped their neighbors. Also in 2008, a British study correlated pleasure reading inversely with divorce. *Madame Bovary* would have been surprised.

As a literature lover, I, too, clutched at the kind of self once forged—unpredictably, unreliably, but also unstoppably—in encounters with a page. Switching my phone back on every time I exited a climate-controlled reading room, I chafed at the alerts and tweets from which Special Collections had briefly cocooned me. (Then again, I felt the same way on exiting jury duty.)

As a scholar, though, I began to wonder whether the past against whose glories I measured my frazzled present were a figment of my imagination. I'm not just a literature lover, but also an English professor. When I entered graduate school at the end of the last century, my life was changed by learning from librarians how to look at books as objects—as hunks of paper, ink, and glue whose look and feel and smell hold clues about the now-dead hands through which they passed before reaching mine. And over the course of the two decades that I've spent teaching Harvard undergraduates the field known as book history, I became less and less sure that books had ever commanded anyone's undivided attention.

Poetry collections whose crisp corners hinted that they'd never escaped the coffee table; romance novels crumpled from being hidden in an embarrassed teenager's pocket, with well-fingered pages of seduction scenes interrupting landscape description whose pages retained like-new crispness; political polemics stained with beer from being read aloud at the pub to listeners too poor to buy their own copy, too illiterate to read to themselves, or too encumbered with a card game to hold their own book—each genre testified that serious, silent, solitary cover-to-cover reading has never been more than one of many uses to which print had been put.

It's true enough that print experienced a golden age between the rise of mass audiences in the eighteenth century to the Cold War—era triumph of the paperback, by way of public school systems, cheap wood-pulp paper, browsable bookstores, and taxpayer-funded libraries. Parts of this story, though, began to strike me as unhelpful or even untrue. One is what I'll call the myth of exceptionalism—that is, twenty-first-century readers' sense of living through an unprecedented change. The more I tried to figure out how much time different societies had actually carved out for reading, the more the data confirmed that successive audiovisual media did indeed chip away at the dead time once filled by books. I was surprised, though, to find that the strongest proof of print's vulnerability to competition wasn't the smartphone. The best-documented such competitor turned out to be TV, whose arrival in the Netherlands in the 1950s, for instance, coincided with a dramatic and elegantly charted drop in rates of pleasure reading. The problem, I began to think, didn't lie in our devices so much as in our schedules. When we mourn the book, we're really mourning the death of those in-between moments (waiting in line, riding a bus) that nineteenth-century changes in lighting and transportation made hospitable to light reading, and that twenty-first-century communications infrastructures made available to paid labor.

Equally unhelpful is the myth of the ideal reader. Whether they blame our vices on the failure to read or blame the failure to read on our vices, digital-age defenders of print equate reading with virtue. Unfortunately for this hypothesis, the golden age of print was hardly a golden age for the habits of mind that digital natives trust the book to induce. Print, Chapter 2 will try to persuade you, has inspired efficient multitasking more often than rapt attention. And while some readers may have lost themselves in a book until their surroundings faded around them and they forgot all sense of time, we'll see in Chapter 3 how consistently bedtime stories have paced circadian rhythms and

morning papers have numbed commutes.' he printed books now being deployed to cure mental and physical ills spent much of their long life, as Chapter 4 details, under suspicion of sickening and maddening their readers.

Finally, the myth of the self-made reader—of an unmediated communion between a reader's mind and an author's—erases all the third parties who sell books, lend books, catalog books, give or withhold them. Searching for alternatives to this individualist account of reading, I found my way to the activists whom we'll encounter in the final chapter. Unlike essayists who champion reading as training for solitary self-sufficiency, these community organizers treat books—whether printed or electronic—as a means to connect the human beings who exchange them.

Each of these myths credits long-form print with producing a certain kind of individual. A longer view, though, makes books' effects look less predictable, beginning with the simple question of whether they get read at all. Well before competition from social media, only a tiny minority of the volumes that rolled off the presses ever found a reader—let alone sparked the focus that smartphone-fingering fidgeters dream of recapturing. Instead of plodding from page i to The End, the early readers whose traces I hunted down in libraries turned out to have hopscotched around chapters. Instead of giving novels their undivided attention, aristocrats had their hair curled while listening to a servant read aloud. Instead of respecting the anthology's boundaries, poetry lovers scissored pages apart to paste scraps of one collection into the margins of another.

In short, printed books gave birth to many of the capacities—and dangers—for which digital devices are now being faulted. Long before playlists, amateurs reshuffled and recombined snippets into new collections. Long before anyone spoke of "spreadable media," texts survived in epigraphs for other texts. Long before anyone fretted about Amazon displacing bookstores, bookshops sold fish while clothing peddlers backpacked pamphlets door to door. Authors debated in print, as strenuously as today's content providers do online, whether the written word should be rented or sold, licensed or owned, linked in or locked down.

What's driving digital-age debates about print, I began to realize, may be as much a mood as a belief. That mood is fear. We may be seeking refuge from technological and commercial upheavals, from the people and places that crowd in on us, or from our own sickness and weakness. The problem is that treating the book as a bunker may shortchange its potential to engage with the world—not just with the world represented by its words, but with the world of other human beings who made or transmitted the object itself. Yes, the book can be a shell (essayist Alberto Manguel reminisces that "my library was my tortoise shell") but it can also be an antenna or a spear. Seeing books thrust into the service of comfort and sanity and good taste, I started wanting to recover the book's power to upset and unsettle and even anger readers.

Digital-age essayists can idealize books only by dint of imagining that reading has always meant curling up alone with a novel purchased for hard cash, read cover to paperback cover. The book historians whom we'll meet in the next chapter, though, insist that the characteristics we associate with reading now haven't been around forever, let alone been bundled into a single package. In ancient Rome, texts circulated as papyrus scrolls; even after early Christians adopted the gathered pieces of paper called the codex, their raw material was animal skin, not paper. The movable type invented in the fifteenth century didn't enable mass production until the substitution of wood pulp for old clothes drove down papermaking costs four hundred years later. It's even more recently that retail sales nudged out books printed at the author's expense, bankrolled in advance by subscribers whose names appeared at the front of the book, or subsidized by a dedicatee. Ebooks form only the latest of these many chapters.

Nor is competition among media anything new, for even at its height, print never clawed out more than a niche in a crowded landscape. Right up to 1789, the most influential political newspapers in Europe were hand-copied by professional scribes. As a more flexible, more discreet, more distributed technology than print, handwriting allowed radical writers and publishers to both avoid censors and create a loyal coterie audience that forged collective identities through the act of forwarding or exchanging materials.

Those activities may sound uncannily like blogging or tweeting. In fact, a missing link connects the handmade with the digital. The oldest distribution technology (hand copying) and the newest (the internet) flank mid-twentieth-century media like the mimeograph, the hectograph, and the microfilm, now too old to be sexy but too new to be quaint. During the Cold War, in the Eastern bloc and parts of Southern Africa, photocopiers shaped the circulation of news, providing a middle ground between handwritten documents (nimble, private, and participatory, good at cementing communities of like-minded individuals but inefficient for reaching large anonymous audiences) and the printing press (high start-up capital but low running costs, facilitating standardization but discouraging interaction, easy to scale up but also to regulate).

From its beginnings, as each of these episodes suggests, print changed in step with the media that surrounded it. And even at any given historical moment, printed books took different forms and prompted different behaviors. Only by ignoring both kinds of variation can we make a monolithic printed past into a stick with which to beat our digital present. The more long-dead readers I encountered on the pages of the books that they'd once borrowed or owned or read or handled, the more differences within the world of printed books seemed to outstrip differences between print and digital.

The more reading changed before my eyes, the more precedents I recognized in earlier moments of media history that had seemed just as dramatic in their own time. The more I studied book history, in contrast, the harder-pressed I was to find any precedent for the content of digital-age beliefs about print. For while debates about its effects were very old, the emotional tone of those debates had shifted, within not much more than a generation, from fear to hope.

Throughout the first few centuries of its existence, experts had already assumed print to be life changing—but with the exception of a few sacred texts, that change was most often thought to be one for the worse. Ministers warned against the distractibility engendered by squandering time and eyesight over a novel. Doctors diagnosed newspaper addicts, sickened not just by the ideas transmitted but by the sheer experience of wallowing in a wood-pulp world. The literate classes themselves felt embarrassed about what they read, or meant to read, or wished they hadn't wasted a night devouring.

In fact, once the mechanization of papermaking and the spread of state-supported schools led to near-universal literacy in the West a few centuries after Gutenberg, reading provoked new anxieties. Best-selling lists of what to read were joined by bestsellers advising on how to read, and how not to. Trawling through these early how-to books, the French historian Roger Chartier realized that as the mere fact of being able to read came to be taken for granted, and as new technologies and changing laws multiplied the number of books owned by the average household, the distinction between literate and illiterate people gave way to finer distinctions within the reading public. To read was no longer enough. Nor was the trick even to read the right books. Rather, you now had to read in the right place, at the right pace, at the right time of day.

Then, as now, policy makers debated demographics: who's expected, required, or forbidden to read. They debated economics: Should print be sold or rented, lent or gifted, repaired or trashed? They argued even more vehemently about what would eventually come to be called ergonomics: the proper positioning of the hands that held books and the laps on which they lay. The history of reading is also a history of worrying, and those worries rule out any clean contrast between bookish virtue and digital vice.

Only toward the end of the last century, as these anxieties about the guilty pleasures brokered by print gave way to diatribes against the addictiveness of ubiquitous, always-on electronic information, did books change from the problem to the solution. Where gentlemen had once fretted about the shilling shockers devoured by their wives, children, or servants, now bloggers began to confess, with rueful self-mockery, to their own inability to finish a book. And just as the printed codex caught on only once it became cheap and portable enough to be consumed with an efficiently divided attention (read aloud at the hairdresser's in the eighteenth century, skimmed on a Victorian train), so too did past anxieties about paper anticipate present concerns about screens.

Hand-copied, recited, gifted, exchanged, printed books were the first social media. They started conversations; they started fights; and they connected each reader to others. The American and British librarians, booksellers, and activists to whom this book gives the last word are once again enlisting printed books to forge community. Instead of defending the page from the screen, though, they repurpose digital tools to circulate printed books. Proofreading and uploading classic texts, logging the location of book giveaways, posting smartphone snapshots of their bedside book piles, using social media to publicize collective reading aloud, these booklovers don't confine their efforts to texts that happen to be about community. Rather, their ambition is to bind readers together by the act of distributing books, or even just exchanging information about books.

One constant in the history of books is their power to take new forms, and to prompt new ways of reading as a result. Encountering those printed objects in all their variety may help us to worry less about the difference between print books and electronic books, but also to understand what's old and what's new about those worries. For each of the book's reinventions has prompted mixed, and strong, feelings. As cheap and portable print sold everywhere and read anytime replaced monumental volumes tethered to particular occasions, a new kind of object became a proxy for a new kind of self. That self could forge bonds with a long-dead author's mind, could make the book a stimulant or a sedative, a shield or a goad, a refuge or an arena. Show me how you want to read, and I'll show you who you want to be. <>

## Mouton Atlas of Languages and Cultures

### Why an atlas of languages and cultures?

The Mouton Atlas of Languages and Cultures provides the reader with empirical data, maps, visualizations, and analyses, which indicate the geographic distribution, the classification, and the typological patterns of linguistic features. In this aspect, the Mouton Atlas follows in the tradition of earlier works in the genre, such as the [THE WORLD ATLAS OF LANGUAGE STRUCTURES](#) (Haspelmath 2005) or [THE ATLAS OF PIDGIN AND CREOLE LANGUAGE STRUCTURES](#) (Michaelis et al. 2013), which all use geography as an overarching principle for visualizing and examining language diversity. The fundament of resources such as these are extensive databases with linguistic data (lexical, grammatical, typological, or phonological), which provide an important basis for empirical and quantitative studies on language diversity. Similarly, extensive databases with ethnographic or other types of data, such as climate or ecology are used in addition to linguistic data to test hypotheses and causalities of language diversity and change. This research represents a new

wave of a pronounced empirical research, where the fundament is constituted by an observation or characterization of features, which can be analyzed by quantitative methods. This atlas joins this research in that it primarily investigates language, more precisely morphosyntax and lexicon, by means of identified features, which are mapped in geography, analyzed phylogenetically and statistically, and contrasted to other data types, such as ethnographic data.

However, the current atlas also follows in the footsteps of a much older tradition: historical-comparative handbooks on the aspects and consequences of language reconstruction, such as [REALLEXIKON DER INDOGERMANISCHEN ALTERTUMSKUNDE](#) (Schrader 1923, 1929, 1917), [INDO-EUROPEAN AND THE INDO-EUROPEANS](#) (Gamkrelidze and Ivanov 1984, Gamkrelidze, Ivanov, and Winter 1995) or [A DICTIONARY OF SELECTED SYNONYMS IN THE PRINCIPAL INDO-EUROPEAN LANGUAGES](#) (Buck 1949). Like the atlases and database resources mentioned in the previous paragraph, these handbooks are based on large amounts of empirical data and observations based on many languages; however, their main objective is observation, reconstruction and description, not quantification and statistical testing. The historical-comparative method and reconstruction, interpreted in a cultural context, outdo the methodological fundament for these handbooks. In this sense, the current atlas can be viewed as a hybrid work: part atlas, part database description, part explanatory textbook, which is part comparative-historical and part statistical-evolutionary in its methodological baseline.

An important aim of the atlas is to contextualize both the empirical input data as well as the results. Therefore, the atlas does not aim at a cross-linguistic, 'universal' coverage (even within a specific area), which is an important difference to resources such as WALS. First, the atlas targets a cohesive, delimited geographic area for study. The area is partly based on the extension of one family, Indo-European, which is treated as a whole, and includes isolates and languages of other families that are spoken close to Indo-European. Second, the atlas moves outside of expected cross-linguistic domains in the selection of features. In morphosyntax and typology, the volume includes features, which can be specific and unique to the area. In the lexicon, the volume moves outside of basic vocabulary and into culture vocabulary, which is adapted to the reality of the targeted area.

A second important aim of the atlas is to investigate diachrony, which continues the tradition of comparative-historical linguistics: for all targeted features, data from ancient languages are systematically included. Ancient language data is held in high esteem within the historical-comparative tradition, which often, on the other hand, pays less attention to data from living daughter languages. The current atlas aims to include both: analysis, maps, and results are based on historical and contemporary languages alike. For the purpose of clarity, contemporary and historical data are displayed on separate maps; in analyses and statistical tests, they are treated together.

The atlas is based on two types of data: grammatical and lexical data. Accordingly, the volume is divided into two main sections, one dealing with grammar data, one dealing with lexical data. The introductory and concluding chapters aim to connect these two sections and to evaluate and explain results in a cultural context, which is an overarching theme of the volume.

All maps, visualizations, and results are based on empirical data extracted from a database DiACL - *Diachronic Atlas of Comparative Linguistics*. The database design is a fundament to the extraction of datasets and mirrors the models and methods used in the atlas; therefore, parts of the introduction of the respective grammar and lexical data sections will deal with the database organization and design as well as coding policies. Frequently, the volume contains exact references, for instance in the form of ID numbers, to the database. On the other hand, the volume offers a substantial addition to the content of the database, both in terms of explanations, interpretations, and references. The



database and the printed book are symbiotic, but the information of the book is permanent and controlled, whereas large parts of the database is still impermanent and non-controlled, reflecting work in progress.

The remaining parts of the introductory chapter 1 will describe the main aim, the setting, the languages and families, and the policies for geographic reproduction and orthography in the atlas. Chapter 2 will outline the theory, model and method underlying the selection and evaluation of features. Chapter 3 will overview theories and models on language classification and change. Chapter 4 will describe the database infrastructure of *Diachronic Atlas of Comparative Linguistics*, including database structure; design, and coding policies. Chapters 5 and 6 constitute the core parts of the volume, dealing with the grammar and lexicon parts respectively. Finally, chapter 7 concludes and summarizes the results of the volume, trying to connect the grammar and lexicon sections from various perspectives. The remaining part of the volume is constituted by appendices (numbered according to chapters). These represent the different sections and include languages, language metadata, grammar features, grammar data, grammar solutions, lexical data, lexical statistics, sources for specific maps, list of language consultants, and literary data sources (language data and geographic data).

Defining our aim: observing language variation by empirical methods Languages change, consistently and inevitably. Words become lost, emerge, or change their meaning. Grammars change; categories appear, disappear, or their function changes. Syntactic patterns change - the rules and mechanisms for using grammar and words in their context become modified.

Cultural systems also change. Artifacts stop being used, new ones are invented, or the form and function of the old ones become adjusted. When cultural systems and rules change, new principles are established; and hierarchies, patterns and applications are modified. In the process of cultural adjustment and change, language changes, too. Every cultural innovation, be it a modification, a gain, or a loss, involves an adaptation of the language: the invention of a new artifact, a social rule, or a cultural habit requires a new name of it, and the process may lead to the abandonment of an obsolete artifact, social rule or cultural habit - which in turn leads to a change in the name of it. Every new generation inherits the patterns of a previous generation - not as an exact replication, rather as a 'descent with modification', through which the most adapted is continued, which, when transferred to culture, is labelled cultural evolution, and further to language as culture-language evolution.

Over time, this consistent, dynamic change leads to variation and diversity, beginning with the smallest entity of culture and language and gradually spreading over large areas. Variation is a reality, present within language families, subbranches, languages, linguistic subsystems, dialects, ethnolects, sociolects, genderlects, or familylects, as well as cultural units, ranging from villages to large areas. Diversity is another dimension of this reality, present in geography, from forest villages, valleys, islands, or plains, to over entire continents. However, even though linguistic and cultural change can be described as uncultivated garden, where each item of language and culture changes along its own paths, it is not random either. A large number of factors constrain change.

The first and most important of these constraining factors is environment. In the strict sense, the environment involves the physical surroundings of a language or a culture: climate, soil, living conditions, flora, and fauna. Languages and cultures carefully adapt to their surrounding environments, and integrate items as symbolic artifacts in their shared linguistic and cognitive systems. In the case of a relocation of a group, for instance caused by starvation or expulsion, the linguistic and cultural systems of the migratory group quickly adapt to the new environments,

resulting in a change. From a larger perspective, topography and climate shape and constrain language change. Open plains and other easily navigable terrains become spread zones, where languages spread and change faster. These areas are characterized by lesser genetic density and structural diversity, and shallower (and more easily recognizable) language families. Mountainous areas, dense forests and other areas of high topographic resistance become divergent zones, where language change is more constrained. These areas are characterized by high genetic and structural diversity, and deeper (and less easily recognizable) language families.

The second factor is salience, which can most easily be described as the functionality or economy of usage of a pattern or an item. Over time, economy, functionality and frequency of usage constrain systems. Analogy, frequency and economy causes grammatical leveling; iconicity and phonemic economy harmonize sound structure. Frequency of usage of cultural patterns relate to their functionality, as does their symbolic representation in language. The affordance of artifacts affects their applicability, directing language. Therefore, a linguistic representation, like a cultural habit, may remain unchanged for long periods, provided that the linguistic or cultural functionality continues, unchanged, despite changing circumstances.

That said, systems might display striking divergences from these general preconditions. Systems may develop extraordinary, redundant, and complex patterns; which cannot be explained from any functionality or habituality perspective. Patterns of taboo and superstition, or art, decoration patterns, complex rituals, and so forth may elude any functional explanation; yet they may be repeated and replicated, generation after generation. Redundancy in expression may stand out as unexplainable from an economy or frequency perspective, yet it may be both frequent and stable. Much of the explanation for the changing behavior lies in the causalities of change. Fundamentally, change per se is not an inherent property of either language or culture: change has a cause, a driving force, such as an adaptation to a previous or simultaneous changing circumstance.

What are these causalities of change? In particular, relocation is a fundamental cause for change. Relocation leads to changing environment, and changing environment leads to change in linguistic and cultural adaptation. Another impacting factor is contact. Whatever the nature of contact, the outcome will be a change. Contact, both linguistic and cultural, is typically characterized by geographic proximity, but it may also reach over larger areas and may be mediated by a third party. Contact may be one-sided, mutual, or multifaceted, and it may be exercised between populations, which are equal or unequal in terms of size, power, or cultural impact. Contact, in language and culture, often leads to convergence, meaning that diverging or varying patterns become more similar. A word, a grammatical pattern, a cultural practice or an artifact is transmitted from one group to the other, and the outcome is a shared pattern, linguistic or cultural.

Furthermore, every change builds upon a previous one. The snowball-like effect of continuous change, often unconscious to speakers and cultural practitioners, is known as drift; a change which often happens in parallel between related, but diverged systems, sharing a habitat but not necessarily in frequent contact with each other. Parallel drift is a vigorous factor in the shaping of linguistic and cultural patterns: this process embodies cultural and linguistic, as well as environmental adaptation, just as much as it encapsulates previous change.

Use of extensive, empirical data, hypothesis testing and the use of statistical models are fundamental aspects of cultural and linguistic evolutionary research. On the other hand, evolutionary approaches to language and culture, being basically humanistic disciplines, do not require statistical models, and a large body of scientific production within the area does not apply mathematical models at all. A prerequisite for applying quantitative models is, besides hypothesis formulation, data quantification.

The approach of this volume is leaning towards a quantitative model of cultural and linguistic evolutionary research. However, reducing the dynamic complexity of language and cultural structure into numbers is not a trivial task. The current volume will aim towards facing this dilemma. This means, the book discusses theories, problems, methods, and models that involve the process of transforming complex relations of language and culture into quantitative units, i.e., features, characters, traits, which may be used as a basis for formulating and testing hypotheses by statistical models. The data amassed in the project is statistically analyzed to summarize, cluster, identify patterns in the data, in particular to enable geographic mapping. All data, and its coding, is given in the appendices of this book. The data is also available for downloading of quantitative sets in the database DiACL - Diachronic Atlas of Comparative Linguistics, which is the basis for the current volume.

### The setting: Eurasia from the Neolithic revolution to the Industrial Age

The current atlas aims at capturing the dynamic diversity of a changing linguistic landscape stretching from the British Isles and continuing over Eurasia to Southeast Asia. The period we are dealing with in principle begins with a significant and revolutionary change, the Neolithic agricultural revolution, 11-10,000 BP, and stops before the Colonial Era and the Industrial Revolution in the last centuries - another significant and groundbreaking change, for which we cannot predict future impact on languages and cultures. This policy has several implications. First, we include as much language material as possible from ancient sources to contemporary states of languages, but our target is set to the languages and cultural systems of pre-industrial and pre-colonial societies, which means, for instance, that we do not include concepts and cultural properties which we classify as 'modern world'. In addition, our geographic location of languages does not include their post-colonial extension, meaning that, e.g., English is spoken only on the British Isles, Portuguese and Spanish only on the Iberian Peninsula, and French only in France. Given our policy to render modern languages as polygons, we are aware that this is not a trivial task. Our contemporary-based polygons, of, e.g., Armenian, Kabardian, Russian, Kurdish, or other languages whose extension has changed several times in the past hundred years, are not representative of a pre-colonial extension in the manner that, e.g., English is. With this caveat in mind, we believe that polygons are still much more representative for mapping than focal points.

The area spans over several climate zones, several language families, and a wide range of diverging cultural areas. Following the geographical classification by D-PLACE, our atlas encompasses the areas (from Northwest to Southeast) Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, Eastern Europe, Caucasus, Western Asia, Middle Asia, and the Indian subcontinent.

In terms of climate zones, our area encompasses a substantial variation in the climate, ranging from the boreal, fully humid and cool summer areas of the northern parts of Northern Europe and Eastern Europe; boreal, fully humid, and warm summer areas of Eastern Europe; warm temperate, fully humid, and warm summer areas of Northern and Middle Europe; warm temperate, dry and warm summer areas of Southwestern and Southeastern Europe (in our descriptions normally referred to as Mediterranean) and substantial parts of western Western Asia; arid, dry winter, hot areas of eastern Western Asia; and equatorial, dry winter and equatorial, monsoonal areas of Indian Subcontinent.

### Languages, language families and cultural groups in our data

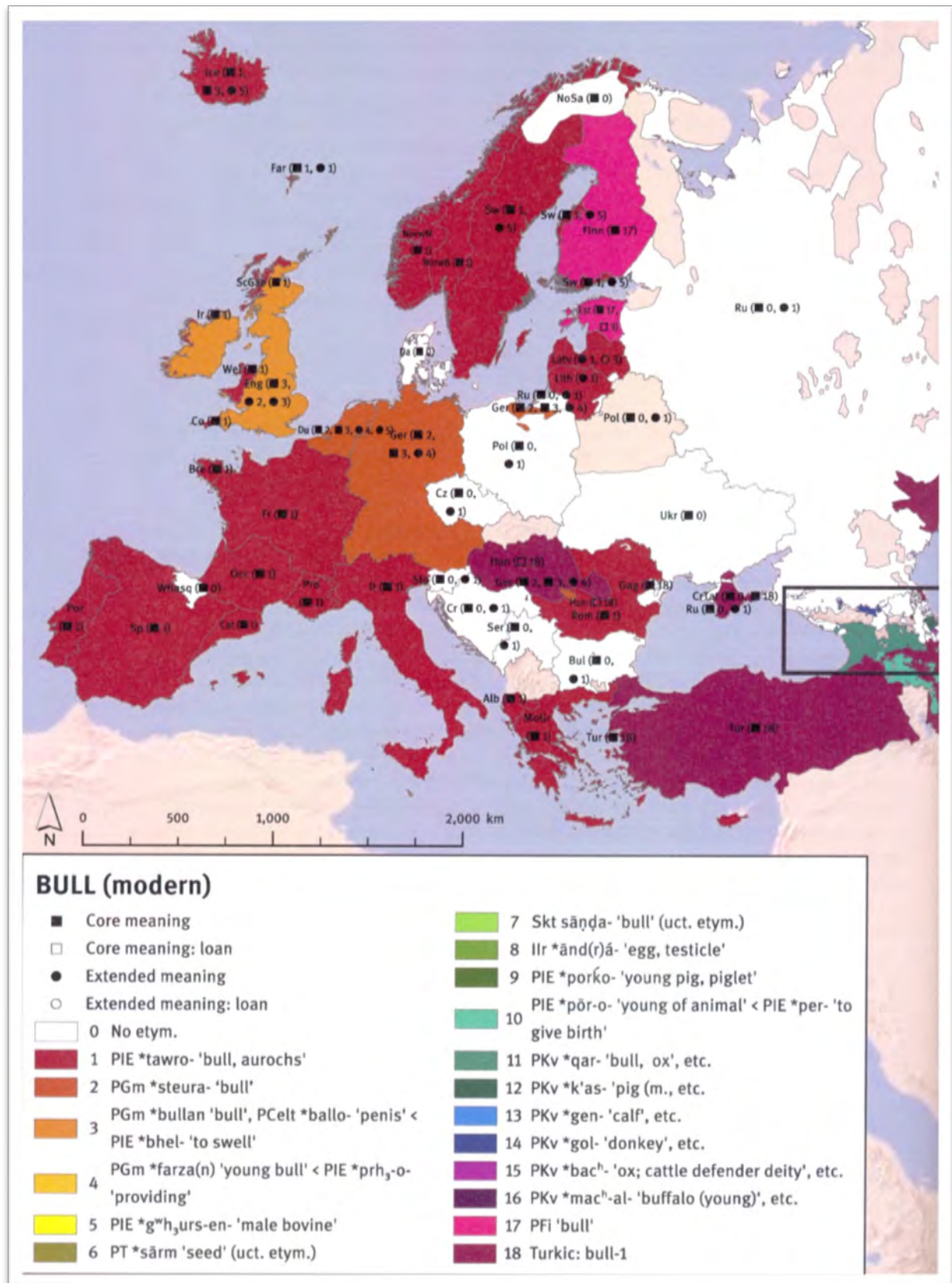
Language is a fundamental common denominator in this atlas, and language is used as basic classification basis for all data. This is not new: besides geography, language is typically used as a metric to classify cultural groups. Our aim of data compilation has been to cover — for our selected

setup of features and concepts — all living and known extinct languages in our targeted area. In this aim, we have almost been successful; however, there are lacunae in the corpus: either entire languages missing or specific data types (typology, basic vocabulary, and cultural vocabulary) are missing for certain languages. These lacunae have various causes, either shortage of time, shortage of subsidy, or unavailability of expertise. In particular, ancient languages may potentially contain missing data: the sources are given beforehand and cannot be completed by information retrieved from native speakers. We have tried to deal with this in a manner that modern and ancient languages can be compared on equal terms to contemporary ones (chapter 4). In our current overview, we will include languages with data of any type, for the various types, i.e., grammar, basic vocabulary, and culture vocabulary; we refer to the respective sections of the atlas (chapters 5 and 6).

A complete list of languages and their classification is given in appendix I, along with language metadata. Location by family and branch (for Indo-European) is shown in maps 2a (contemporary), 2b (historical) and 2c (Romani chib). Even though our atlas incorporates — as far as possible — small and minority languages of various regions, it is obvious that linguistic diversity is unevenly spread over the geographic landscape. The correlation between geography and linguistic diversity, also at the level of grammar, is evident from the map distribution. In general, regions with high-resistance topography (high mountains, dense forests), become areas where language diversity is higher, indigenous languages have an immeasurable long local history, and languages are typically not spread beyond the specific area by linguistic affinity. In our atlas, this definition targets, e.g., the Caucasian mountains and the Basque country. These regions are traditionally labelled as residual or accretion zones. The other type is labelled spread zones. These areas are generally larger, they are characterized by low-resistance topography (open plains, tundra, and farmland), linguistic diversity is lower, languages do not necessarily have an very long local history, and in general individual languages, as well as branches and families, occupy larger territories. We will look more carefully at these classifications in this volume.

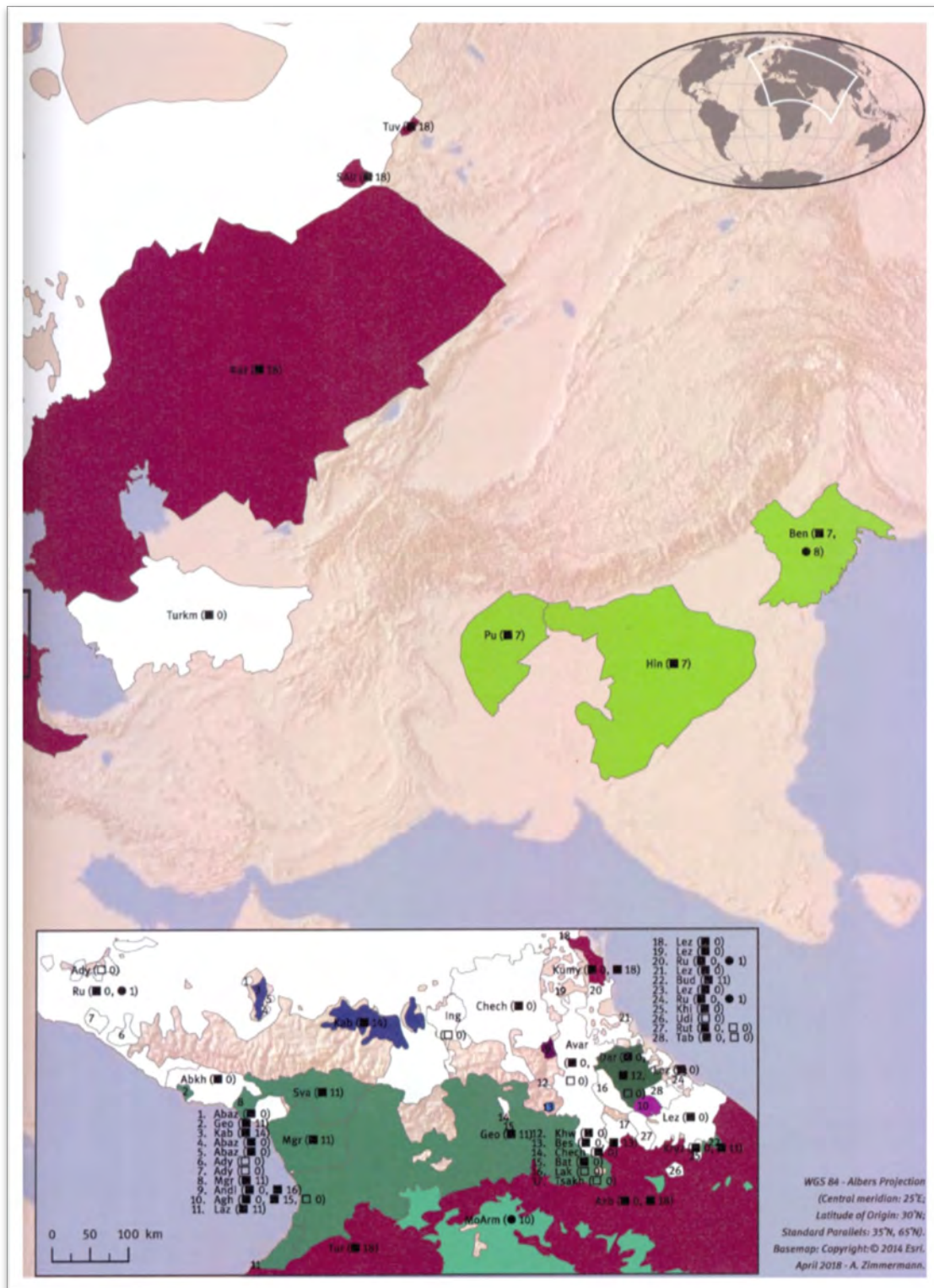
Moving over to cultures — what metrics do we use to classify them? This is an old dilemma. In empirical, large-scale ethnographic studies, language is often used as a basis for identifying cultures, for which cultural patterns are then identified by various metrics, such as subsistence mode, kinship, or marriage rules. However, as we move into prehistory, the identifier language becomes more and more uncertain, even though in scientific literature within disciplines dealing with prehistory, language or the concept of language families are often transferred to describe observed patterns, such as in pottery. Cultural or ethnographic identification is a complex issue, and implies a substantial amount of often contradictory parameters, which make identification complex. Just as with language, location in space and time are decisive in cultural and ethnographic identification and classification, also targeting archaeological cultures. Besides linguistic affinity, other classificatory parameters (include ethnonyms, both alternative names bestowed by selves as well as names by others, meaning of ethnonyms, cultural affiliations with other cultures or culture areas, as well as affiliations to prehistory).







Ethnographic data is constituted by descriptions and identifications of various cultural patterns. Besides spatial and temporal definition, as described in previous paragraph, two classificatory parameters are considered to be of primary value: kinship and subsistence.



In classifications, such as the subject-indexing system used by HRAF, Outline of Cultural Materials (OCM), subjects are classified and enumerated by main cultural categories which are classified by more and more fine-grained categories, such as 'Food quest', 'Animal husbandry', or 'Clothing', which in turn are classified into 'Food quest: Hunting and Trapping', or 'Hunting and Trapping' which may be described as 'Animals sought; hunting methods and techniques (e.g., stalking, collective drive); description and use of traps and snares; use of domestic animals (e.g., dogs, ferrets); special elaborations (e.g., trapping for the fur trade); hunting trips; economic importance of hunting; organization of labor and division of catch; associated beliefs and practices; hunting for sport; regulation (e.g., game laws, open seasons); etc.', and so forth. Just as with language, ethnographic classification is about making generalizations of observed patterns, label them, classify them, and organize them hierarchically.

In quantifications of ethnographic data, a classification system is decisive. An important fundament to ethnographic empirical data is D-PLACE, which is a database of geographic data (location), linguistic (language classification), cultural and environmental data (as identified hierarchical features), organized as downloadable datasets. D-PLACE and another similar resource, HRAF (The Human Relations Area Files) (<http://ehrafworldcultures.yale.edu>), are both based on a classification system of cultures and cultural features which was established by George P Murdock and his team in the 20th cent., which has been expanded by the language classification system of Glottolog. The classification system of Murdock has served as a fundament to our classifications and labeling of categories.

The database DiACL is based on language as a fundamental unit of classification. The database contains only linguistic data, but, by the systematic and large-scale compilation, organization, and classification of culture vocabulary data, our database targets cultural classification, which is an overarching theme in this volume. In classifying and standardizing the cultural vocabularies, the OCM standard has been an important metric, and the cultural descriptions, contemporary as well as past, have served as a guideline for identifying and establishing the list of cultural concepts that we use in our culture word lists.

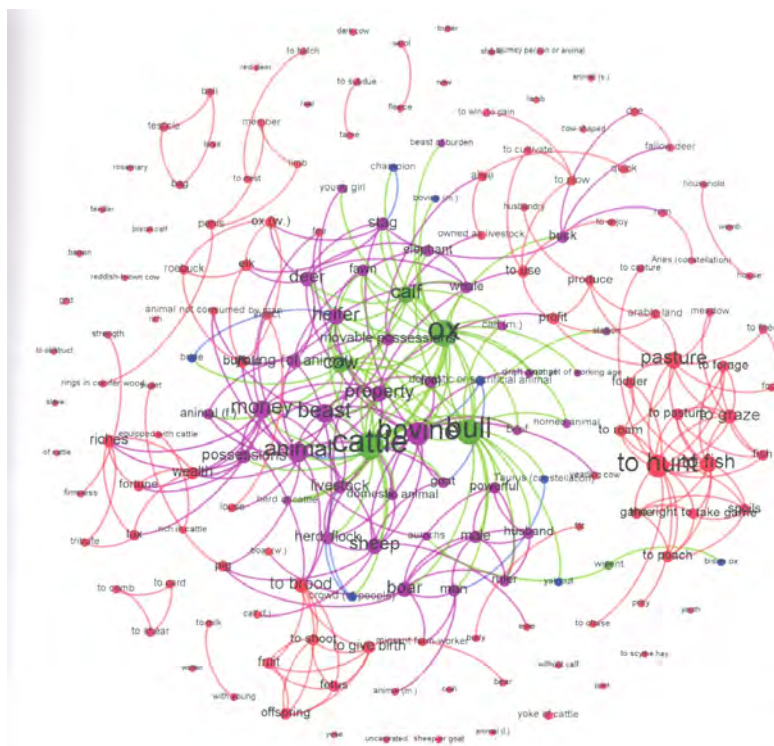
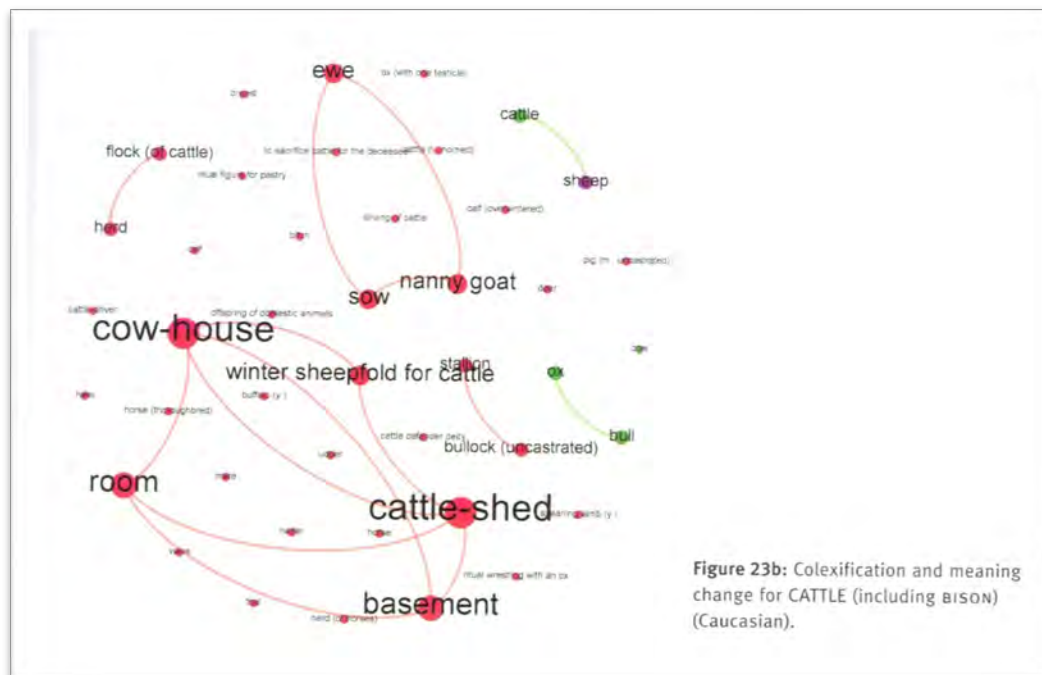


Figure 23a: Colexification and meaning change for CATTLE (including BISON) (Indo-European).



### Purpose an integrated view of the linguistic and cultural histories of Eurasia

The main aim of this atlas is to investigate the different processes that create divergence, as well as to study how divergence expands in time and space. A further aim is to identify and explain the mechanisms that trigger or alternatively constrain change, as well as the processes that conflate them; something we search for both inside languages as well as in their environment. Besides, we are interested in the linguistic and cultural histories of the past, involving the reconstruction of the realia of ancient proto-languages.

Due to the inevitability of change, time produces diversity. Change is not constant; rather, properties' inherent role and their function in language and society may affect their rates of change. Some features have a higher stability, indicating that they are typically transferred, from one generation to the next, by lineage. Other features are more prone to change, by gain, loss, or substitution; but tendency to drift of these features runs a permanent risk of levelling or conflation due to the operation of convergence or advergence. Further, environmental conditions, cultural change and relocation may affect the rate of change at all levels. Is it possible to identify these causalities of change rates in language?

The model identifies two basic types of languages, spread zone and residual or accretion zone languages. Even though these classifications may be oversimplified and not applicable from a global perspective they have some bearing on the Eurasian context, where they can be immediately connected to the geographic environment: the high-resistant topography of Caucasus and the Basque country are likely underlying the specific characteristics of these families. But as we have seen in the grammar section, the development of grammar in relation to geographic zones is quite complex, with conservation zones, hybrid zones and development zones overlapping each other.

In our evaluation of data, both grammatical and lexical, we will instead use the basic notion of migratory and non-migratory language types. In principle, migratory languages are more involved in drift, at all levels, with various consequences for the grammar and the lexicon. Nonmigratory

languages are less drift, but the the slow rate of drift in combination with non-migration may result in a large and accumulated diversity, which corresponds to Nichol's accretion zones.

Our data includes Indo-European, Turkic, and Uralic on the one hand, which are migratory languages; we know that these families have relocated several times during prehistory. Basque and Caucasian are non-migratory languages — there are no reliable evidence for any prehistoric relocation or migration of the speakers of these languages. The most visible difference between the two types is found in linguistic density and geospatial extension of the families themselves.

If we look at the geographic distribution of data, we notice that vocabulary follows language family boundaries more strictly, whereas grammar shows higher degrees of convergence behavior. Nevertheless, there are important exceptions.

In our grammar data, we may identify different types of properties. First, we have morphosyntactic properties of nouns and verbs, such as tense morphology, gender, definiteness, and case, which are directly bound by matter, i.e., phonological forms of morphemes, as well as by paradigmaticity. These stick more closely to families, areas and branch boundaries — they principally following lineage, are less areal, and in geography, they come out as more divergent. The other group, which is also bound by matter and paradigmaticity, including alignment, and agreement, is much less divergent than the beforementioned group. Finally, we have patterns, i.e., syntactic properties, which are involved in functional interactions but not bound by matter or paradigmaticity, mainly word order, which are convergent or advergent, display higher areality, and come out as conflated in geography. Even inside these domains, there are discrepancies: higher frequency and economy implies higher instability and lower divergence, lower frequency implies lower instability and higher divergence (see 5.8). The outcome of these processes are large discrepancies in the geographic extension of various domains of grammar; but the reality behind, i.e., the complex change processes that have created them, remain obscure, at least from a synchronic perspective. Hence, we may observe that at least in morphosyntax, economy, frequency and high functional interaction contribute to convergence and widespread geographic homoplas, transgressing boundaries of families and branches and even, in some cases, the boundaries between migratory and non-migratory families. Here, our observations are in line with previous research on temporal stability of typology. However, our addition of ancient data may contribute to the discussion, for instance concerning the controversy about the causalities for the stability over time for word order patterns. In a separate study we tested, by means of an evolutionary reconstruction model, the areal pressure of the feature variants of our data (based on Indo-European languages only). A clear pattern emerged first after a recoding was performed, distinguishing gains from losses. Features involved in grammatical relations were coded as either simplifying or complexifying, whereas features not involved in grammatical relations, i.e., word order and features pertaining to inflectional typology (agglutination, fusion, etc.), were coded as neutral. The result indicates that simplifying changes (i.e., loss of morphosyntactic features), together with neutral changes (word order change) have a high areal index, indicating that they are more likely to undergo convergence or advergence. Complexifying features (i.e., gain of morphosyntax) have a low areality index, meaning that they are less likely to converge and more likely to emerge in isolation. Since this study was based on a majority of the grammar data presented in this book, we assume that it may explain — though in various ways — the patterns that emerge out of the data.

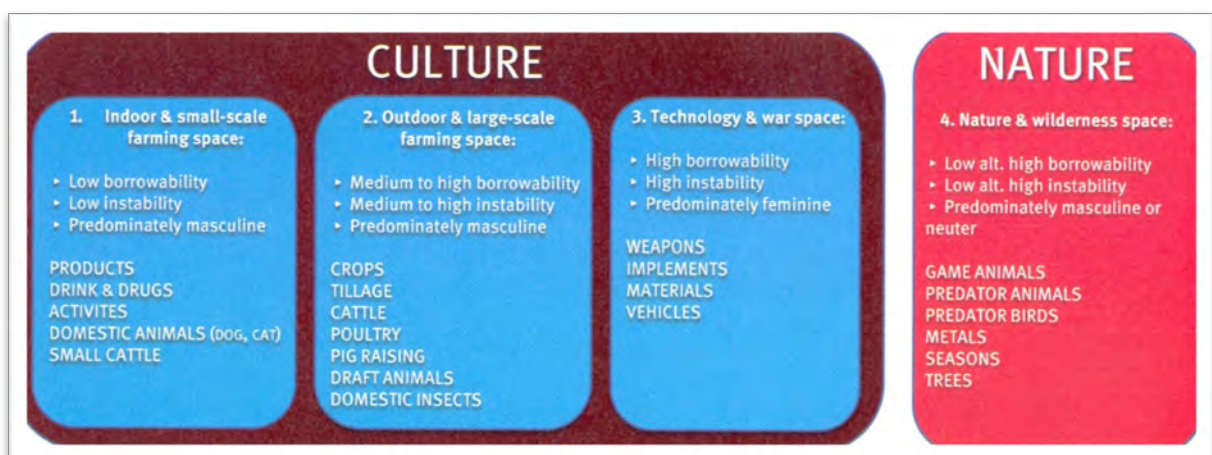
In our data, vocabulary shows a behavior which is different from grammar. In vocabulary, language contact, divergence and advergence can be observed and measured more easily than in grammar. We know from recent research that change rates in vocabulary (based on basic vocabulary) is slower than in grammar. In basic vocabulary, the most loan-resistant part of the lexicon (even



though change rates may be different drift is constrained by lineage, which makes basic vocabulary useful for establishing language phylogeny and language classification. Therefore, basic vocabulary also typically produces branch-constrained patterns.

As we have demonstrated in chapter 6, the discrepancies in the behavior of lexical concepts of our culture lists is huge (see the overview in table 39). We assume that factors such as economy and frequency (like in basic vocabulary), as well as cultural functionality affect the change behavior of these vocabularies. Like in the grammar, we find both features that produce widespread homoplasy, as well as features that produce high divergence. However, the causes for widespread homoplasy in vocabulary are supposedly different from those for grammar. In vocabulary, widespread homoplasy can be caused both by stability, i.e., by lexemes that are inherited and spread over large areas by lineage: examples in our data are SALT and MILK. Widespread homoplasy can also be caused by instability or borrowability, i.e., by lexemes that are secondarily spread over large areas by borrowing or are wanderwörter: examples in our data is JACKAL. These are two disparate processes, which nevertheless yield a similar result in terms of geographic distribution of cognacy. An important difference is the family distribution: the stable type does not transgress family boundaries, whereas the convergent type typically does. For the other words not belonging to one of these types, the geographic distribution is more or less divergent. However, for vocabulary, the procedure that creates divergence is complex, mainly due to the unpredictable impact of culture change. As we have seen in chapter 6, the discrepancies in behavior, also between closely connected concepts, may be surprisingly large. A term for a hunted animal, such as bison or wild boar, may behave completely differently from its domestic counterparts, ox/cow and pig, to which they are tightly connected by colexification. Wheat and rye, to take another example, two closely connected crops, behave differently with respect to borrowability and semantic instability. In general, high functionality and a presumed high frequency in terms of everyday usage within a family, branch or area, imply high stability, both in terms of low borrowability, low semantic instability, and low level of lexical substitution. The result is geographic blocks of lexical homoplasy, which mainly follow family and branch boundaries.

Schematic representation of the different cultural zones, pertaining to CULTURE and NATURE, and their most characteristic behavior in terms of lexical change.



Schematic representation of the different cultural zones, pertaining to CULTURE and NATURE, and their most characteristic behavior in terms of lexical change.

Of high interest is the behavior of lexemes due to their cultural role and functionality. In chapter 6, we classify culture words by their borrowability, semantic instability, colexification, and cognacy, and



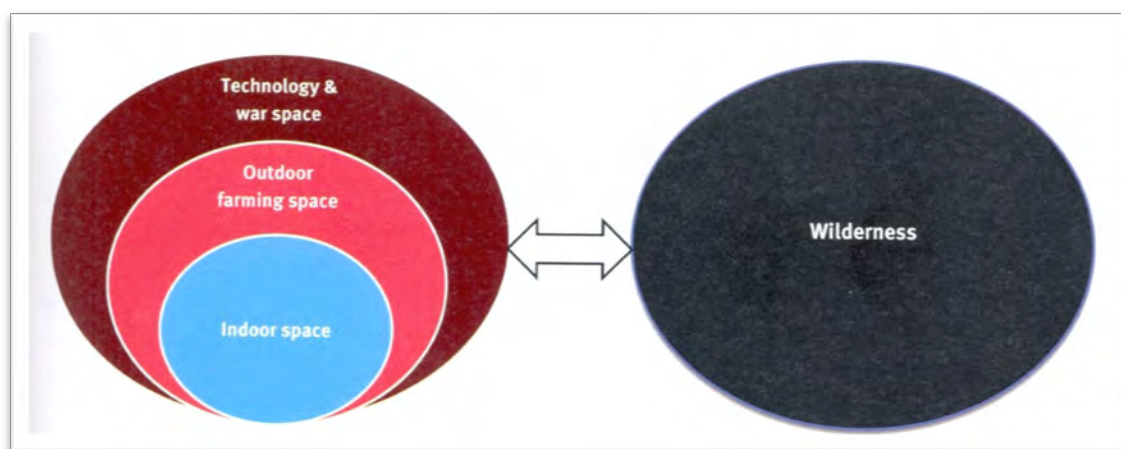
thereupon, we test statistically the average behavior of the classes in terms of borrowability, semantic instability, and cognacy. Even though there is variation between individual concepts of the classes, the tendency that emerges from the average of our classes is interesting. First, we notice that borrowability and the other three metrics (semantic instability, colexification, and cognacy) behave differently. In another study (Carling, Hammarström, Cronhamn, Farren, et al. Forthcoming) we test change rates (loss rates) by the evolutionary model described in 6.3.7. The results correlate positively with the metrics semantic instability, colexification, and cognacy, but the correlation to borrowability is slightly negative. Therefore, we should consider borrowability and semantic instability as separate indices of lexical change. Of the three metrics semantic instability, colexification, and cognacy, the metric semantic instability gives the clearest result. We will therefore refer mainly to this group in our evaluations. Another highly interesting metric is the frequency of the different genders masculine, feminine and neuter in our data.

In the cluster of our most stable classes, both in terms of borrowability and instability, we find cultural activities (verbs), as well as cultural products, i.e., concepts for items that are eaten, drunk, or manufactured at daily basis. Further, we find small cattle (SHEEP, GOAT, etc), pig words, the domestic animals dog and cat, and drink and drugs. Another group of words belong to the same category, namely words pertaining to the nature, such as seasons, (SUMMER, WINTER, AUTUMN etc), trees, or metal words. We distinguish these as two different types, since they, even if they share similarities, also are critically different in other aspects and belong to two different domains.

Beginning with this stable group, we put the words into two main domains, which we, following upon a structuralist tradition, label CULTURE and NATURE.

In another group, characterized by higher borrowability and higher semantic instability, we find objects pertaining to the out-door or large-scale farming space, with cattle, poultry, domestic insects (BEE), crops, and tillage. These classes still represent farming activities, but they are culturally distinct from the previous group in the sense that they are connected to the outdoor farming, the barn, and the tillage. We organize this group under the CULTURE domain.

A third group incorporates materials connected to manufacture (STONE, WOOD), weapons, implements and vehicles. These are classes representing a higher level of labour intensity and technological innovation, and are important instruments and objects in activities involving hunting and war. These classes are high in borrowability and high in semantic instability. Surprisingly enough, considering the average frequency of genders in our data, these classes are dominantly of feminine gender. Again, this groups belongs to the CULTURE domain.



The spaces of evolutionary behavior of farming vocabularies, representing 1. the in-door & small-scale farming space of the household and the family, generally characterized by low borrowability, low semantic instability, and wide-spread geographical homoplasy; 2. the out-door & large-scale farming space, characterized by medium borrowability, semantic instability, and higher geographical diversity; 3. the technology & war space, characterized by high and varying borrowability, semantic instability, and higher geographical diversity; and the wilderness space, characterized by highly varying levels of borrowability and semantic instability.

Finally, we have a group of words that fall under the NATURE domain. This consists of two parts, which are different in their behavior. First, we have game animals, predator animals, and predator birds, which are highly divergent in terms of borrowability and/or semantic instability. Here, we find our taboo concepts, words representing objects targeted by superstition, ritual and worship, such as our wild and hunted animals. These are either low in borrowability and high in semantic instability, or vice versa. An unexpected result we find for the European indigenous predators, such as wolf and bear, which have very low rates both in borrowability and instability, whereas the deer and wild boar, on the other hand, have high rates for instability and low for borrowability. Why do we have these contradictory results? All these animals are hunted and dangerous and would potentially be affected by taboo replacement. A fundamental difference may explain the result: the deer and the wild boar are worshipped and desired, the predators are feared and undesired, and humans cannot, how much they try, impact the existence of these hated animals. Therefore, their designations do not change. As for gender, words of this group are also predominately masculine or neuter. Second, we have the non-animate terms belonging to the NATURE domain, which are metals, seasons, and trees. Lexemes of these groups are stable, they have low rates in both borrowability, instability and cognacy, and words are predominately either masculine or neuter.

From this behavior of vocabulary, we can trace the impact of a cultural system, where concepts designating objects or activities connected to the household or the "safe-space" of daily life, such as eating, drinking, or "harmless" manufacturing, e.g., of fabric, are found in the most stable class. In this group, we also find the household animals, cat and dog, as well as the small cattle, goat and sheep. Higher levels of instability and borrowing recurs outside of the farming's household, by concepts connected to the farming process, such as tillage, crops, cattle, poultry, pig words, and draft animals. In the most unstable group we find artifacts and materials that are related to technology, industry, and war, such as tools, weapons, materials that are the process of hunting, and vehicles. Concepts here have high rates in both instability and borrowability. As mentioned earlier, the dominance of the feminine gender (in Indo-European) is noteworthy and implies that gender assignment can have a cultural explanation: concepts of this group are typical within "male" domains, such as hunting, technology, and war. Our category connected to the wilderness, including the predators, game animals, predator birds and metals show a highly divergent pattern. The nature represents the given environment, which may be changed or altered by cultural activities, such as hunting or forestry. Here, we find highly varying levels of borrowability and instability, but in general, large parts of the concepts have low rates and are dominantly either masculine or feminine.

The system can be interpreted as a reflection of a structure, with the "in-door" household, the whereabouts of the family, the women and the children, in the centre, the surrounding "outdoor" farmland and further the industry and war in the outskirts of the cultural sphere. The two latter are mainly the "male" zones in a traditional society. We are looking at a very fundamental system for farming societies, where the settlement, the residence of the family or clan, has a central role, representing order and stability as opposed to the nature or the wilderness, which represents chaos and danger. The wilderness has to be controlled by rituals and sacrifices, by the law and order of religion. In language, the system reflects the cognitive perception of speakers rather than the system

created to control it. The indoor "safe-space" is steadily reproduced by lineage, generally with little change in inheritance, borrowability and semantic change. The out-door space generates more change, both in terms of borrowing, semantic change, and lexical substitution. The industry and war zone is even higher in lexical change. Finally, the wilderness, the sphere of hunting and exploration, gives rise to highly uneven rates of lexical substitution, borrowing, and semantic change, in partly by processes such as metaphor, metonymy and other types of taboo replacement.

This dual system of cultural spaces is likely partly cultural, partly cognitive or universal. It should be considered as unique to farming societies, in the respect that it is, on the cultural side, centered on the settlement. In other respects, the spaces reflect fundamental aspects of human behavior, such as the organization of the family or the clan, the role of the mother and the ego as the safe-space of the growing child, something that is, e.g., reflected in the effects of sound symbolism on basic vocabulary.

Another interesting issue is to identify whether there are differences between our families in terms of change behavior. This is definitely the case; but not always as expected. Beginning with grammar, we notice that an important difference is the higher tendency to divergence in the zones of the non-migratory families languages (Caucasian, Basque). This goes for almost all features except the most converging ones. This observation is not new; it confirms earlier observations on residual languages. However, when it comes to vocabulary, we may notice some interesting differences between the migratory and the non-migratory languages. First, we notice that there is a surprisingly high level of apparent cognacy shared between the Caucasian families (Kartvelian, Nakh-Dagestanian, and Northwest Caucasian) in our vocabulary. Considering the presumed high time-depth of the proposed proto-languages of these families, this is noteworthy. In addition, the relative semantic stability in these families, or conversely, the tendency of change, when present, is interesting. Compared to Indo-European, we notice the absence of metaphorical changes outside of the cultural sphere of the concepts within the etymologies. Take for instance the predators (fig. 15, appendix 3b): whereas Indo-European languages are overflowed with metaphorical meaning changes leading in all kinds of directions, in particular human transformations, Caucasian lexemes stay within the animal kingdom, even within the close family of the animals' species. The tendency for the game animals is similar. Even though we know that Caucasian people feared and worshipped dangerous animals, also in cults involving manto-animal transformations, we see no reflexes of this practice in language. In another study based on our data and using the evolutionary reconstruction model, we investigate these change patterns more carefully. This study indicates that in Indo-European, metonymic change outside of the semantic domain (SUMMER > RID) is the most frequent type of change, followed by metaphor. In Caucasian families it is the other way round, with metonymy within the semantic domain (e.g., WOLF > HYENA) was the most frequent change, followed by metonymy outside of the semantic domain. Metaphor is almost absent. In general, this confirms the patterns that is visible in the colexification and meaning change charts.

A likely explanation for this difference between Indo-European and Caucasian families is the environmental adaptation of speakers of these languages. The relocation of migratory family languages gives rise to a more frequent need for semantic adaptation and change in the vocabulary of cultural concepts: the continuous exploration of new environments and establishment of new settlements likely has an impact on the vocabulary, in particular the semantic change. Furthermore, the frequent contact with other language groups affects the levels of borrowability and lexical substitution in the vocabulary.

Our data reflects the vocabulary of farming and pastoralist societies, and for that purpose, our results may be of secondary relevance to other systems, such as hunter and gatherer societies. Farming, as well as pastoralism, represents a system that has a long history both within the families

of non-migratory (Basque, Caucasian), as well as in the migratory families (Indo-European, Uralic, Turkic). Without doubt, we should reconstruct farming and pastoralism as systems that were inherent for at least Indo-European, Basque, and Caucasian families. There are several reasons for this. Beginning with Indo-European, a difference in the reliability of reconstructions contemporary comparative linguistics, which is also supported by evidence from ancient DNA is currently the most likely theory of Indo-European origins, but in some aspects, the Yamna theory does not match reconstructed linguistic data. On the one side we have the huge area and the high diversity of the Indo-European family, the high certainty of reconstruction of farming vocabulary, the presence of ancient migration words shared with both Semitic and Caucasian languages, and the peripheral position of the Yamna area (roughly contemporary Ukraine) in terms of linguistic diversity and contact. On the other side we have the evidence by genetics, archaeology, and the arguments of etymologies in Greek and Germanic that cannot be reconstructed and are likely to be substrate. Genetics, like archaeological data, is very difficult to connect to populations of languages of the past. The evidence of language and culture, together with areal evidence amassed from thousand of years of documented change weighs heavier.

Putting our grammatical and lexical evidence together and considering the areal patterns of features, both individually, in classes, and together, we may identify a number of distinct areal zones, which are characterized by specific behavior in terms of mutual contact and change. The first most striking tendency, falling out both from our lexical and grammatical data, is the division of our area into two regions; one eastern and one western. Even though Indo-European language family splits between the two regions, there are differences also among the Indo-European languages in our data that point in the direction of two disparate zones. First, the tendency is visible in grammar data, where the eastern and western region languages cluster with each other. The flow patterns of loans of culture words show a similar tendency: eastern languages are more frequently in mutual contact with each other, western region languages with each other.

Apart from that, we may identify a number of distinct areas, which can be defined by their development, their level of impact upon other languages by language contact, as well as their general geographic position. First, we identify the Central Asian migration zone, stretching from Mongolia to Eastern Europe and Caucasus, in grammar characterized by a widespread agglutinating tendency. In a later phase (2000-500 BP), the area is characterized by a large impact from Turkic and Arabic languages in terms of language contact. This is mainly the area of the migration of Turkic languages. In an earlier phase, around 4000-2000 BP, the area constituted a spread zone for Indo-Iranian languages, which were in contact with the adjacent Uralic languages to the north. Second, we have the South Asian development zone. Even though our lexical data from this area is scarcer, we can identify a South Asian zone (in our data mainly of Indo-European languages), typically characterized by deviating patterns in the vocabulary, as well as a special development of grammar patterns. Even though not reflected in our data, we assume that the Dravidian component is substantial in this zone. Next comes the West Asian contact zone. This area, including Anatolia and West Asia, is characterized by very ancient written sources. The zone is, already in antiquity, characterized by high linguistic diversity, many relic languages, a high level of language contact, and frequent substitution of language populations. This is also, during history, a source area of many crucial innovations in cultural systems. Between the Black and Caspian Sea, we have the Caucasian accretion zone. This area, which is generally characterized by a favorable climate, is an area of high linguistic diversity and independence, inhabited by the non-migratory Caucasian families. The high diversity and slow rate of change is evident from all data, both grammar and lexicon. The history of the spread of farming during the Neolithic and Chalcolithic periods indicates early contacts with the West Asian contact zone, from where all cultural innovations must have been imported; yet there are few evident traces



of early borrowing in the Caucasian families: most culture words have independent, inherited forms. In a later phase, there is a considerable impact from the Central Asian zone, through lexical borrowing from Turkic. In our vocabulary data, we see that the three families of Caucasus, Kartvelian, Nakh-Dagestanian, and Northwest Caucasian, form a unity of frequent shared cognacy. However, in terms of early language contact, these families are relatively independent in relation to the other families (Indo-European, Uralic). Numerous independent and inherited terms in Caucasian families for core culture lexemes, such as wheel or plow, indicate an independency. Moving to the east, we have the Eastern European periphery. This area is characterized by a generally lower diversity (also taking into account that many Uralic languages are absent in our data), and a tendency to diverge, in grammar and vocabulary, between the eastern and the western regions. We notice that the area, which in our data is mainly occupied by the Balto-Slavic languages, often forms a block with (Northern) European languages, but, in general (both grammar and vocabulary), the area is mainly characterized by conservatism. This is evident among others from the cluster analysis of grammar data. For this reason, we label the area "periphery" rather than "development zone". In addition, borrowings are rather in the direction to the area than from the area. Our next area is the South-Central European development area. This area, which is concentrated to the central parts of the Mediterranean and continues up to northern Europe, is characterized by an intense language contact and high borrowability, mainly in a direction south-to-north, but also from time to time north-to-south as well as central to east and west. In grammar, we notice a far-gone stage of development and areal convergence, visible at both individual and general levels. North of this we have the Northern European periphery, mainly including northern parts of Scandinavia (7). This area is characterized by occurrence of local conservation zones and a general tendency (with some exceptions, such as Old Norse) of languages to be the target of loan rather than the source. Finally, we have the Atlantic periphery, which also has, compared to the South-Central European development area, a more peripheral role, in that that languages are the target of borrowing rather than the source. The area also hosts the Basque accretion zone, an area of high linguistic conservatism.





Overview of the sketched development areas, accretion zones and peripheries of the macro-area of our corpus.

- 1 = Central Asian migration zone,
- 2 = South Asian development zone,
- 3 = West Asian contact zone,
- 4 = Caucasian accretion zone,
- 5 = Eastern European periphery,
- 6 = South-Central European development area,
- 7 = Northern European periphery,
- 8 = Atlantic periphery.

The aim of the current volume has been to investigate language change in time and space by means of salient grammatical and lexical change in a number of languages over a cohesive linguistic macro-area. The results give both a unified as well as a divergent picture, which is a good thing. In the introduction of this volume, we describe our theoretical framework where we see language as a complex, dynamic organism, in which change is divergent down to the most detailed level. The data confirms the theory - at least in principle. There are also astonishing exceptions, such as the occurrence, both in grammar and lexicon, of wide-spread geographic homoplasy, which even has the capacity to transgress the boundaries of total mutual unintelligibility, i.e., to erase the boundaries between highly remote families. Likewise, there are features that over time seem to be in a frequent, recurring state of divergent change: they seem never to subdue to conflation or convergence.

To sum up; the current atlas has selected -35 grammatical features (-120 variants) and -100 lexical concepts that we have considered to be of continued importance in a Eurasian context and from a deep historical perspective. We have looked carefully at all the change processes of these selected features over a distinct macro-area, from the earliest sources and up to present day. Even though there are clear patterns in the data, the picture is highly dynamic and often blurred. Language change is a complex issue, which is entirely intertwined with cultural and environmental change. In addition, -35 grammatical features and -100 lexical concepts represent only a fraction of a complete language, which is far more complex than that. Therefore, we are fully aware that the change histories of other features may indicate other tendencies than what we have demonstrated here. That remains an issue for further investigation. <>

### Overview of Maps for Practical Mapping in Applied Research and Program Evaluation

This is a book for the bold—those individuals who are not only willing but also eager to explore the farthest limits of human understanding. In writing this book, we were reminded of the excitement and danger of this adventurous field.

You can be writing on a topic (yes, this one, for example) that you know well. You may even be an expert, with your name known around the world. Then, suddenly, a colleague mentions something. A name, an article, an old idea. In a flash, you realize that the old idea might be related to the new ideas you are working on. Down the rabbit hole you go. Researching, reading, talking, studying, investigating, contemplating, synthesizing, creating, and so on.

There is a danger. Are you going in the right direction? How far should you venture forward before trying to find your way back? Many scholars have been lost this way—as if Alice were unable to escape from Wonderland.

Walking this fine line, you keep your focus—trekking through the literature, following references from one publication to another, emailing scholars around the world, asking for clarification around their ideas, and finding still more. You test your ideas by conducting research in the field, interviewing people and facilitating groups from various communities and organizations.

The number of files on your computer keeps increasing. The piles on your desk get higher. The books, articles, and interview results become an almost insurmountable mountain. Here is another danger. Do you give up? No. You synthesize those piles of evidence. You integrate the views you have collected. You reduce that incomprehensible mountain into a climbable hill.

Exhausted, you stand at the border of a new land. From the top of the hill, you gaze out over green fields of future possibilities under the blue skies of your imagination.

What will happen when people read the results of your research? What happens when they follow your lead and climb that hill? Managers, leaders, and people of every description see the benefit of your research. They understand how following your ideas will lead them to better lives.

Slowly, at first, they move forward. Then, with growing confidence in your work, they advance, working, striving, to make better lives for themselves and a better world.

In this book, you will learn how to be that explorer, how to make maps that others may follow, how to change the way people see the world so that they can change the world.

We welcome you to this exciting profession and look forward to reading about the results of your adventures in research.

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**PRACTICAL MAPPING FOR APPLIED RESEARCH AND PROGRAM EVALUATION** is designed to provide clear instructions on how to conduct effective social research. Research that may be used to evaluate and improve social programs, policies, organizations, communities, nations, and more for the general purpose of improving the human condition. By focusing on the basic methods that work best, our goal in writing this book is to help you become a better researcher.

Importantly, you will learn critical skills for creating and evaluating knowledge maps. With those abilities, you can provide more effective research results to make a greater positive impact on the world.

To help you navigate through this book, we've provided a few icons. For example, watch for the "Travel Tips" sign for helpful advice.

### Travel Tip

Travel Tips are helpful hints to support your understanding and success.

You will also find "Definition" signs to explain key ideas.

### Stop/Reflection/Discussion

The text in the "Reflection/Discussion" box will point out some interesting things to consider and some challenging questions for conversation.

At the end of each chapter, you will find some Frequently Asked Questions (FAQs) as well as a list of additional reading to support your further exploration in whatever direction you may choose.

Chapter 1 talks about some of the seemingly impossible problems people seek to solve in the world, the three dimensions of knowledge for understanding and solving those problems, and how we can better connect research and practice for the benefit of all. Importantly, the three interconnected approaches to creating, evaluating, and improving knowledge maps are data, logic, and meaning.

Chapter 2 delves deeper into the mapping process. In this chapter, you'll discover how to work with groups to create meaningful maps for practical decision-making, tracking progress, and evaluating results. You'll learn how to plan and facilitate a successful collaborative mapping process.

In Chapter 3, you'll learn how you can create a map using knowledge from existing research, such as government reports, academic papers, books, articles in trade publications, and program materials. This mapping approach can be part of a literature synthesis or literature review.

Chapter 4 is about mapping from your own research. We provide an example in which we conducted research to evaluate a program, using a mix of several methods. Next, we delve deeply into conducting interviews, organizing data across methods, and using that data to create knowledge maps.

In Chapter 5, you will learn the importance of "structure" for knowledge maps and methods for evaluating the logic structure of knowledge maps. Importantly, understanding structure provides an innovative way to improve the usefulness and impact of your knowledge.

By the time we get to Chapter 6, you will have a good understanding of how to do effective research. So here we will expand our thinking to provide a brief history of "fragmentation" (increasingly narrow focus of researchers and increasing specialization of practitioners) along with its effect on research and practice. You will learn how to address highly complex problems by countering the effects of fragmentation by connecting with other researchers and integrating multiple knowledge maps.

Ready for action? Good. Because in Chapter 7, we will talk about using online platforms for creating knowledge maps, techniques for presenting maps to stakeholder groups, and techniques for supporting collaborative decisions and action.

For those who have developed a thirst for knowledge, Appendix A contains some advanced concepts and more directions for continuing your investigation into the field of research and knowledge mapping.

Appendix B provides a sample report—the kind you might provide to a client, other stakeholders, or your professors and fellow students.

Appendix C looks at the basics of a variety of research methods.

They say that if you know the vocabulary, you know the thing—for example, if you understood every word a lawyer might say, you would be well on your way to practicing law. Here, the Glossary contains many words you need to know.

The following figure shows a few key ideas we'll be using.

### **A Few Key Ideas to Remember when Mapping**

Within each research project, you will have multiple stakeholder groups. For example, you might be a consultant conducting research for a client—a nonprofit organization that wants to better understand homelessness so they can improve their organization's ability to help the homeless in their community. Stakeholder groups might include staff within the nonprofit, government agencies

that provide funding to the nonprofit, other nonprofits in the community such as the local food bank, and the homeless community.

Your research might consist of interviewing members of each stakeholder group. As you do that, you will learn their many perspectives on the question of homelessness. The results of those interviews will provide the propositions—the sentences—that reflect the understanding of the stakeholders. For example, one might say that mental illness is an important cause of homelessness. Another might say that homelessness is caused by poor economic conditions. Each of those statements includes concepts (homelessness, mental illness, economic conditions). The statements also show how the concepts are causally connected (when changes in one concept result in change in another concept).

As you combine those propositions, you create a knowledge map—a clear presentation of your research results. With that map, the client can better understand the problem of homelessness. They will be able to see that solving the problem of homelessness will involve improving economic conditions and addressing issues of mental health. And they can use the map to communicate their new understanding with others in the community to support collaborative efforts at resolving the situation.

Research, stakeholders, knowledge maps, concepts, and causal connections. <>

### What the Camera Teaches History?

American culture tends not to cultivate or place much value on serious historical reflection. Every now and then, we share a collective reverie along the lines of Errol Morris's *Fog of War* or Ava DuVernay's epic civil rights film, *Selma*; but as a nation our historical attentions more often run in the registers of *Gone with the Wind*, *Davy Crockett*, *Hogan's Heroes*, *The Godfather*, *Jersey Boys*, or *Django Unchained*—not exactly sustained reflection of the sort that enhances historical understanding or roots the present meaningfully in the soil of the past. We have developed a mild taste for history as adventure, as romance, as tragedy, as nostalgia, as escapism, as farce, even as nonsense. But history as an instrument for analyzing the contours and meaning of present conditions, not really, not even in the context of policy debates or political oratory. The culture has a woefully short memory to begin with; but as the basic unit of public discourse has contracted—first to the tiny morsel of the television sound bite, later codified by Twitter at one hundred forty characters—meaningful historical reflection has become an extravagance, and the nation goes careening ever onward.

Which is why the historian in me was so captivated during that first season of Obama, as it were, between the Democratic primaries of spring 2008 and the inauguration in early 2009. Street-level conversation quickly and pointedly fixed on "this historic event" or "this historical moment," and I heard people all around me—students, colleagues, delivery people, waitresses, barbers, garage attendants—actively placing themselves in the timelines of history in phrases like "I never thought this could happen in my lifetime," or "we're making history," marveling aloud that "this" had not seemed possible in America at all, not thirty years ago, not twenty, not one year ago.

Even the horrors of 9/11 had failed to elicit this widely shared tendency among Americans to suddenly see themselves in history. The terrorist attacks may have bifurcated history into a "before" and an "after" for many; there was a lot of talk about how "the world has been changed forever." But this was a fundamentally ahistorical conversation underneath it all, in that it rarely demonstrated a true engagement with the details, movements, trajectories, or tendencies of postwar history. In my experience (I was living in Manhattan at the time), most people commented on how the world had been "changed forever" without indicating any idea of a relevant past. For most, the event came out

of nowhere. This is hardly a historian's careful formulation. Nine/eleven might prove a "cause" of whatever was to come next, but it absolutely defied definition as a "consequence" of anything that had come before, in popular understanding. The Islamophobic slogan "Everything I need to know about Islam I learned on 9/11" tacitly implied the twinned assertion "Everything I need to know about 9/11 I can locate in Islam" The thinking after that tragedy was added, perhaps understandably so. But it represented above all a widely held and massive ahistoricism, whatever else you want to say about this dreadful collective experience.

But the Obama election was different. People I talked to now saw themselves in history; they actively took measure of the distance back to the Civil Rights and Voting Rights Acts; they paced off and re-charted the topography of the post-civil rights decades. "Underneath the river, the riverbed is moving," artist and photographer Renee Athay said. People now plumbed those rushing historical waters, trying to comprehend whatever subterranean motion it had been that delivered up a Barack Obama after decades that had seemed so stagnant on questions of race and social justice. From Nixon's "southern strategy" to Ronald Reagan's cynical visit to Philadelphia, Mississippi; to the assault on affirmative action; to the rise of the carceral state; to the Rodney King beating and other racialized police violence; to continued and worsening suppression of the black vote; to —the election of Barack Obama? The smiles and the awed clicks of the tongue, Never thought I'd see this day, represented a vernacular American meditation on the movements of history unlike any I had heard before. On another track, people in coffee shops or at the local bar were also measuring the economic crisis against the Great Depression and calling for the return of FDR.

Paula Rabinowitz has defined "the status, meaning, interpretation, and perhaps even control of history and its narratives" as what is at stake in most progressive documentary work.<sup>1</sup> The stakes in this particular project were somewhat different—to coax some workable historical thinking as a start; not so much to wrest control of a narrative, but to help in breaking silence and in generating some narratives to work with.

**THE HISTORIAN'S EYE** began with these observations on the moment, and on the keen public consciousness of the moment, and with a desire to capture it all in a bottle in a one-off documentary on the inauguration. The moment stirred in me precisely that impulse that Robert Coles has described, "to seek to know in such a way that the telling ... connects others to an observed situation. It is the impulse to reconnoiter, to scout successfully, and to report back ... about what has been spotted or surveyed." Fieldwork began with revelry in Harlem and then Washington, D.C., on inauguration eve, and the hushed, reverential atmosphere of the National Mall as Obama took the oath of office the next morning. More "church" than "fête," the first inauguration was an intimate gathering of nearly two million jubilant but contemplative onlookers who had made the pilgrimage from across the country the day before—Martin Luther King Jr. Day, as it happened—to bear witness. The work expanded from there. As the figure of an African American president came over the horizon and assumed the Oval Office in 2009, the omnipresent Shepard Fairey iconography of "Hope" and "Change" tacitly expressed a proposition that found immediate favor in some quarters and struck deep fear in others: that maybe, just maybe, we were not the nation we had always thought ourselves to be. Historic indeed.

These years have never ceased to seem "historic," nor has the sense of their singularity yet waned. Election season in 2008 gave way to the Great Recession and its concerns, as colossal financial institutions were shaken to the core, and foreclosures, business failures, and layoffs swept the country. The political parties became locked in a death grip over budget deficits, stimulus bills, austerity measures, and health-care reforms, questions that pointed toward unbridgeable philosophical differences and to a re-litigation of governing premises stretching back through



Reaganomics and the Great Society, all the way to the New Deal. Emergent, innovative forms of political organizing took shape—the Tea Party on the right and the Occupy movement on the left—as did unprecedented challenges to the president's legitimacy: communist, socialist, Kenyan foreign national, secret Muslim, illegal immigrant, Manchurian candidate, usurper. Historic battles waged in the courts and in state houses over gay marriage, voting rights, corporate power, reproductive rights, and environmental protections at once expressed and created divides in the electorate and deepened pervasive anxieties that the soul of the nation and futurity itself were hanging in the balance.

"A camera," Dorothea Lange once said, "is a tool for learning how to see without a camera." A camera can teach you to see and never to miss the ubiquitous "Space Available" signs that mark hardship and business failures in downtowns and strip malls across the country. These signs stand in for otherwise invisible stories of ruin; they are designed to attract our attention as potential buyers or tenants, but never as the citizens of our eviscerated cities and towns. A camera can teach you to see poignant details easily missed, like breakfast dishes expectantly stacked on the counter behind the "For Rent" sign of a recently closed diner, untroubled promises of "guarantee" beyond the overgrowth and chain links of a failed auto shop, competing philosophies of the public sphere embodied by an intrepid soapbox orator and the salaciously clad model pictured on a two-story jumbotron behind him, jostling to overwhelm his Times Square oratory with a sex-inflected commercial appeal of her own. A camera can teach you to read the histories of rise and fall that are narrated by our cityscapes or to identify the elements of whimsy, humor, joy, grit, determination, and anger that make up a budding social movement.

Moments frozen in photographic time expose a present that only the layers of history could have created. Images of a muscle car in an abandoned lot, a dark and vacant shopping center, or a shuttered New Jersey factory each trace the arc from twentieth-century prosperity to twenty-first-century despair. The plaintive placard at a political rally, "Do I look illegal?," protests Arizona's passage of the law that became known as SB 1070, the "papers please" law, but so does it invoke the deeper legislative history that created "illegal" persons in the first place, and the centuries-long racial history that conjoins the full rights of citizenship with how one "looks." A sardonic Florida marquee, "Be thankful we're not getting all the government we're paying for," perches a Tea Party taxation lament atop the vintage Reagan-era contention that government is the problem, not the solution. A folk guitarist at the head of a throng of Occupy marchers conjures Phil Ochs's 1960s just as surely as he does Woody Guthrie's 1930s.

The images of **THE HISTORIAN'S EYE** provide a documentary archive of the Obama years and their extraordinary, peculiar tensions—a coin toss that has landed on edge. But they also constitute an invitation to reflect, and a prod toward a kind of visual pedagogy—a different way of seeing the past in the present and of seeing the present itself as history in the making. The question at heart of the project is: What does this historical moment look like where you live?

The images in this book were taken across the country from 2009 to 2014. Drawn from nearly 4,000 images now archived on the Historian's Eye website ([www.historianseye.org](http://www.historianseye.org)), these materials convey the harsh realities of American life during the Great Recession, but so do they capture diverse passions and expressions of civic engagement that are emblems of aspiration, expectation, and promise. Myriad closed businesses and abandoned storefronts stand as a public monument to widespread distress; omnipresent, expectant Obama iconography articulates a wish for new national narratives; flamboyant street theater and wry signage and graffiti bespeak a common impulse to talk back. Together these images reflect the sober grace of a time that is perilous, but in which "hope" has not ceased to hold meaning.

This book is meant to be read in any way you like: there is a legible narrative arc across the volume, were you to read it from front to back. But each pairing of image and text is also a freestanding piece in its own right, a meditation. The major threads that run through and unite the essays include an analysis of the American present and the past that produced it; reflections on photography as a practice in pursuit of history, and on the relationship between documentary work and scholarly work; meditations on reading images—what the photograph reveals and conceals; and finally, the story of my American Studies road trip across twenty-five states.

To begin, then, four introductory images and notes that lay out some thematic and interpretive building blocks for the interdisciplinary investigation that follows: a note on the ways of seeing that the camera teaches; a note on the nature of the American present, its raw anxiety and twinned feelings of hope and despair; a note on the interpretive method of excavating the past as it shows itself in a photograph's present; and a note on the mutual engagement here between the photographic print and the historical imagination. Photographer Joe McNally once said the best photographer isn't necessarily the one who knows the most about things like lighting and composition; the best photographer is the one who gets the shot. The most I claim as a photographer is that I was able to put myself out there—from inauguration day to the BP oil spill to Occupy Wall Street to Pamela Geller's Islamophobic rallies—to try for the shot. My hope is that this collection might advance a pedagogy of its own, deriving from my own sharp learning curve under the tutelage of the camera. <>

### Essay: The Movie Script Development Process

The development of a full-fledged Shooting script begins, of course, with an idea or a story, and before the script development process can begin, the production entity, or studio, must purchase an option on a published story property or a copyrighted original story or narrative idea.

An option allows the studio the legal right to film the story and protects the story from being developed by another studio. Also, assuming renewal of the option is maintained, it allows the studio owning the option to make sequels, remakes, or even parts of the story or idea in a different film.

In Hollywood's golden era, the Studio System was fastidiously structured, and each studio owned its actors, crew, and screenwriters outright. We'll refer to this era going forward as the Studio System era. As the Studio System began to collapse in the 1960s and be replaced with more free agency, the script development process in turn became less formal.

We will use the most formal script development and review process from the Studio System era as our foundation, and follow with a discussion of variants that emerged.

### Story Script

When a studio purchased a published property during the Studio System era, the property often existed either as a serialized story in a magazine or as a novel that was scheduled for publication but not yet in print. As a result, the fastest and most practical way for a studio to have a readable copy of such an idea, story, or novel was to print the purchased property using the studio's established script format. These scripts, referred to here as Story scripts, were printed in small numbers and given to potential producers, directors, and key actors, as well as to readers, for review. A reader was just that: a professional whose job it was to read the property and provide comments for producers as to what parts of the story might not translate well to the screen, what might need to be changed, and what might need to be added. Other readers were concerned with potential production costs, legal review, and other practical matters.

A case study is probably the most useful way to illustrate the first various opportunities for content evaluation one might find when working through the script development timeline:

In 1944, E.P. Dutton had plans to publish a crime novel titled *Fallen Angel* by author Marty Holland (pseudonym for Mary Hauenstein). Director Otto Preminger, on the heels of his unexpected box office success *Laura* (1944), was looking for another relatively inexpensive, dialogue-intensive crime film, the kind that would decades later be famously characterized as film noir. Following Preminger's lead, the studio that owned him, 20th Century-Fox, took an interest in Holland's book, then still in the publisher's pre-publication phase. In summer 1944, the studio purchased the film rights to the unpublished novel.

At this point, with the intent to distribute the content of the novel to those who were concerned with developing it into a film, 20th Century-Fox produced a script for limited internal distribution, one that in terms of physical format fell right in line with the look and design of their usual scripts. But it was in terms of content simply the text of Holland's novel, as it was written to be read and enjoyed—or in the case of the film studio, understood and pondered as filmed entertainment.

This tells us something interesting in terms of how a studio in the 1940s put forward the content of a purchased property for review. But what is even more interesting is that what the studio printed in this instance was not quite the final version of the novel. It was a draft of the novel that, as it happened, differed what would become the final published version. Thus, in terms of content, the Story script is an early, unpublished draft of the novel.

A fairly thorough search of the world's institutional holdings shows no record whatsoever of any manuscript draft of the novel. This makes 20th Century-Fox's humble Story script—of which today there is only one known copy extant—the only recorded early draft of *Fallen Angel*.

As a means of contrast, in Chapter 6 we will study a much later draft script for the screen adaptation of *Fallen Angel*, written well into the development process.

### Treatments, Synopses, and Outlines

A Treatment script (sometimes referred to simply as a “treatment”) is a prose description that lays out the building blocks of a proposed film story, and it should be noted that it is sometimes the basis for the acquisition process described in the previous section. Alternatively, a treatment can be commissioned by the studio once a property is acquired.

There are no formal rules for a treatment, but the best ones describe characters, motivations, and movement of the story in a succinct and practical manner. Its purpose is to convey an idea to a reader efficiently, and that reader would usually be a producer, a director, a screenwriter, or an actor whom the studio might have in mind as a lead. A treatment can be based on a novel or short story, but is just as often an original story of sorts, with a structure and style designed to convey the worthiness of that story as a film.

Treatments can be quite short (as few as 5 pages), medium-length (about 30–45 pages), or in some cases nearly as lengthy as a finished script (100–150 pages). Most known treatments fall in the medium-length category, and understandably so, since the goal of the document is to be something that can be read in a single sitting.

In the production timeline, relative to the more developed drafts that may follow, treatments are issued in the smallest numbers, as they are designed to be read by a select number of people, namely, those with an interest in the potential success of the film property. Once those key people have decided a First Draft should be written, a few more entities sometimes become involved.

It is important to note that a treatment can be preceded (or immediately followed) by different sorts of summaries serving a similar purpose, most commonly called a synopsis or an outline.

### First and Subsequent Draft Scripts

Once a project is approved past the treatment stage, one or more screenwriters are hired to develop the treatment into a Draft script with scenes and dialogue, setting, and possibly camera movement. Note that Draft scripts between 1930 and 1959 were occasionally designated as Dialogue Continuity or Continuity and Dialogue.

Beginning as early as the First Draft stage, color revision pages can be found, particularly when a studio has become involved in development.

The collaboration among screenwriters, producers, directors, potential lead actors, and others during the draft script development process can be anything from quick and efficient to long and intense. Anyone who wants to learn about how bad it can get need look no further than John Gregory Dunne's 1997 nonfiction book *Monster: Living Off the Big Screen*, an exhausting account of how many iterations even the most seemingly straightforward film might require, even in the hands of seasoned professionals. By the same token, there are many examples of successful films whose development process was magically simple and efficient, or not so much complex as it was crazed. A script is sometimes not so much revised as it is written on the fly during production, with examples running from a low-budget Roger Corman film all the way up to the likes of *The Godfather*.

### Final Draft Script

The Final Draft script is the last draft of the script written prior to its submission to various entities that will review it prior to the issuance of a Shooting script: the legal department, censorship boards, and those who estimate the budget for the projected film. It is also at the Final Draft stage that scene numbers are typically first invoked, though this happens sometimes a bit later, at the Shooting script stage.

Each of the aforementioned entities marks up the Final Draft and sends it back to the producer for review. These annotated drafts can often be of extreme historical significance, as they introduce an insider's perspective on the legal, moral, ethical, financial, and generally pragmatic reactions to (or deletion of) a film's content, much of which is oral, forgotten, or otherwise lost to history.

### Composite Script

Probably more than any other script issued by major studios in the classic era, the Composite script is the greatest evidence of the Studio System's extreme fastidiousness. Not all studios made a practice of producing these, but a few did, most notably Metro-Goldwyn-Mayer. A Composite script aggregates multiple drafts of a given script prior to the Shooting script into a single document, meaning that it would contain possibly several versions of each sequence, with all those versions bound in sequential order. Composite drafts are an excellent historical record of the changes formally incorporated into a script up to the commencement of shooting.

### Censor, Legal, and Other Departmental Scripts

Beginning in 1934, at the point when a Final Draft script was issued, but prior to the first Shooting script, various studio departments would review the script for conformity to the Hays Code (more formally known as the Motion Picture Production Code) for censorship concerns, legal concerns, and sometimes other entities with a perspective

outside the creative process. The involvement of these entities continues well into production, but their evaluation at the Final Draft stage is critical, as many serious decisions are made about the film's content and, indeed, whether it will be made at all.

### Estimating Script

An Estimating script is designed to be something as close as possible to the Shooting script that will possibly follow it, with all legal, moral, and pragmatic considerations factored in to as realistic an extent as possible. It is a document against which the studio's financial arm can estimate the budget for the imagined film, based on the props, locations, special effects, and any other expense-inducing factors implied by the script. It is worth noting also that Estimating script can also be a Composite script.

### Shooting Script

The Shooting script (sometimes called a Final Shooting script) is a watershed stage, invoking all the decisions made after the Final Draft script has been reviewed and adjudicated by the aforementioned departments. This is the script that, finally, will be sent to everyone whom the producers and the studio envision being involved in the film, including the director, the producers, the cast, and the crew.

It is worth noting also that often the last script in the Draft script cycle sometimes functions as the first Shooting script.

### Revised Shooting Script

The Revised Shooting script stage is one of the most critical to understanding revisions made during shooting. Once shooting commences, there are inevitably new ideas born and problems encountered, resulting in changes that need to be made to scenes in the script that have not yet been shot.

These changes are gathered and aggregated on the set by the script supervisor (a critical function discussed later in this chapter), and at the macro level by a production secretary or a production coordinator. The proposed changes are approved by producers, censors, the legal department, and others. Screenwriters are usually out of the loop at this stage, as their contract does not normally require or allow approval of changes, or the implementation of those changes.

The approved changes cause the original text to be altered as a matter of course—sometimes reduced and sometimes expanded—and certain segments of the original script need to be replaced with the new, rewritten segments. As with earlier drafts, these new segments manifest themselves as either revised pages (revised content), added pages (expanded content), or combined pages (reduced content).

The studio's stenographic department compiles the revisions onto a master and makes

duplicate sets on colored stock to be distributed to the cast and crew. Each revision cycle is printed on a set of differently colored revision pages, with a predetermined sequence so that the cast and crew can ultimately keep track of which revision is which.

A color revision sequence was established by the Writers Guild of America (WGA) in the 1930s and rigorously observed by major studios through the 1950s. The sequence became more random in the 1960s and beyond as the production process was increasingly decentralized.



The original standard, followed well into the 1990s (though with many variations) was officially defined by the WGA as follows:

- White (unrevised)
- Blue
- Pink
- Yellow
- Green
- Goldenrod
- Buff
- Salmon
- Cherry
- Second Blue Revision (or Double Blue)
- Second Pink Revision (or Double Pink)
- etc.

Once in possession of the revision page sets, the cast and crew would in most cases remove the original pages and replace them with the colored revision pages. Such revised scripts are found with the revision pages bound in at the proper places in the script, and with the original pages having been removed and disposed of. In other cases they might be found laid in.

As shooting continues, and the above revision process is repeated, the script's user winds up being in possession of a script that has anywhere from one set of color revision pages to as many as half a dozen (or more). Scripts that contain four or more color revision sets are referred to from a historical perspective as rainbow copies, based on the rainbow effect one sees when looking at the page fore-edges.

In some cases, scripts will be found with a single color throughout (most often white or eye-rest green), but with revision dates noted at the top of each page, and an asterisk (\*) to the right of scenes that have been revised since the first Shooting script.

### Partial Scripts

A Partial script is not to be confused with a script whose leaves have been removed by its user, or a situation where revisions are being hurriedly produced by a screenwriter during production (both of which could be described as simply "incomplete"). Rather, a Partial script is one that is intentionally printed, bound, and issued in some quantity as an incomplete or unfinished script.

Obviously not ideal when shooting a film, a Partial script generally became necessary when either (1) production had to move ahead before a script was completed, or (2) some portion of a script needed to be issued formally in order for a film to gain the approval of some entity.

### Storyboards, Costume Design Photo Binders, And Keybooks

Storyboards are a technique first developed by Walt Disney in the early 1930s, wherein the "look" of a scene is told in graphic form, like a comic book, in order to convey the director or screenwriter's intentions visually. Storyboards have been a standard tool well into the present for directors best known for a strong visual style (Steven Spielberg, the Coen Brothers, Orson Welles, Alfred Hitchcock, and others). Similarly important, but outside the scope of our study of scripts, are binders of photographs pertaining to costume design (consisting of snapshots or Polaroid photographs), as well as keybooks, which contain a series of photographs demonstrating the continuity of a film.

### Setup Scripts

The predecessor to the storyboard, a Setup script was developed around an existing Draft or Shooting script, designed to outline the props, locations, and practical effects that will be necessary for a film, broken down by scene number. Setup scripts were not necessary for every film, but were critical for films involving technically challenging action sequences or sequences involving special effects.

### Shooting Schedules and Other Logistical Documents

Shooting schedules, call sheets, cast and crew lists, and other functional documents that pertain to the logistical aspects of the film being shot are issued in gatherings of leaves numbering anywhere from 1 to 45 (or more for a demanding project), generally stapled at the top left corner. They are sometimes found bound into a script, but more are more commonly seen laid in. They are more commonly found in production bibles, discussed at the end of this chapter.

### Post-Production Scripts

Once shooting of the film has wrapped, the processed film footage and the script supervisor's completed notes are sent to the film editor, and the editing process begins. This involves not only editing the film into a coherent whole, but also adding overdubbed dialogue, soundtrack music, sound effects, second unit footage, montages, stock footage sequences, and other elements that tie the film together.

The film editor's guide through this process is the script supervisor's completed and annotated script, which tells the editor what they need to know in order to do their job. Examples might include: improvised dialogue, "mistakes" the director likes and wishes to keep in the film, mismatches in continuity, notes from the cinematographer, accidents on set that affected continuity, the takes the director wishes to use, and any other decisions that were made during shooting that cause the shot footage to differ from the script.

As far as the Post-Production script first appeared at the advent of the talkies. Its purpose was, very simply, to represent the film in its final edited form. It was issued primarily by major studios and is denoted by one of several different naming conventions on the title page, including:

- Cutting and Continuity
- Cutting Continuity
- Dialogue Cutting Continuity
- Combined Continuity
- Combined Cutting Continuity
- Release Dialogue
- Censorship Dialogue (for films that were censored in post-production)

Obviously a common word here is continuity. These scripts should not be confused with Dialogue Continuity or Continuity and Dialogue scripts, which are preproduction scripts and discussed earlier in this chapter in the section titled First and Subsequent Draft scripts.

The content and level of detail in these scripts will vary, but almost all of them make a note of the following:

- The issue date
- How many feet and frames of film are represented by the script
- How many reels are represented by the script

- Descriptions of settings
- All dialogue
- Title cards (e.g., the title of the film, opening and closing credits, “The End”)
- More detailed Post-Production scripts might include:
  - Precise timing associated with every scene in the film
  - Music cues
  - Camera movement
  - Story synopsis
  - Settings

Post-Production scripts are almost always bound at the top edge, usually with two fasteners: often metal brads, and sometimes with staples (used commonly at Paramount, for example).

The rule to bear in mind with binding clues is this: a script bound at the left edge might be a Post-Production script, but a script bound at the top edge is always a Post-Production script.

### Post-Production Scripts and Lost Films

If the Post-Production script under consideration is vintage, then it is an artifact, no question. But in terms of content, there are some unusual things to consider. At its worst, in terms of value, a Post-Production script is no more than a mirror image of the finished film, a precise record of the film as it was shot and edited.

At its best, however, a Post-Production script is a guide for the creation of new intertitles or subtitles for a newly discovered print of a lost film needing same. Or, in some cases, it may document the names of undocumented persons involved. And nearly always there is timing information that proves useful should the film be in the process of reconstruction from different prints.

Lost films are defined as films that are known to have been created, distributed, and screened, but at some point prior to preservation, duplication, or digitization they proved to be either nonexistent or no longer available. Many master prints of films have over time been lost to fires or irreparable damage due to poor climate conditions or vinegar syndrome.

For perspective, some sobering facts regarding lost films:

Martin Scorsese’s Film Foundation estimated in 2013 that more than 90% of American films made before 1930 are currently lost.

As a counterpoint, the Library of Congress estimated in 1993 that 75% of the roughly 11,000 Silent films made before 1930 are lost forever.

If a Post-Production script does not represent a lost film, then it is if nothing else a formal printed counterpoint to that film. If it does, however, it may well be the only extant document representing that film—or at least one of a very few.

Apart from lost films, Post-Production scripts have other possible uses for study. Between the 1930s and the 1970s, Post-Production scripts were made for the initial release of a film, but also for re-releases that were edited and released years later. Fortunately, up until the 1960s, the re-release date is often found on the front wrapper of a Post-Production script.

The differences between a Post-Production script for a release and one for a re-release can be very telling. Films were, for example, sometimes cut down by distributors in order to fit better into a double bill, and more often than that they were cut for reasons of censorship.

Post-Production scripts representing films that were cut for pragmatic reasons (e.g., double bills) are fairly easy to find. Films cut after an initial release for censorious reasons are not. Thus, for the latter case, one has to study the Post-Production script for the original release and compare it with extant versions.

A good case study is the British horror classic *The Wicker Man* (1973). Robin Hardy's film, because of its unbridled approach to sex, religion, and nature worship in general, became a cult classic overnight, as well as an overnight target for censorial entities both formal and informal.

In the process of being combined into double bills and attacked by conservative folk everywhere, original prints of *The Wicker Man* were cut to ribbons. After ten years, prints in the wild existed in so many versions that even today film scholars are struggling to piece together a print that runs precisely as Hardy's original did on the night of its premiere.

Fortunately, however, there is a roadmap, and possibly only one: a known Post-Production script for the initial release of that film.

The Post-Production script marks the end of the script development cycle. Stepping back from the entire process, it's interesting to see how pre-production and production scripts give us worlds within worlds of "inside information" about the film that might have been.

### Souvenir Scripts

A Souvenir script is created after filming has wrapped (i.e., post-production), sometimes prior to the completion of editing and sometimes after. Souvenir scripts are always designed to be just that—souvenirs—to be handed out at ceremonial events as promotional gifts. Not to be confused with Presentation scripts (discussed in Chapter 3), which are specific to an individual contributor to the film.

A good example of a souvenir script that introduces considerable confusion in script identification today is the souvenir script format used by Selznick International Pictures in the 1930s and 1940s. A Selznick souvenir script resembles an actual Shooting script in every respect--right down to printed wrappers and mimeographed pages--except that there is a single leaf at the beginning noting the names of the cast and crew.

A garden variety selection of various script wrapper designs, including studio templates, custom, and non-standard.

### For Your Consideration Scripts

Beginning in the 1990s, the notion of a Souvenir script was superseded by the For Your Consideration script, basically a clean version of the Final Shooting script with a front wrapper and binding that is generally more appealing to the average reader than an actual working script. Sometimes seen referred to with the acronym "FYC," these scripts are almost exclusively American, printed to be distributed to the members of the Academy of Motion Picture Arts and Sciences (AMPAS) for films that are in the pool to be nominated for an Academy Award. In the 1990s, these scripts were produced in small numbers, usually with illustrated or photo-illustrated covers and with modest bindings (tape, velo, or brads), and issued strictly to Academy voters. But over time, they have become much fancier, printed in larger numbers with standard commercial bindings (e.g.,

perfect bound in a trade softcover format), and in recent years often in a gift format, such as a leather satchel or a gift box.

### Production Bible

One of the most important resultant archives is something defined in the script analysis world as a Production Bible, usually found in the hands of the script supervisor, producer, production manager, or any crew member who is tasked with the logistical details of keeping a production moving forward and running on schedule. A production bible is usually found in a nondescript three-ring binder and contains not only the script, but all manner of ancillary documents such as shooting schedules, cast and crew lists, legal documents, memoranda, and contracts. In a properly organized production bible, these different documents are found separated into tabbed sections. From a historical perspective, a production bible has the most to say about all the external elements involved in a film shoot.



A garden variety selection of various script wrapper designs, including studio templates, custom, and non-standard.

### The Script Supervisor

Up until now, we have referenced the critical role of the script supervisor in several instances. A script supervisor's function on the set is, at the macro level, two-fold: (1) to ensure that continuity is being observed and corrected as shooting is taking place, and (2) to produce a profusely annotated version of the script that, at the end of shooting, contains every detail about every decision that was made during the shoot.

The script supervisor's production bible is the holy grail among historical scripts, as it is a unique, living record of every decision made during a shoot that does not appear in the script itself. It is the document of the film.

The kinds of detail that can be found in a script supervisor's annotated script, gathered from every decision-making entity on the set during the shoot, can include the director's preferences regarding:



- Continuity from scene to scene
- Which takes from a given scene are to be used
- Use of master shots vs. shots from other perspectives
- How the shot footage is to be edited

At the completion of shooting, the script supervisor takes their annotated script, along with notes that were made regarding all shooting decisions, and creates a more formal version written in the standard language expected by the film editor.

The finished document is then given to the film editor and functions as a detailed guide with regard to the above noted preferences as to how the finished cut should be assembled. The submitted document is sufficiently detailed so that the presence of the script supervisor should not be required during the editing process apart from brief consultations.

### Physical Components of the Script

#### Printing Processes, and Types of Annotations

A script is made to be used and to be modified, so it is bound in such a way that it can easily be unbound, put into a binder, have its pages removed, and have pages added. Over time, the physical components of the film script have changed, though functionally they remained essentially the same throughout the 20th century.

The major physical elements of a script are:

- Binding elements
- Binders and/or secondary binders
- Wrappers
- Affixed elements
- Rubber stamping
- The most common types of printing processes are:
  - Typescript
  - Carbon typescript
  - Mimeograph duplication
  - Spirit duplication
  - Offset printing (a.k.a. Multilithography or Multilith)
  - Xerox duplication
- The most common types of annotations are:
  - Ink or pencil
  - Typeovers
  - Added ribbon copy type
- The most common types of removals and additions are:
  - Cut-outs
  - Removed leaves
  - Inserted leaves and notes
  - Memoranda, telegrams, and other inter-office or inter-personal communication <>

## Decoding Dictatorial Statues Displays Authoritarian Icons

They are only a few hours' driving distance away, but to Ted Hyunhak Yoon they could be situated in a parallel universe: the new statues that are revealed in his neighbouring country at regular intervals. Although Kim Il-sung died in 1994, he received the title of Eternal President and materialised this honour by leaving 34,000 granite and marble statues of himself—a number that continues to grow. Once more the surrounding cloth falls away from a towering Kim Il-sung; the camera glides across thousands of grateful faces; once more the applause never seems to diminish in force. How can it be that a crowd of people who were once the neighbours of Yoon's grandparents is now revering the sculpted alter egos of their leaders? What does this crowd see that Yoon cannot perceive? What makes these statues so impenetrable?

As a graphic designer, always involved with visual communication, Yoon decided to investigate what it is that makes the visual language of these statues so powerful. In 2014 he started compiling an image archive of dictator's statues. Though the photographs stem from various regions and eras, the statues share at least one common feature: standing on their pedestal as if it were a stage, they lend visibility to the performance of communication.

The process began long before the pictures were taken. It started with a sender who decided that information must be transmitted to a large group of receivers. Instead of writing this information out in large print, or casting it in enormous letters of concrete or bronze, the information was compressed into a symbolic form: the depiction of a person. Therefore, the statue could be regarded as a code, or a collection of codes:

A hand  
tucked into a pocket.

Fingers spread flat or palms facing up.

A hand  
raised forward.

The hem of a coat moving in a concrete gust of wind.

A knee  
with a book resting on it.

A foot, frozen in marble,  
taking a decisive step forward.

A book tightly clenched under an arm.

The book, the hand, the coat, but also the presence of the pedestal and the visual lines that determine how the statue will nestle itself in your field of vision—all these aspects contribute to the way a message is transmitted onto the receiver. During the "reading" of a statue, the depicted figure and the meanings inscribed in it switch positions for a split second. Unaware, the receiver translates the codes.

He, the revolutionary.

He, the people's father, watching over us.

Though Yoon initially began ordering and regrouping series of images as if it were a deck of cards, he slowly shifted towards a more physical approach, towards a decomposition of the statues. Yoon's dissections attempt to identify the visual rules and phenomena that exist within—and lie underneath—these statues. His visual analysis forms the backbone of this publication. In an era electrified by debates around the relocation or removal of statues with charged biographies, Yoon's work extends beyond design and research: I consider him a silent toppler. By isolating the statues from their pedestals he illustrates how the Latin word *statua*—which literally translates as "that which is set up"—requires just a hint of poetic license to be understood as something that is in itself "a set-up".

When Yoon invited me to become the editor of this project, I wondered if wanting to prescribe a certain perspective is not the basic premise of any given statue. Were the immortalisations of Robert E. Lee in Charlottesville (US), Cecil John Rhodes in Cape Town (SA) and Jan Pieterszoon Coen in Hoorn (NL) not meant to shape our views on the depicted persons, their histories and the accompanying power structures for centuries? And what about the many statues that are not currently up for discussion and continue to stare onto the horizon, unconcerned, on squares and in parks around the globe? We crane our necks toward them, and almost without noticing it we translate a series of signs into meanings. Doesn't each and every statue, then, in some way dictate our ways of seeing?

This is where the other party in the performance of communication comes into play: the recipient. While the sender has managed to solidify an array of information and agendas into the statue, the relationship with the public is also inextricably locked into that densely compressed object. The man who reads the statue as a symbol of better days, the woman who deciphers the same statue as a dystopian sign, the cheering head in a festive crowd, the historian for whom each statue is made to be brought down: a single object can somehow accommodate all of them. In this book you will find ten essays by ten such receivers—researchers, (art) historians, curators, a philosopher and an artist. Together these authors act as decoders. Statues from different eras, located in different parts of the world, face present-day questions and form the starting point for precise and at times very personal dissections.

Historian Leonor Faber-Jonker for example, unravels the stories surrounding the site of a statue of Stalin that vanished from a Berlin Allee. With two pieces saved—his moustache and his left ear—and the rest of the sculpture having been recast, Faber Jonker wonders how much of his being is still present.

For philosopher Martijn Wallage statues are among those things, like windows and shadows, that inspire philosophical thought. His essay invites us to look below its surface and think about time and eternity, matter and form, body and soul.

The essay of curator Jo-Lene Ong revolves around the statue of a British colonial in Singapore's central business district. The work of artist Lee Wen, in which some nearby scaffolding puts the audience on an equal standing with the statue, serves as a mirror to reflect on the foundations of this celebrated icon and tourist attraction.

Following this, historian Karwan Fatah-Black questions the idea of historical value by rendering the preludes and responses to the removal of colonial monuments in South Africa, the Netherlands and United States.

In the essay of artist and researcher Florian Göttke we are guided through the cacophonous making process and subsequent crumbling of a media icon. We follow how the images of Saddam Hussein's toppled statue became a central feature in the narrative of the Iraq war; sometimes unfolding in unforeseen ways.

Art historian Erika Doss then analyses how a statue of the Trung Sisters, a 2000 year old Vietnamese devotional subject, could provoke an outbreak of cultural vandalism when it was appropriated by the ruling elite of the Republic of Vietnam.

Subsequently, design historian and graphic designer J.R. Jenkins decodes the feminine in East German public sculptures. Led by her extensive image research, she dissects the subtle and not so subtle manifestations of gender-coding in the portrayal of socialist life.

Historian Tycho van der Hoog got intrigued by the amount of socialist realist style statues he encountered when he traveled through Namibia. Why would a recently liberated African country opt for a North Korean company to tell its history?

Discussing a few contemporary artworks, curator Jintaeg Jong examines how the images of statues of dictators, once manufactured with the goal of fortifying an ideology, are now being moulded and re-moulded by artists.

The closing essay is by art historian Fabienne Rachmadiev who examines her childhood memories of a Lenin statue found in her former playground and a series of idyllic Soviet postcards. It's through this act that Rachmadiev offers us a glance at the Lenin cult found in Central Asia.

As a counterpart to Yoon's visual analysis, the essays of these ten authors offer a variety of decodings. They anatomise as it were, the object-hood of statues and their image-making qualities, their role as media icons, and their tangled position in a web of sociopolitical, historical and present-day meanings. They take the statue off its pedestal, thus letting us, the perceiver, take the stage. <>

### Rethinking the Incorporation Doctrine

Finally, it may be time to rethink one of the sacred cows of progressive legal thought—an intense commitment to applying the provisions of the Bill of Rights to limit the power of the states as well as the federal government so that both operate under identical federal constitutional rules. Remember, we have two Bills of Rights. The first Bill of Rights, constituting the first ten amendments, was adopted in 1791. What is frequently called the second Bill of Rights, comprising the Thirteenth, Fourteenth, and Fifteenth Amendments, was adopted in the five years following the end of the Civil War.

The autonomy-protective aspects of the first Bill of Rights, including the rights to free speech, religious freedom, the right to bear arms, the right to be free from unreasonable searches and seizures, the privilege against self-incrimination, the right to due process of law, and freedom from cruel and unusual punishments, were initially aimed solely at the federal government. The post—Civil War equality-driven second Bill of Rights, comprising the Thirteenth Amendment's abolition of slavery and peonage, the Fourteenth Amendment's due process and equal protection clauses, and the Fifteenth Amendment's ban on racial discrimination in voting, was aimed at the states.

Until 1925, to the extent that states were bound by federal constitutional protections at all, the Republican Supreme Court usually couched the protections as "substantive due process" guarantees provided by the due process clause of the Fourteenth Amendment. History taught that "substantive due process" was hopelessly vague and subjective. Republican judges used it as a club to invalidate minimum-wage, maximum-hours, and child-labor laws. Justices Oliver Wendell Holmes Jr. and Louis Brandeis deeply mistrusted the concept of substantive due process because it licensed Republican judges to turn their absolute commitment to the free market into constitutional doctrine. During the 1920s, the two justices sought a formula that would permit vigorous protection of social and political rights but also would encourage substantial regulation of the economy in order to protect the weak. They found it in 1925 by arguing that the due process clause of the Fourteenth Amendment was not an open-ended invitation to strike down anything the justices felt was deeply unfair. Rather, it was a verbal bridge over which fundamental textual provisions of the first Bill of Rights could travel to bind both the state and federal governments with the same text.

Holmes and Brandeis began in *Gitlow v. New York* (1925) by incorporating First Amendment free speech protection into the Fourteenth Amendment's due process clause so that it would bind New York State as well as the United States—a brilliant exercise in word magic. The Supreme Court followed up over the years by marching religious freedom, protection against unreasonable searches and seizures, the right against self-incrimination, the rights to counsel and to a fair jury in a criminal case, and the ban on cruel and unusual punishments over the Fourteenth Amendment's due process bridge to bind the states.

Most recently, five Republican justices marched the Second Amendment right to bear arms across the bridge over the objection of four Democratic justices who argued that it wasn't fundamental enough to be part of due process of law. Progressive lawyers like me, seeking to limit the power of state majorities hostile to racial minorities and unfriendly to political dissenters and religious iconoclasts, have long applauded the parade of rights across the bridge—that is, until the right being incorporated into the due process clause was the Second Amendment right to bear arms. As the four Democratic justices noted in their dissent, reflex incorporation of the entire Bill of Rights into the due process clause of the Fourteenth Amendment has real federalism costs. It operates as a legal straitjacket that requires the entire nation—with all its diversity—to march to a single set of constitutional rules.

When fundamental issues such as free speech, equality, and religious freedom are at stake, I believe that the centrality of those rights to a functioning democratic society calls for uniform, robust rules throughout the United States. But many constitutional guarantees in the first Bill of Rights, including jury trials in civil cases, grand jury indictment, Fourth Amendment search and seizure rules as they govern automobile stops, and the right to bear arms, can take many forms without necessarily jeopardizing a functioning democracy. Perhaps they should not be the subject of incorporation word magic.

Respect for regional diversity may call for one set of gun ownership rules in Wyoming and Montana and another in inner-city Chicago, and one set of drunk-driving roadblock rules in New York City but another in rural Georgia. Back in the 1950s, Justice John Marshall Harlan II applauded the incorporation doctrine but argued that room for regional diversity should be built into it for certain incorporated rights. Justice Frankfurter agreed. Maybe it's time to give Harlan's views more thought.

Trump is dangerous, especially to the vulnerable. His irresponsible behavior has already launched so many dangerous spells appealing to the worst in us that we may never get the genies of racism, xenophobia, and religious bigotry back into the bottle. There is real hope, though, that the Supreme



Court can contain the worst of Trump's excesses by remaining true to both red and blue precedents embedded in the purple Constitution. But even there, the capacity for slippage and deference to authoritarian governance is ever-present, especially if Trump succeeds in repopulating the Court as the current elderly justices leave the bench.

Even if the Court's membership remains stable, for the foreseeable future we will be living under the red Constitution, where close cases will be decided in favor of autonomy at the expense of equality. If you care about what happens to folks at the bottom—as well as maintaining the current level of constitutional protection for the rest of us—your only sure path of resistance is the ballot. Let go of the belief that courts and lawyers can provide the vulnerable with bulletproof, nonpolitical legal protection. Don't give up on courts and lawyers, but, if the weak are to be protected, we'll probably have to do it ourselves through the ballot box—there is no other way.

### Night Sweats—What If It All Comes Apart?

What if I'm wrong? What if the three constitutional pillars—separation of powers, federalism, and a decent balance between autonomy and equality—don't hold? What if a steady stream of lies, half-truths, and appeals to racism, xenophobia, and fear-mongering persuade enough Americans to follow Trump over an authoritarian cliff? What if a craven Republican Senate and a Supreme Court besotted with deference cease to provide a check on Trump's worst instincts? Pick your nightmare scenario.

#### Here are two of mine:

Trump wins the 2020 presidential and congressional elections. Justices Ruth Bader Ginsburg and Stephen Breyer leave the Supreme Court in 2021. Trump nominates fixer-lawyer replacements in the mold of Rudy Giuliani. The Republican Senate rolls over and confirms them. Justices Thomas and Alito concur with three of Trump's nominees in deferring to the president in what they characterize as a time of national crisis. Stare decisis is trashed—or manipulated—in favor of a populist, strongman's Constitution that provides President Trump with implied emergency powers to make America great again. The forty-fifth president, invoking Abraham Lincoln, invokes martial law, suspends the writ of habeas corpus, rules by executive order, silences "fake news" outlets, preventively detains dangerous subversives, and declares an end to the era of "political correctness" by rescinding all executive regulations enforcing the Civil Rights Acts and instructing the attorney general to cease enforcing the statutes.

Worse—Trump loses the November 2020 presidential election but cries foul, claiming that the balloting was rigged by the participation of millions of fraudulent voters, many of whom are allegedly undocumented aliens or simply fictitious. Two days after the election results are announced, the president directs Attorney General Giuliani to investigate charges of widespread voter fraud. Pending the results of the investigation, Trump declares martial law; detains the apparent electoral winner, a bewildered Joe Biden; refuses to permit the Electoral College to meet; and postpones the inauguration of a new president until the will of the true electorate can be accurately determined. Pending a deferred inauguration at the close of the investigation, the president suspends the writ of habeas corpus and rules by executive order. He rounds up the usual suspects.

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What extralegal options would be open for resistance to such Trumpist putsches clothed in legalisms and backed by a Supreme Court cowed into deference? What if Trump, citing Andrew Jackson, just ignores the Supreme Court?

At this point, of course, I am far beyond my expertise, such as it is. When legal institutions run out, I have little to offer but faith.

First, there's my faith in the Second Amendment right to bear arms. Not the Second Amendment you're thinking of, populated by delusional figures who think they can defeat tyranny by playing at being Rambo. That path leads to tragedy and heartbreak. I mean the real Second Amendment; the Founders' Second Amendment, the one that empowers a well-organized citizens' militia—the entire people in arms—to resist any effort by a would-be tyrant to seize power. My first act of faith is to believe that it is within the citizens' army and the professional police forces—the modern heirs to the eighteenth-century citizens' militia—that the first line of extralegal resistance must be found. No successful tyrant oppresses alone. He needs layers of armed subordinates to impose his will by force. The seeds of an effective resistance are present in every layer. Every person in the military chain of command, including the ranking officers, has sworn an oath to support and defend the Constitution of the United States against all enemies, foreign and domestic. Somewhere in that chain of command are patriots who will place that oath above executing an unlawful presidential order.

Military law frees subordinates from any duty to carry out an unlawful order. Indeed, according to the Nuremberg principles under which the Nazis were tried, "I was just following orders" is no defense to liability for carrying out orders that are formally correct but violative of fundamental norms of human decency.

In my fifty years as a civil liberties lawyer, I never met colleagues more dedicated to the preservation of the Constitution than many of the members of the armed forces with whom I have worked, especially military lawyers. I realize that my positive experience conflicts with the beliefs of many on the left who view the military and the police as hotbeds of racism and repression. There, of course, are plenty of bullies and racists who bear arms in our name. But there are also many idealists and genuine patriots. The German officer class rolled over for Hitler. A nightmare Trump won't find it so easy to subvert the American military.

My second act of faith is in the American people. Successful tyrants need more than brute force. They need a complaisant, supportive population. Hitler, Stalin, and Mao unleashed vast terror. But not one of those pathological monsters had enough bullets to rule successfully through brute force alone. Each needed the approbation, support, and cooperation of the mass of the citizenry.

When tyrants like Hitler are ultimately overthrown, their mass support vanishes retroactively—everyone always turns out to have been in the resistance—but the mass support was undeniably there. Someone enthusiastically sold Hitler the barbed wire and poison gas he used in the death camps. Someone enthusiastically informed about a skeptical neighbor. Someone marched the intellectuals to the countryside.

There will, of course, be American quislings who will enthusiastically support an American tyrant. There always are—everywhere. But I have faith that millions and millions of Americans will defend their freedom by withholding public and private support from a tyrannical regime, by declining to do business with it voluntarily, by refusing to inform on their neighbors or co-workers, and by engaging in acts of passive resistance such as mass strikes and protest. In the 1930s, the mass of German citizens became comfortable in their chains; many even reveled in them. That won't happen here.

Finally, my third act of faith is the most counterintuitive of all—faith that politicians will step forward to lead an effective extralegal resistance. While blue states may not be able to win a presidential election in a rigged Electoral College that over-represents rural America, or to elect a majority in the appallingly malapportioned Senate, it is in the blue cities and states where the nation's resources

and talent are concentrated: money, innovation, art, information, technology, communications, research, education.

How long could red America function without the massive tax subsidy provided by their blue fellow countrymen? Blue states pay huge sums into the federal tax pot and get only a fraction back in federal programs. Where do you think the difference goes? To folks in the red states, many of whom are fond of telling other people how to live their lives but are delighted to accept federal subsidies. That's where courageous state and local political leaders could play a crucial role by turning off the blue-state tax spigots that fund a tyranny. Ordinarily, Americans pay their federal income taxes directly to the IRS. What if courageous state and local officials, driven to resistance by one of my Trump nightmare scenarios, were to take custody of all federal tax payments, agreeing to pass the funds on to the IRS after checking each return to be certain that all appropriate federal deductions have been taken? What if they were very aggressive about taking federal deductions?

(Maybe they could use Trump's tax returns as a guide.) What if courageous state and local officials were to go further and deposit federal tax payments in a secure location pending the restoration of constitutional government?

Even a Trumpist Supreme Court would be obliged to dismiss any effort to prosecute ordinary taxpayers for following state law and routing their federal tax payments through their state political leaders for recalculation and transmission to the federal government. What jury would convict them? Let the president try to jail the governors of California, New York, Illinois, Pennsylvania, Michigan, Virginia, and Massachusetts for processing federal tax payments through a state strainer.

That's only the beginning of the acts of resistance available to state and local political leaders who pledge to prevent my nightmare scenarios from unfolding. They could invoke state police power to close roads and bridges for maintenance. Shut down the airports for safety checks. Withhold police or any other assistance to the federal government.

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Don't worry, though. It won't come to that. In the short term, our institutions will hold. In the long term, we'll vote the narcissistic bully out. <>

## ANNOTATED BIBLIOGRAPHY

**THE ART OF FILM PROJECTION: A BEGINNER'S GUIDE** Edited by Paolo Cherchi Usai, Spencer Christiano, Catherine A. Surowiec, and Timothy J. Wagner, Foreword by Tacita Dean and Christopher Nolan [George Eastman Museum, Selznick School of Film Preservation, 9780935398311]

A gorgeous gift for every cinephile, *The Art of Film Projection* celebrates this enduring analog art

**THE ART OF FILM PROJECTION: A BEGINNER'S GUIDE** is a beautifully produced, comprehensive outline of the materials, equipment and knowledge needed to present the magic of cinema to an enthralled audience.

Part manual and part manifesto, **THE ART OF FILM PROJECTION** compiles more than 50 years of expertise from the staff of the world-renowned George Eastman Museum and the students of the L. Jeffrey Selznick School of Film Preservation into the most complete and accessible guide to film projection ever produced. The product of more than ten years of painstaking work by renowned

film preservation specialists, and featuring a foreword by Tacita Dean and Christopher Nolan, this volume addresses a changing film landscape.

No film comes to life until it is shown on the big screen, but with the proliferation of digital movie theaters, the expertise of film projection has become increasingly rare. Written for both the casual enthusiast and the professional projectionist in training, this book demystifies the process of film projection and offers an in-depth understanding of the aesthetic, technical and historical features of motion pictures. Fully accessible to the layperson, student, technician or scholar, the book is designed to be used: richly illustrated with photographs and easy-to-read diagrams, it is printed at a size that is easy to carry, with a ribbon bookmark and pages for notes. **THE ART OF FILM PROJECTION** invites readers to help save the authentic experience of seeing motion pictures on film.

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**THE CELLULOID PAPER TRAIL: IDENTIFICATION AND DESCRIPTION OF TWENTIETH CENTURY FILM SCRIPTS** by Kevin R. Johnson, Nora Linn. Foreword by Tony Bill, Academy Award-winning producer (The Sting), director and actor. [Oak Knoll Press, 971584563792]

The film script is an example of rare book that defies nearly every norm. It is issued, not published, and rather than having a "first edition," it can be one of many drafts that fit within the development and production of a motion picture. Adding to its complexity is the fact that its method and style of issuance and printing has changed considerably over the course of time. The Celluloid Paper Trail is the first book published specifically to aid scholars in the identification and description of the 20th century film script. Visually sumptuous, methodical, detailed, and entertaining, this study is designed to help the rare book scholar ask questions, identify, and comprehend American and British film scripts issued between the 1920s and the 1980s, thus covering the period during which the art of cinema was birthed, developed, and perfected. Included are: - An overview of the filmmaking process as it relates to script development. - Script identification with respect to the different functions in filmmaking. - Bindings, page types, printing, duplication, and identification of later reproductions. -

Annotation as a unique record of the making of a film. - Tools for understanding a script from historical, thematic, and curatorial perspectives. - A detailed breakdown of a sample script, using various reference tools. Illustrated in color with over 130 examples of scripts of well-known films in every genre. With an index that references proper terminology used throughout the book.

**COINCIDENCES AT MUSEUMS** by Stefan Draschan, edited by Angela Stief, essay by { Hatje Cantz, 9783775745581]

“It is really delightful to see the visual connections between the viewers and the paintings.”

“A great flip-through volume... a feast of color and misadventure of form.”

### Art and viewer merge as never before in this fun, gift-worthy volume

It sometimes happens in museums that individuals strikingly resemble the art they are viewing. Stefan Draschan has developed a knack for spotting and photographing these amusing coincidences. Over the past few years, while strolling through the museums of Europe, Draschan captured similarities between the works of art and the people looking at them, noticing kinships in color, pattern, hairstyle or physical posture. A young man in denim merges with a blue Caspar David Friedrich landscape; a cluster of schoolkids chime with the mass of bodies in a Rubens; a young girl in blue uncannily mirrors the subject of a Renoir.

The series was begun in 2015, via photo competitions held by the Staatliche Museen zu Berlin and the German magazine *art—Das Kunstmagazin*, and acquired the title *People Matching Artworks*. It immediately went viral across the internet, and international users on Facebook, Tumblr, Twitter and Instagram have liked and shared Draschan's photographs millions of times. With these images, Draschan has created astonishing visual moments that are sometimes comic, poetic or surprising, but never contrived. Now, the latest pictures from this hit series are being published in this fun gift book.

**Stefan Draschan** is a photographer and bicycle activist. Born in Austria in 1979, he commutes between Vienna, Berlin, Naples and Paris. Besides the series *People Matching Artworks*, he has published other successful photo series such as *People Sleeping in Museums*, *People Touching Artworks* and *Cars Matching Homes*.

**DECODING DICTATORIAL STATUES** A project by Ted Hyunhak Yoon, Together with Bernke Klein Zandvoort, Erika Doss, Fabienne Rachmadiev, Florian Göttke, Jintaeg Jang, Jo-Lene Ong, J.R. Jenkins, Karwan Fatah-Black, Leonor Faber-Jonker, Martijn Wallage, Tycho van der Hoog. [Onomatopoeie 157, 9789491677984]

**DECODING DICTATORIAL STATUES** is a collection of images and texts revolving around the different ways statues behave in public space. How can we decode the agency of their sculptured body language and their sociopolitical role as relational objects and media icons?

Coupling a designer's perspective with an analytical approach, Ted Hyunhak Yoon explores the clichéd poses of dictatorial statues. In his image analysis, he lays out a choreography of these sculptures and uncovers the non-verbal rhetorics that shaped them. In the visual framing opened up by Hyunhak Yoon's image research, readers can zoom in and out the various narratives on offer.

In addition to these visual narratives, ten authors—acting as a group of decoders—contribute a wide range of perspectives on the subject. It's statues from different eras, located in different parts of the world, that form the starting point for these precise dissections. For instance, what links an outbreak of cultural vandalism against a 2000 year old Vietnamese devotional subject with the the toppling of Saddam Hussein's statue in 2011? Why would a recently liberated African country opt for a North

Korean company to tell its history? How can we define historical value in regards to the removal of colonial monuments in South Africa, the Netherlands and the United States?

Responding to current debates on the representation of the historical canon, these experts' perspectives and Ted Hyunhak Yoon's visual framework address urgent concerns about the depiction and representation of both our heritage and our future leaders. By asking us to consider the visual language of the statue itself, this project offers a living understanding of a supposedly long-gone symbolic order and a pathway to a more cross-cultural and historic comprehension.

#### Decoding Dictatorial Statues

Preface by Bernke Klein Zandvoort

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II A Life Abiding In The Same: The Statue As Image Of The Eternal Soul By Martijn Wallage

III A Pedestal And A Scaffolding By Jo-Lene Ong

IV Dealing With Falling Heroes In South Africa, The United States And The Netherlands By Karwan Fatah-Black

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**ELFIE SEMOTAN: CONTRADICTION** with Texts by Henri Cole, Felix Hoffmann, Helmut Lang, Sven Michaelson, Sarah Mower, Sophie Pechhacker, Rosa Pock, Martin Prinzhorn, Christian Reder, Esther Ruelfs, Elisabeth Von Samsonow, Stefano Tonchi, and with a drawing by Tobias Pils, edited by Felix Hoffmann, c/o Berlin Foundation [Hatje Cantz, 9783775746076]

Colophon: This book is published on the occasion of the exhibition Elfie Semotan. Contradiction: 8 Juni — 7. September 2019 / June 8—September 7, 2019 C/O Berlin, Hardenbergstraße 22-24, 10623 Berlin, Deutschland / Germany

The work of Austrian photographer Elfie Semotan (born 1941) has revolutionized fashion and advertising photography since the 1960s. Semotan has mastered the art of photographic storytelling, producing images that resemble film stills, telling a story that goes beyond what can be seen, and creating relationships to icons or art history. Her portraits of prominent personalities from the fields of art, film and theater, such as Louise Bourgeois, Willem Dafoe, Elfriede Jelinek, Milla Jovovich, Maria Lassnig, Martin Kippenberger, Udo Kier, Jonathan Meese and Daniel Richter, and her collaboration and friendship with Helmut Lang have made her world-famous. Just as Lang's minimalistic design had a defining influence on international fashion, Semotan's advertising and fashion photos for international magazines such as *Elle*, *Harper's Bazaar*, *Interview*, *The New Yorker* and

*Vogue* have established a new photographic aesthetic. This retrospective volume is the first to honor the entire oeuvre of this multitalented photographer.

**EFFECTIVE DATA VISUALIZATION: THE RIGHT CHART FOR THE RIGHT DATA, SECOND EDITION** by Stephanie D. H. Evergreen [SAGE Publications, 9781544350882]

Written by sought-after speaker, designer, and researcher Stephanie D. H. Evergreen, **EFFECTIVE DATA VISUALIZATION** shows readers how to create Excel charts and graphs that best communicate data findings. This comprehensive how-to guide functions as a set of blueprints—supported by research and the author’s extensive experience with clients in industries all over the world—for conveying data in an impactful way. Delivered in Evergreen’s humorous and approachable style, the book covers the spectrum of graph types available beyond the default options, how to determine which one most appropriately fits specific data stories, and easy steps for making the chosen graph in Excel. New to the **Second Edition** is a completely re-written chapter on qualitative data; inclusion of 9 new quantitative graph types; new shortcuts in Excel; and entirely new chapter on Sharing Your Data with the World which includes advice on using dashboards; and lots of new examples throughout. The **Second Edition** is also presented in full color.

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**ENGLAND IN THE AGE OF SHAKESPEARE** by Jeremy Black [Indiana University Press, 9780253042316]

How did it feel to hear Macbeth’s witches chant of "double, double toil and trouble" at a time when magic and witchcraft were as real as anything science had to offer? How were justice and forgiveness understood by the audience who first watched *King Lear*; how were love and romance viewed by those who first saw *Romeo and Juliet*? In *England in the Age of Shakespeare*, Jeremy Black takes readers on a tour of life in the streets, homes, farms, churches, and palaces of the Bard’s era. Panning from play to audience and back again, Black shows how Shakespeare’s plays would have been experienced and interpreted by those who paid to see them. From the dangers of travel to the indignities of everyday life in teeming London, Black explores the jokes, political and economic references, and small asides that Shakespeare’s audiences would have recognized. These moments of recognition often reflected the audience’s own experiences of what it was to, as Hamlet says, "grunt and sweat under a weary life." Black’s clear and sweeping approach seeks to reclaim Shakespeare from the

ivory tower and make the plays' histories more accessible to the public for whom the plays were always intended.

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## **EXPANDED ANIMATION: THE ANTHOLOGY: MAPPING AN UNLIMITED LANDSCAPE**

edited by Juergen Hagler, Michael Lankes, Alexander Wilhelm [Hatje Cantz, 9783775745253]

Last year, Expanded Animation (EA) celebrated its fifth anniversary as part of Ars Electronica. Since 2013, the symposium has investigated the collapsing boundaries in digital animation and explored positions and future trends in the expanded field of animation. In the last five years, the symposium has featured 56 experts from the fields of animation, art, games and science, including media artists, scholars, curators, animators, filmmakers, and media design and animation studios. Much like the first conferences on computer animation at Ars Electronica in the 1980s, practice and theory are equally important. The symposium is open to experts in theory and practice, including the Prix Forum, featuring the top prize winners in the category of Computer Animation. Heavily illustrated and featuring contributions from speakers and artist positions from the past five years, **EXPANDED ANIMATION: THE ANTHOLOGY: MAPPING AN UNLIMITED LANDSCAPE** presents an overview of the prize winners in Computer Animation.

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### **FUTURE HISTORIES: WHAT ADA LOVELACE, TOM PAINE, AND THE PARIS COMMUNE CAN TEACH US ABOUT DIGITAL TECHNOLOGY** by Lizzie O'Shea [Verso, 9781788734301]

A highly engaging tour through progressive history in the service of emancipating our digital tomorrow.

When we talk about technology we always talk about tomorrow and the future -- which makes it hard to figure out how to even get there. In **FUTURE HISTORIES**, public interest lawyer and digital specialist Lizzie O'Shea argues that we need to stop looking forward and start looking backwards. Weaving together histories of computing and progressive social movements with modern theories of the mind, society, and self, O'Shea constructs a "usable past" that can help us determine our digital future.

What, she asks, can the Paris Commune tell us about earlier experiments in sharing resources--like the Internet--in common? How can Frantz Fanon's theories of anti colonial self-determination help us build digital world in which everyone can participate equally? Can debates over equal digital access be helped by American revolutionary Tom Paine's theories of democratic, economic redistribution? What can indigenous land struggles teach us about stewarding our digital climate? And, how is Elon Musk not a future visionary but a steampunk throwback to Victorian-era technological utopians?

In engaging, sparkling prose, O'Shea shows us how very human our understanding of technology is, and how when we draw on the resources of the past, we can see the potential for struggle, for liberation, for art and poetry in our technological present. **FUTURE HISTORIES** is for all of us--makers, coders, hacktivists, Facebook-users, self-styled Luddites--who find ourselves in a brave new world.

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**GHOST WORK: HOW TO STOP SILICON VALLEY FROM BUILDING A NEW GLOBAL UNDERCLASS** by Mary L. Gray and Siddharth Suri [Houghton Mifflin Harcourt, 9781328566249]

In the spirit of **NICKEL AND DIMED**, a necessary and revelatory expose of the invisible human workforce that powers the web—and that foreshadows the true future of work.

Hidden beneath the surface of the web, lost in our wrong-headed debates about AI, a new menace is looming. Anthropologist Mary L. Gray and computer scientist Siddharth Suri team up to unveil how services delivered by companies like Amazon, Google, Microsoft, and Uber can only function smoothly thanks to the judgment and experience of a vast, invisible human labor force. These people doing "ghost work" make the internet seem smart. They perform high-tech piecework: flagging X-rated content, proofreading, designing engine parts, and much more. An estimated 8 percent of Americans have worked at least once in this "ghost economy," and that number is growing. They usually earn less than legal minimums for traditional work, they have no health benefits, and they can be fired at any time for any reason, or none.

There are no labor laws to govern this kind of work, and these latter-day assembly lines draw in—and all too often overwork and underpay—a surprisingly diverse range of workers: harried young mothers, professionals forced into early retirement, recent grads who can't get a toehold on the traditional employment ladder, and minorities shut out of the jobs they want. Gray and Suri also show how ghost workers, employers, and society at large can ensure that this new kind of work creates opportunity—rather than misery—for those who do it.

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**THE HISTORIAN'S EYE: PHOTOGRAPHY, HISTORY, AND THE AMERICAN PRESENT** by Matthew Frye Jacobson [Documentary Arts and Culture, Published in association with the Center for Documentary Studies at Duke University, The University of North Carolina Press, 9781469649665]

## How does history look in the moment it happens?

Between 2009 and 2013, as the nation contemplated the historic election of Barack Obama and endured the effects of the Great Recession, Matthew Frye Jacobson set out with a camera to explore and document what was discernible to the "historian's eye" during this tumultuous period. Having collected several thousand images, Jacobson began to reflect on their raw, informal immediacy alongside the recognition that they comprised an archive of a moment with unquestionable historical significance. This book presents 100 images alongside Jacobson's recollections of their moments of creation and his understanding of how they link past, present, and future.

The images reveal diverse expressions of civic engagement that are emblematic of the aspirations, expectations, promises, and failures of this period in American history. Myriad closed businesses and abandoned storefronts stand as public monuments to widespread distress; omnipresent, expectant Obama iconography articulates a wish for new national narratives; flamboyant street theater and wry signage bespeak a common impulse to talk back to power. Framed by an introductory essay, these images reflect the sober grace of a time that seems perilous, but in which "hope" has not ceased to hold meaning.

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**A HISTORY OF NEW YORK IN 27 BUILDINGS: THE 400-YEAR UNTOLD STORY OF AN AMERICAN METROPOLIS** by Sam Roberts [Bloomsbury Publishing, 9781620409800]

From the urban affairs correspondent of the *New York Times*—the story of a city through twenty-seven structures that define it.

As New York is poised to celebrate its four hundredth anniversary, *New York Times* correspondent Sam Roberts tells the story of the city through bricks, glass, wood, and mortar, revealing why and how it evolved into the nation's biggest and most influential.

From the seven hundred thousand or so buildings in New York, Roberts selects twenty-seven that, in the past four centuries, have been the most emblematic of the city's economic, social, and political evolution. He describes not only the buildings and how they came to be, but also their enduring impact on the city and its people and how the consequences of the construction often reverberated around the world.

A few structures, such as the Empire State Building, are architectural icons, but Roberts goes beyond the familiar with intriguing stories of the personalities and exploits behind the unrivaled skyscraper's construction. Some stretch the definition of buildings, to include the city's oldest bridge and the landmark Coney Island Boardwalk. Others offer surprises: where the United Nations General Assembly first met; a hidden hub of global internet traffic; a nondescript factory that produced billions of dollars of currency in the poorest neighborhood in the country; and the buildings that triggered the Depression and launched the New Deal.

With his deep knowledge of the city and penchant for fascinating facts, Roberts brings to light the brilliant architecture, remarkable history, and bright future of the greatest city in the world.

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**THE MOUTON ATLAS OF LANGUAGES AND CULTURES: VOLUME I, EUROPE AND WEST, CENTRAL AND SOUTH ASIA** edited by Gerd Caeling De GRUYTER: MOUTON, 9783110373073

Historical linguistics is a growing field, and so is the notion of the role of cultural aspects as involved in language diversity. However, a collective work on the current stand within this field is lacking, in particular for little researched areas such as the Amazon.

Computational methods, as well as new technologies for geographic mapping and data base management have opened new possibilities for looking at history of language and culture, based on earlier theories. These methods are used as complementary to established methods, such as comparative method, areal method, and relative and absolute chronology.

The current atlas will focus on the following topics: 1. language spread and diversity in relation to ecology, subsistence, and cultural contact, 2. functionality in culture, as expressed in cultural vocabulary, 3. indications of contact by means of borrowings of cultural vocabulary and linguistic typology.

The first volume is based on a rich new data (from about 400 languages), which will be available open source via a geographic database. The volume will be of relevance for students and researchers of linguistics, cultural anthropology, human ecology, archaeology, and adjacent disciplines.

**DiACL - Diachronic Atlas of Comparative Linguistics**

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**PAINTING THE SKY BLACK: LOUIS KAHN AND THE ARCHITECTONIZATION OF NATURE** by Florian Sauter, edited by Steve Pantazis, Marion Endt-Jones [DE GRUYTER, 9783110567328]

In 1962, Louis I. Kahn described the design of the Salk Institute as having been developed "out of a respect and understanding of the nature of nature," before adding: "I am becoming increasingly conscious of the architecture of water, the architecture of air, the architecture of light." Attempting to poetically unveil the world through the conscious architectonization of nature, the deliberations presented in this book interpret the American architect's buildings as the result of a Stoic pursuit to comprehend the lawfulness of the natural world, scrutinize his endeavor to set spatial compositions into analogy with organisms' principles of growth and form, illustrate his growing awareness to shape space in reciprocity with environmental forces, and acknowledge his eventual willingness to make the surrounding landscape and cosmos an integrated part of the architectural project. Furthermore, Kahn's highly ambiguous epistemology with regard to man's position within and beyond nature is being discussed ultimately promoting an ecologically sound down to earth approach, which takes into account the impulse of the primitive and elemental. Aspiring for an eternal expression, the manifestation of the world of the human spirit was for Kahn one of the most legendary and original architects of the 20th century only possible within the larger order of the universe, whereas the same transcendent, creative joy pervaded both.

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**PRACTICAL MAPPING FOR APPLIED RESEARCH AND PROGRAM EVALUATION** by  
 Bernadette Wright, Steven E. Wallis [SAGE Publications, 9781544323343]

**PRACTICAL MAPPING FOR APPLIED RESEARCH AND PROGRAM EVALUATION** is the first book to bring the mapping methodology to social research and program evaluation. Bernadette Wright and Steven E. Wallis guide readers through all phases of the research process: learning from stakeholder experience; reviewing existing knowledge in the field; conducting new data collection such as interviews; collaborating with other researchers; and facilitating the use of knowledge for communication, collaboration, and action. With plenty of illustrations and navigational aids such as "travel tips," the book is an accessible guide for busy students, researchers, and managers of all levels of experience.

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**READING BY DESIGN: THE VISUAL INTERFACES OF THE ENGLISH RENAISSANCE BOOK** by Pauline Reid [University of Toronto Press, 9781487500696]

Renaissance readers perceived the print book as both a thing and a medium - a thing that could be broken or reassembled, and a visual medium that had the power to reflect, transform, or deceive. At the same historical moment that print books remediated the visual and material structures of manuscript and oral rhetoric, the relationship between vision and perception was fundamentally called into question.

Investigating this crisis of perception, Pauline Reid argues that the visual crisis that suffuses early modern English thought also imbricates sixteenth- and seventeenth-century print materials. These vision troubles in turn influenced how early modern books and readers interacted. Platonic, Aristotelian, and empirical models of sight vied with one another in a culture where vision had a tenuous relationship to external reality. Through situating early modern books' design elements, such as woodcuts, engravings, page borders, and layouts, as important rhetorical components of the text, **READING BY DESIGN** articulates how the early modern book responded to epistemological crises of perception and competing theories of sight.

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**PRACTICE AND THEORY IN THE ITALIAN RENAISSANCE WORKSHOP: VERROCCHIO AND THE EPISTEMOLOGY OF MAKING ART** by Christina Neilson [Cambridge University Press, 9781107172852]

Verrocchio was arguably the most important sculptor between Donatello and Michelangelo but he has seldom been treated as such in art historical literature because his achievements were quickly superseded by the artists who followed him. He was the master of Leonardo da Vinci, but he is remembered as the sulky teacher that his star pupil did not need. In this book, Christina Neilson argues that Verrocchio was one of the most experimental artists in fifteenth-century Florence, itself one of the most innovative centers of artistic production in Europe. Considering the different media in which the artist worked in dialogue with one another (sculpture, painting, and drawing), she offers an analysis of Verrocchio's unusual methods of manufacture. Neilson shows that, for Verrocchio,



making was a form of knowledge and that techniques of making can be read as systems of knowledge. By studying Verrocchio's technical processes, she demonstrates how an artist's theoretical commitments can be uncovered, even in the absence of a written treatise.

**PRACTICE AND THEORY IN THE ITALIAN RENAISSANCE WORKSHOP: VERROCCHIO AND THE EPISTEMOLOGY OF MAKING ART** is geared towards an intelligent readership interested in the history and art of Renaissance Italy. The analysis of art practices make it appealing to studio artists and students, while the cultural framework in which those practices are discussed will appeal to undergraduate and graduate students and scholars in art history.

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**WHAT WE TALK ABOUT WHEN WE TALK ABOUT BOOKS: THE HISTORY AND FUTURE OF READING** by Leah Price

#### Reports of the death of reading are greatly exaggerated

Do you worry that you've lost patience for anything longer than a tweet? If so, you're not alone. Digital-age pundits warn that as our appetite for books dwindles, so too do the virtues in which printed, bound objects once trained us: the willpower to focus on a sustained argument, the curiosity to look beyond the day's news, the willingness to be alone.

The shelves of the world's great libraries, though, tell a more complicated story. Examining the wear and tear on the books that they contain, English professor Leah Price finds scant evidence that a golden age of reading ever existed. From the dawn of mass literacy to the invention of the paperback, most readers already skimmed and multitasked. Print-era doctors even forbade the very same silent absorption now recommended as a cure for electronic addictions.

The evidence that books are dying proves even scarcer. In encounters with librarians, booksellers and activists who are reinventing old ways of reading, Price offers fresh hope to bibliophiles and literature lovers alike.

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**WHEN AT TIMES THE MOB IS SWAYED: A CITIZEN'S GUIDE TO DEFENDING OUR REPUBLIC** by Burt Neuborne [The New Press, 978-1620973585]

From the leading constitutional lawyer who has sued every president since LBJ, a masterful explication of the “pillars of our democracy”

On November 9, 2016, many Americans feared that our democracy was on the verge of collapse. But is it? In an erudite and brilliant evaluation of the current state of our government, noted constitutional scholar Burt Neuborne administers a stress test to democracy and concludes that our unprecedented sets of constitutional protections, all endorsed by both major parties, stand between us and an authoritarian federal regime fronted by Donald Trump’s tweets: namely the division of powers between the three branches, the rights reserved to the states, and the Bill of Rights.

Neuborne parses the genius of our constitutional system and the ways its built-in resilience will ultimately survive current attempts to dismantle it. While many important issue areas—women’s right to choose, LGBTQ rights, separation of church and state—risk erosion, Neuborne argues that while the Constitution’s inherent defense mechanisms can buy us time, only an active citizenry will allow us to fulfill Ben Franklin’s charge to keep our republic.

**WHEN AT TIMES THE MOB IS SWAYED** is an invitation from one of our most respected legal lights to identify, celebrate, and defend our bedrock constitutional principles.

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