# Picture Research

## The Work of Intermediation from Pre-Photography to Post-Digitization

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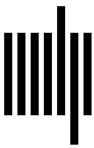

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# Introduction

Picture research is essentially the work of looking for pictures. Whenever you search online for a photo, GIF, or meme to post on social media, you're doing picture research. In most cases, a quick web search is likely to satisfy your needs, whether you are looking for an illustration to include in a presentation or publishing project, or simply curious to see what a particular thing or person looks like. If you need to archive the relevant picture for future use, downloading the file will take a matter of seconds. As a user of contemporary visual media, you will be accustomed to the instant accessibility and automated archiving of all kinds of pictures. Even if you do recall a time before the internet, you may still find it hard to imagine how pictures were stored and searched for without the use of cloud services and search engines.

What search tools were needed when pictures were filed away in archives and libraries? Whose labor, skill, and judgment ensured that the printed pages of books, magazines, and newspapers were regularly filled with fresh and engaging illustrations? And what kind of work is required to make historical media available in digitized formats for contemporary online audiences? This book reveals the work of intermediation that takes place between producers and consumers of pictures by showing how it has historically been performed by specialist intermediaries ranging from engravers and publishers via librarians and archivists to editors, researchers, and digitizers. Engaging the concept of "picture research" on multiple levels, this chronological account defamiliarizes the everyday experience of instantly accessible online picture sources by shedding light on search tools and procedures that now appear strange and exotic, but which

were once as mundane and culturally invisible as the websites and search engines we take for granted today.

In its most straightforward interpretation, the term *picture research* (or "photo research") is a standard combination of two nouns that denote a specific kind of work, mainly performed within the fields of publishing and advertising. It entails finding, retrieving, and administrating the costs of reproducing visual illustrations for use in print, broadcast, or online media outlets. Historians of photography have tended to ignore this field of archive-related photographic work and its specialized corps of professionals, even as they (we) have mythologized the site of the photographic archive. One intention behind the title of this book is therefore to signal its focus on the human skill, physical effort, and tacit knowledge that characterized work in pre-digital libraries and archives, over and above the infrastructure of the institutions themselves or the materiality of the objects preserved in them (although I will have things to say about those, too). The title also alludes to the book as an invitation to visualize, imagine, illustrate, or represent, in other words, to "picture" research. This ambiguity is inspired by the title of another book, *Picture Theory* (1994) in which W. J. T. Mitchell sought "*to picture theory* as a practical activity in the formation of representations."[1] In a similar sense, this book aims to picture research of visual materials, whether carried out for scholarly, commercial, or private purposes, as a practical activity involving specific mediating technologies, professionals, institutions, and practices.

Picture research emerged as a profession in the twentieth century thanks to the expanded market for mass-reproducible illustration that was enabled by photography. The historical practice of picture research is therefore intimately bound up with the history of photography as a technology of mass reproduction in a way that historians of photography have tended to overlook. When digital technologies of image capture and transmission began to replace photographic ones in the early twenty-first century, it deeply affected the work of picture research. In the same way that photography remains present across the wealth of digital media that shape our daily lives now, however, the legacies of picture research persist in the vast collections of digitized photographs, books, and other historical documents consulted online by millions every day. Once we recognize this, it becomes clear that the work of collecting, archiving,

and researching, which shored up the pictorial economy of the twentieth century, also belongs to a deeper media history of digitization. In this respect, *Picture Research* can be read in conjunction with Sean Cubitt's *The Practice of Light: A Genealogy of Visual Technologies from Prints to Pixels*, which accounts in detail for the myriad of practical ways in which visual media have come "to work the way they do."[2] Where Cubitt presents "a history of materials and practices" involved in "making things with and about light," I offer a history of people and practices involved in helping photographs—pictures made with light—do their work of being looked at.

Twentieth-century practices of accumulating cultural assets by means of photography, and the historical conditions under which those practices developed, are not simply a matter of interest to historians of photography and visual culture. Archives, libraries, and museums of every kind are constantly seeking to meet ever-increasing expectations of direct access to digitized cultural objects by researchers, funding authorities, and the general public. In order for the digitized versions of collections to do justice to the documents, records, and artifacts they represent, it is imperative for those designing and doing the work of digitization to understand how those objects were initially acquired, collected, classified, and disseminated. Reading this book will help anyone involved in digitizing visual cultural artifacts to make sense of the cultural biographies that cling to photographic reproductions, whether they have circulated primarily as commodities or archival documents. Knowing how analog picture libraries and picture research worked will also be useful to researchers who find themselves working mainly with digitized historical sources consulted through online repositories, as it will add further layers of interpretation to these sources.

## Palpable Pictures and Immaterial Images

The objects, events, and representations discussed in this book all fall within the horizon of what I call the *pictorial economy*. I use this term to encompass the totality of picture-makers, pictures, and picturing techniques available at any given time, including the reproduction technologies, distribution networks, and cultural practices by means of which pictures are brought to the attention of viewers. The definition is inspired

by Lisa Gitelman's notion of a "scriptural economy," a term she has borrowed from Michel de Certeau to describe "the totality of writers, writings, and writing techniques that began to expand so precipitously in the nineteenth century."[3] The concept also bears more than a passing resemblance to Stephen Bann's notion of a "visual economy," which designates "the sum total of all the means of visual reproduction available" at a given time, including "the available means of publication and dissemination."[4] Deborah Poole has offered another conception of a visual economy, modeled on political economy, to describe an "organization" of the visual that "bears some—not necessarily direct—relationship to the political and class structure of society as well as to the production and exchange of the material goods or commodities that form the life blood of modernity."[5] This aligns with my idea of a pictorial economy in its emphasis on the social as well as material conditions that enable images to circulate.

In spite of these precedents, I prefer to speak of a pictorial rather than a visual economy. This is because I find the term *visual* too limited (restricted to the sense of sight) and at the same time too extensive (encompassing everything there is to be seen) to be productive in the specific context of this book, which is about ways of handling pictures more than it is about ways of looking at them. For similar reasons, I choose the term *economy* because it carries distinctive connotations to markets and commodities that are not as immediately generated by the word *culture*.[6] That said, the concept of a pictorial economy makes sense within the wider context of a visual culture only because the establishment of the former depends on the existence of the later. In short, a pictorial economy stands in relation to visual culture much in the way that a retail economy stands in relation to material culture.

Photography cuts across both pictorial economy and visual culture. For as long as it has been a technology for the production and reproduction of visual information, photography has produced a multitude of commodity forms—from family portraits and tourist views to pornographic scenes and scientific records—that have been traded across a variety of private and professional markets. Both as a technology for the manufacture of commodities and as a "bureaucratic medium" of registration, administration, and surveillance, photography's primary mode

of production has been that of inscription.[7] "The camera has always been part of a larger assemblage, like a computer wired to its peripherals," as photo historian John Tagg has observed.[8] The "inefficient chemical information-storage system" provided by pre-digital camera and film was but one cog a "machinery of capture" that required "the storage and retrieval system of the filing cabinet" in order to be complete.[9]

The photographs to be encountered in this book are for the most part products of this machinery: they are pictures produced as copies, records, or documents of *other* pictures, with the primary objective of being kept on file. Just as literary works are "statistically exceptional" instances that make up "a narrow segment of the historical printing and publishing history," as Matthew G. Kirschenbaum has noted, photographs produced for display on gallery walls or in magazines and newspapers form a negligible percentage of historical and contemporary photographic practices.[10]

"Writing was a tool of data processing well before it was a storage device for speech, let alone law or literature," John Durham Peters has observed.[11] Photography—"light writing" in Greek—has likewise been a tool of data capture and record management to an even greater extent than it has been a medium for self-expression. At least this has been the case until the pictorialization of instant communication across digital social media in recent years. The proliferation of text messaging, email, and social network sites may have led Peters to view "digital media" as "machines that convert everyone into writers," yet the photographic affordances of smartphone-based social media applications can just as surely be said to turn everyone into photographers.[12] As any number of messages are assembled from assorted emojis, GIFs, and visual memes retrieved from the inexhaustible sources of imagery that are readily available on the web, however, we might as well say that digital media are machines that turn everyone into picture researchers.

I deliberately use the word *picture* throughout this book, even in contexts—like online searches—when contemporary parlance might have warranted the word *image*.[13] My usage largely follows Mitchell's pragmatic distinction based, as he puts it, on the "vernacular" expression that "you can hang a picture, but you can't hang an image."[14] Pictures are, on this definition, the material forms in which images manifest themselves, even when these material forms are not necessarily hangable

in the way that an oil painting is. A JPEG file, for instance, cannot be hung on a wall; for that you would need to transfer its image content to another substrate, like an inkjet paper print. It is nevertheless a picture because the file format is a way of representing information that conjures up an image. And even in its seemingly immaterial form as data, the JPEG relies on hardware for its existence, just as a mental picture relies on a human brain for its manifestation.

In my slightly modified version of Mitchell's distinction, images are like information and pictures are like data, in the most basic definition of the latter term as the forms through which information may be apprehended.[15] Put another way, images are, like information, always open to interpretation, and their meanings can never be finally settled. The format or material manifestation of pictures, or data, however, can be determined and agreed upon. To give an example, two people may never agree on what is going on in Édouard Manet's *Bar at the Folies-Bergère* (1882), but they can both verify that it is an oil painting on canvas measuring roughly one by one and a third meters. Similarly, in a digitized surrogate version of the artwork viewed online it may be determined that the *image* of the painting appears in the *picture* format of a JPEG, although it is still possible to disagree about the extent to which this digitized picture accurately represents all the visual information contained in the original painting format.

The image/picture distinction is the foundational principle of the entire pictorial economy, which is kept going by the constant circulation of images through an equally constant iteration of pictures. In the course of the twentieth century, this circulation took on actual economic significance through the establishment of an entire field of cultural production, known as the picture industry, which is dedicated to its commercial exploitation. As I employ the term, the picture industry properly emerged about a century after the 1839 unveiling of the daguerreotype, which was the first viable photographic picture-making technology to be patented.[16] By the 1930s, the opto-chemical principles of inscription by light had been applied across a range of technologies to engender not just a medium for the quick and easy production of new pictures—photography in its conventional sense—but also a range of technologies for the mass-scale reproduction of existing ones. Photomechanical printing methods

enabled the industrial-scale manufacturing of commodities such as illustrated newspapers, magazines, and books, which in turn required access to a steady stream of pictorial content. The task of producing and procuring this content became the business of the picture industry.

The pictorial economy, as we recall, includes all kinds of pictures and picture-makers, as well as all the tools and practices both for making pictures and for sharing them. The picture industry, by contrast, is limited to the agents and apparatuses involved in the mass production and mass dissemination of what I call pictorial commodities. These are commodities that either derive or enhance their use value from visual imagery. They may take the form of the aforementioned newspapers, magazines, and books, but they are also encountered and consumed as websites, film and television documentaries, advertisements, corporate reports, public information material, or retail packaging. The picture industry capitalizes on the image/picture distinction by capturing immaterial images and materializing them in picture formats that can be incorporated in such commodities. Stock photography accounts for a large part of this business, but the picture industry extends beyond that field to include virtually any actor that has an economic stake in the commercial exchange of pictures, as distinct from the innumerable noncommercial exchanges that also take place within the overall pictorial economy.

Until the late 1990s, when design historians began charting the historical emergence of stock photography, the "pictures for rent" that are the stock-in-trade of the picture industry had languished under the threshold of interest among scholars of visual culture.[17] Although media and cultural studies had long traditions for studying and critiquing the visual content of advertisements, for instance, research in these fields tended to ignore the mechanisms by which many of the pictures featured in them came to be there. Like the "rented-out" pictures themselves, the picture industry as a system of cultural production was hiding in plain sight. Around the turn of the century, this changed. Books like Paul Frosh's *The Image Factory* and Matthias Bruhn's *Bildwirtschaft* brought serious attention to stock photography as a form of commodity capitalism producing the visual consumables of contemporary culture.[18]

This coincided with an increasing interest in the cultural legacies of photographic archives, which to some extent overlapped with a turn to

the materiality of photographs as objects, often conceived in opposition to the aesthetics of photographs as images. Archives and photographs were of course the two cornerstones of stock photography, and in the early 2000s they were both being destabilized by digitization—therefore the picture industry was, too. In hindsight it seems obvious that all of these fields of scholarly investigation were at some fundamental level responding to the perceived effects of digitization on their respective objects of research, be they photographs, archives, or stock photography. If nothing else, the quiddity of photographs and archival documents, which had thus far been taken for granted or failed to register as such, hove into view when confronted with or subsumed by their digitized versions.

In the pre-digital era, photographic prints and slides shared the same "transparency" in the sense that one tended to look past their material manifestations in order to see what was represented in them.[19] Prints and slides, hanging files, index cards, and filing cabinets were all "environmental" media, in Marshall McLuhan's sense of the term, in that they constituted the experiential horizon within which our dealings with photographs and archives took place.[20] For most people, including workers in the picture industry, there was no more need to reflect on silver halides, paper stock, or drawers being the building blocks of a photographic archive than there is for native speakers of any language to reflect on the grammatical structure of their sentences. "But in the case of environments created by new technologies," claimed McLuhan, "while they are quite invisible in themselves, they do make visible the old environments."[21] Like a native speaker realizing the particularities of sentence structure in their own language when learning to speak a new one, we are made aware of the old and comfortable environments when we are confronted with new ones. It is in keeping with this logic that the material infrastructures of photography first became recognizable as such when digitization seemingly began to disintegrate them.

An illustrative example is from the opening paragraph of Joanna Sassoon's frequently referenced text on "photographic materiality in the age of digital reproduction," published in 2004: "Digital images are produced without the intermediaries of film, paper or chemicals," it began, before going on to suggest that, due to their "direct conversion of light into a

digital format to create a stable image, 'photographs' that only exist in the digital form can be seen in one context as a truer version of photography (writing with light) than those that require the creation of a physical intermediary to view the image in a material form."[22] In practice, the digital capture of photographic images is just as reliant on intermediaries as chemical photography, only these intermediaries are not silver halide emulsions but light-sensitive CCD chips and their programmed reaction to exposure.[23] Compared to the time-consuming darkroom processing of photographic film and paper prints, digital photo processing is so fast, automatized, and invisible inside the "black box" of the camera computer that its very instantaneousness makes the resulting image seem transparently immediate.[24] The digital technologies that make up the "new environment" are in this respect doubly invisible because manufacturers consistently hide their proprietary processing technologies from view, either by creating impenetrable layers of physical protection around devices or by enlisting patent law protection over algorithms.

The combined effects of digital technologies being both new and predominantly black-boxed go some way to explain why the digitization of photographs was often described as a process of dematerialization in these early years of the century. Frosh argued that "digital technologies, by dematerializing and reconfiguring the photograph before our very eyes . . . disenchant photography just as photography disenchanted the visible world."[25] Much of the writing that in these years attended to the materiality of photographic objects worked against this tendency, implicitly seeking to re-enchant photography by re-materializing the photograph as "a three-dimensional thing, not only a two-dimensional image."[26] In their introduction to an influential essay collection that in many ways epitomized the material turn within photography studies, Elizabeth Edwards and Janice Hart considered that "in the digital age . . . the materiality of many images evaporates into a series of electronic pulses."[27] In the same volume, Sassoon wrote of digitization as a "translation from the material to the digital image," while Joan M. Schwartz considered it a hallmark of "this age of electronic images and digital reproduction" that "the photograph is often circulated and viewed as a dematerialized, decontextualized image."[28] My own contribution to this debate, slightly later in the decade, proposed that digitization extracted

"the use value of the image from the paper print and transferred it to the immaterial format in which the image will henceforth be stored and exchanged."[29]

Photo-materialist writing of this kind typically pitched a brief and unspecified concept of an "immaterial" digital image against the glorious materiality of exemplary historical photographs, ideally bearing the marks of having been circulated as souvenirs, commodities, or scientific documents, or incorporated into other items of material culture, such as albums or lockets. The exemplars were frequently drawn from museum collections or institutional archives, and even when the main objective of the study may have been to determine and interpret the "cultural biography" of the thing itself, this often uncovered details about the networks through which the object had traveled.[30] An explicit objective of this strand of research was moreover to supplement and expand the traditional purview of photographic history. Having been cast in the mold of art history, this had so far "fallen short," as Geoffrey Batchen put it, of "ordinary, commercial photographic practices."[31]

The object-oriented writers on photographic materiality and the system-oriented critics of stock photography in many ways seemed to have wildly diverging approaches and objectives. Yet their interests converged around photography's role in the production, distribution, and consumption of "ordinary" pictures that are designed to be incorporated into other objects, whether frames and lockets or feature articles and advertisements. They also shared an impatience with dominant disciplinary paradigms, both within cultural studies and photo history, that privileged the analysis of "image content" seen in virtual isolation from material support, and interpreted without due regard for the means and systems of production, as well as circulation and consumption.[32] It is unimportant whether either of these bodies of work were knowingly or unknowingly prompted by the absorption of photography into the invisible environment of digitization. The effect remains that by bestowing scholarly attention on the transient and overlooked cultural forms of photography, these writers ensured the consecration of these forms as durable objects of research, worthy of serious attention. The seed to the present book was sown precisely at the intersection of these two discourses, where I found something missing, namely, the human factor

represented by archivists, librarians, and picture researchers working at the interface between such ordinary photographs and their publics.

This gap in the literature has been gradually filling in over the past decade. Studies by Estelle Blaschke and Diana Kamin have documented the lasting legacies of several early twentieth-century photographic picture collections, as well as some of the influential librarians and archivists who put them together.[33] A recent archival study of the famous Magnum Photos collective by Nadya Bair has directed attention away from legendary photographers and onto the crucial roles of picture editors, agents, publishers, and other auxiliary professions in developing the postwar market for photojournalism, while Zeynep Devrim Gürsel has explored the impact of digitization on current-day "image brokers" in news organizations working to bring contemporary photojournalism and wire agency pictures to global audiences.[34] All of these studies draw attention to the picture industry's reliance on what Peters calls "brokers and intermediaries," whose "medium-specific tactical skills," honed across picture collections in both public and private organizations, were instrumental to the efficient circulation of photographic commodities in the rapidly expanding pictorial economy of the twentieth century.[35]

Intermediaries are, broadly speaking, actors who "make markets work."[36] In economics, any agent that facilitates transactions between producers and consumers is defined as an intermediary. Sociologists and cultural studies scholars have developed the term "cultural intermediaries" to describe those professions operating "at the intersection of culture and economy, [where] they perform critical operations in the production and promotion of consumption, constructing legitimacy and adding value through the qualification of goods."[37] This concept is helpful in describing the roles fulfilled by picture librarians, researchers, and archivists in the picture industry because it implies, correctly, that any trade in pictures relies on the circulation of cultural as well as economic capital.[38]

## Ideas of Intermediation

The work that intermediaries do is what I call "the work of intermediation" in this book. Throughout the chapters that follow I use it as an analytical anchor that signifies the productive contribution of the

go-between in the space between pictures and their audiences. While I generally attribute this work to a human agent, such as a librarian or researcher, it is nevertheless a process that also involves nonhuman tools and technologies. Earlier, we saw the concept of physical intermediaries invoked to describe the functions of emulsion film, photographic paper, and chemical processing agents in the production and circulation of pre-digital photographs. The digital capture and display of images is equally reliant on the hardware and software of computational processing, as already noted.

Literary critic Katherine Hayles has adopted the term *intermediation*—seemingly without regard for its specific meaning in economics—to theorize the "dynamics of human-computer interaction."[39] In this understanding, the prefix *inter-* does not indicate a third-party go-between, mediating between two actors, but rather a dynamic relational process in which two or more agents of mediation (human or nonhuman) are to-ing and fro-ing among themselves. Intermediation is a way of accounting for the intricate "feedback loops [that] connect humans and machines, old technologies and new . . . , analog processes and digital fragmentations" that, according to Hayles, resist the "linear causality" that characterizes much thinking about so-called new media.[40] Citing the influential writings of Friedrich Kittler and Lev Manovich as examples of a "tendency to regard the computer as the ultimate solvent that is dissolving all other media into itself," Hayles proposes intermediation as an alternative framework for understanding the ongoing "interactions" between digital and pre-digital media.[41] In the chronologically ordered chapters that follow this introduction, I mobilize both the economic and the media-theoretical conceptions of intermediation at different moments.

It is ironic that Hayles should have chosen the term *intermediation* to designate an analytical framework developed for the study of digital artifacts. For if digitization has been expected to deliver one thing, it is not intermediation (in the economist's or sociologist's sense of the term) but rather disintermediation. In economics, this is what happens when intermediaries are bypassed in some way, so that consumers or users can get direct access to the goods held or produced by suppliers.[42] Frequently glossed as "cutting out the middleman," the concept of disintermediation has also been intermittently deployed in media studies.[43]

Communication theorist Elihu Katz traced the phenomenon back to the Protestant Reformation, when the printing of Bibles in vernacular languages enabled people to "reach God directly . . . rather than through the intermediacy of the priest."[44] Katz sketched out two paths that disintermediation can take: either the sender addresses an audience directly, in order to exert influence over the traditional intermediary, or the sender tries to dispense with the function of the intermediary altogether, but in fact ends up merely replacing it with another mediating agent.

Politics provides illustrations of both these variants. In the twentieth century, democratic leaders and dictators alike would address the public directly over radio in connection with important events. In the twenty-first century, meanwhile, presidents and prime ministers are routinely bypassing edited media outlets and using social media networks to communicate with core supporters as well as to put pressure on the traditional intermediaries of government, whether bureaucrats, elected representatives, or members of the judiciary. The prescient historical overview that Katz first outlined in 1988 is a useful reminder that media have—paradoxically—been deployed as agents of disintermediation long before the existence of digital communication networks. It is nevertheless clear that internet-based platforms for communication and commerce have made disintermediation a business model in its own right.

Disintermediation by digitization is virtual in a double sense, first, because it takes place on digital platforms, and second, because it is for that very reason not actual disintermediation but rather "reintermediation."[45] The travel industry is a textbook example of this process. Travel agencies were rapidly going out of business from around 2000; their knowledgeable staff were bypassed as airlines, hotels, and tourist authorities started offering travelers direct online access to travel advice and booking systems. At the same time, third-party platforms providing aggregated access to the booking systems of airlines and hotels were establishing themselves as the new, indispensable intermediaries between the public and its next holiday. Online booking platforms may have disintermediated travel agents in their incarnation as people possessing certain kinds of professional knowledge and experience, but only to automate the services rendered by those agents as algorithmic search engines in online databases.[46] Thus the travel industry of the 2000s illustrates the stubborn

dynamics of intermediation, in which cutting out a "middleman" almost inevitably gives rise to new, if slightly different intermediaries. The story of the travel industry around the turn of the century is remarkably similar to that of the picture industry in the same period, as chapter 5 will show. In both cases, the technology that first acted as an agent of disintermediation turned out to be an agent of reintermediation.

The technical process of creating digital surrogates for existing documents, records, and artifacts relies on optical instruments such as cameras and scanners that derive from photographic technologies. Photographs furthermore make up a considerable bulk of the documents, records, and artifacts that have so far been digitized. This relationship between photography and digitization is played out in chapter 6, which considers two examples of how photographs come to be digitized. These illustrate the feedback loop between analog and digital media, identified above by Hayles, where two technological systems interact with and intermediate each other. While there is little doubt that digitization has disintermediated photography as a technology of capture and accumulation throughout the picture industry, my suggestion in chapter 6 is that we also think about it the other way around, recognizing how photography has intermediated digitization. Like "the mother's body is forming the fetus," as Hayles puts it, "the fetus is also re-forming the mother's body."[47] And as photographic technologies, documents, archives, and libraries have given shape to digitization, so digitization has reconfigured—recoded, if you like—the aesthetic form as well as the informational content of those same technologies, documents, archives, and libraries.

The work of intermediation manifests itself in a variety of ways, and may be studied through a range of research objects. The case studies analyzed in this book are pictures and printed texts that I have chosen for their ability both to illustrate and to embody the material practices involved in this work. They include a visual joke circulated by means of lithography in the 1830s, the back of a photographic print from the 1950s, an outdated handbook from the 1970s, a television drama from the 1990s, a printed brochure from 2004, and a photographic transparency of unknown date, digitized in 2013. I consider these media artifacts as carriers of meaning, of course, but equally as what media theorist Wolfgang Ernst calls "archive[s] of cultural engineering," documenting the

material histories of their own making.[48] In this respect my approach has affinities with the field of media archaeology; however, it is probably better designated as a form of media antiquarianism. The main difference, as Ernst himself has explained, is that while the true archaeologist "goes so far as to exclude any human presence from the representation of the material past . . . the antiquary must always intervene by singling out an object and telling its story."[49] If there is one thing that the stories I have to tell in this book have in common, it is that the objects I have singled out to write about speak of a human presence.

## Machineries of Intermediation

Photography and digitization are both terms that were initially coined to describe specific technical processes and ended up designating cultural phenomena. It can be hard to agree on definitions of these terms when trying to pin them down as objects of research and analysis, and possibly even harder when adopting them as markers of historical time. Defining the period covered by this book as running from pre-photography to post-digitization, I have effectively designated photography and digitization as events, which they are not, of course, in a regular sense. The purpose is rather to indicate how the work of intermediating between pictures and their publics has been shaped by cultural and technological practices carried over from before the emergence and eventual dominance of photography as a medium of mass visual reproduction, and how photography in its turn persists beyond its ostensible disintermediation by digitization.

The double-aspect conception of television as both technology and cultural form developed by Raymond Williams can provide one model for understanding "photography" as a set of entangled relations between hardware and infrastructure, on the one hand, and practices that make use of them, on the other.[50] At the level of technology, photography combines earlier inventions such as the camera obscura and light-sensitive emulsions in order to produce mechanical inscriptions of visual information. At the level of cultural form it both reproduces older, existing forms like portraits or landscape views and allows for the emergence of new forms like the snapshot and the mug shot.[51] While the concepts of

technology and cultural form may be adequate to describe what photography is, however, they do not quite convey how it has been put to work in the modern pictorial economy. Tagg's previously cited concept of photography as a machinery of capture comes closer to describing it. Yet in order to account for the various ways in which photography enabled not just a new mechanized making of pictures but an unprecedented industrial-scale sharing of them, we also need to acknowledge photography's embeddedness in machineries of accumulation, extraction, and transmission, which in turn serve the purposes of intermediation.

The examples analyzed in this book offer glimpses of these machineries at work, the functions that photographic technologies and cultural forms fulfill within them, and the ways in which they interlock with other components of each machinery. Once apprehended by photographic capture, the accumulation of pictorial records and documents requires practices of collecting, archiving, copying, and storing that are the traditional remit of intermediaries like archivists, picture librarians, curators, and connoisseurs. This machinery permeates all the chapters of this book, but it is especially palpable in chapters 2–4, which explore photographs, texts, and moving images representing picture librarians at work.

The creation of value through and from such accumulations of photographs is made possible by methods of extraction that range from collection owners charging fees for the reproduction of their photographs to researchers mining photographic archives for visual historical documents. Epitomized in the concept of intellectual property that forms the central topic of chapter 1, mechanisms of extraction also include practices of (re) search and retrieval in analog picture libraries (chapters 2–4), appraisal and collection of historical or discarded pictures for future exploitation (chapter 3), and selective digitization of analog holdings for commercial or public distribution (chapters 4 and 5).

Finally, I call the machineries of transmission those organizational as well as infrastructural channels through which pictures are distributed, disseminated, published, networked, shown, seen, and otherwise shared across both time and space. In chapter 1, they come into view as the print shop windows, scrapbooks, and albums in which nineteenth-century lithographs and photographs were most frequently encountered, but also as a CD-ROM from the 1990s, filled with illegitimately scanned

reproductions of artworks. In chapters 2 and 3 transmission channels are exemplified by printed periodicals for a seemingly ever-growing mass market, as well as by the various means of surface and airborne communication that were involved in getting pictures from suppliers to clients and back again. And as chapters 4–6 tumble into the contemporary era, virtually all avenues of transmission have been reintermediated, along with those of capture, accumulation, and extraction, in the machinery of digitization.

Just like television and photography, digitization can be described as a constellation of technologies and cultural forms, in the sense that it combines existing technologies of computing and visualization, incorporates and modifies established cultural forms (from news and advertising to personal letters and self-portraits), and facilitates new cultural forms like websites and multiplayer online games. Unlike television and photography, however, the term *digitization* clearly designates a process rather than a medium. In that respect, digitization is more like globalization or industrialization, in that it describes at once a number of practical, technical, and material processes, and a set of abstracted cultural, social, and political processes. At the very basic dictionary-level definition, digitization is a process of making something digital that was not digital before. This description may apply to something small and specific, such as the digital capture of an image contained in an "analog" photographic paper print. It may equally apply to something as large and unwieldy as the technology-led transformation of an entire society, such as "the digitization of America."[52]

Some writers have argued for a distinction to be made between "digitization" as a term denoting the technical process of making digital and "digitalization" as a term describing the cultural adoption of digital technologies.[53] I do not find this distinction useful enough to adopt, and will use the term *digitization* to cover both aspects. One rationale for this choice is that the examples of digital resources discussed in this book are not "electronic documents" originally captured or produced on networked digital devices but rather surrogates of historical, analog, visual materials that have been produced by means of a digitization process.[54] Another reason is that it is precisely the connotations of a technical and material procedure of acquisition, reproduction, and exploitation that

lend digitization its power as a concept through which to apprehend broader processes in culture and society since the late twentieth century. Digitization works in this respect as a collective term for the relentless processes of capture, accumulation, extraction, and transmission of information that have come to dominate everyday life.

Sheltered behind its primary meaning as a material process of making digital, the concept of digitization is able to do a lot of ideological work. Under the modified rubric of "mass digitization," generally applied to large-scale undertakings to make whole collections of cultural objects available online, it has "attained the status of a cultural and moral imperative and obligation," as Nanna Bonde Thylstrup has observed.[55] Corporate organizations like Google and public cultural memory institutions like libraries, archives, and museums have all adopted a variety of strategies (often in collaboration with each other) in order to "get digitization done." Yet the question of why or whether it is necessary or desirable to digitize at all is rarely raised outside critical scholarship.

The public rhetoric of mass digitization as a task that simply needs doing is exemplified by two statements emanating from two national memory institutions in Norway and Canada. First, the former National Librarian of Norway articulated the following circular argument, on the occasion of the official opening of the National Library's digitization factory in 2012: "As more and more [material] becomes digital, it is important to digitize that which is not digital to ensure that it will not be forgotten."[56] And second, a promotional video posted the same year on the Library and Archives Canada website stated that "the future is digital. Converting as many of our assets as possible into digital form means they have the best chance of standing the ultimate test . . . the test of time. When you convert documents, films, paintings, photographs, music into digital form, they are no longer the prisoner of their original format."[57]

These two statements illustrate that, like all imperatives and obligations, the digitization imperative appears both ahistorical and apolitical—just doing what needs to be done—when it is of course a phenomenon tied to a particular historical moment and a particular kind of politics. This is effectively a politics of intermediation, in the economic sense of the word. Seeking to control transactions between suppliers (e.g., libraries, archives, museums) and users (e.g., readers, researchers, visitors), it

operates at macro, meso, and micro levels, across global, national, and local contexts, as well as in public, charitable, and corporate organizations. The political aspects of digitization manifest themselves in this book through an intellectual property dispute over digitized reproductions of artworks examined in chapter 1, the digital platformization of the picture industry, which looms on the horizon in chapter 4 and becomes a lived reality in chapter 5, and the precarious labor involved in large-scale digitization projects, which comes to light in the sixth and final chapter.

## From Pre-Photography to Post-Digitization

The work of intermediation takes many forms in this book, as it proceeds in chronological order from the pre-photographic world of printmaking, via the photographically enabled work of picture librarianship and picture research, to the laborious procedures of digitizing photographs for online distribution. Part I, "Before Digitization," covers the best part of two centuries in the course of three chapters, while in part II, "Under Digitization," the same number detail developments that span little more than thirty years. Each of the six chapters that follow is centered on a concept, object, institution, or practice that somehow represents or crystallizes the particular period in which it is set.

In chapter 1, the concept is copyright, a legal institution without which there would be no picture industry. This chapter explains the legal conditions for mechanical reproduction and mass distribution of pictures before photography entered the market, discussing the intermediary functions of drafters, printers, and photographers as well as their roles as economic agents in a pictorial market economy.[58] Juxtaposing the moment just before photography was invented in the 1830s with the moment just as digitization was rearing its head in the 1990s, chapter 1 explores how the law regulated relationships between those who created original pictures and those who brought reproductions of those pictures to a mass audience, as well as the legacy bestowed by the business practices of pre-photographic intermediaries such as engravers and printers on a photographic picture industry confronting digital disintermediation.

The library is the key concept of chapter 2, designating the central production unit of the postwar picture industry. Set mainly in the 1950s, this

chapter finds the picture industry proper coming into its own, as mature photographic technologies of both image capture and document reproduction contribute to an acceleration in the market for illustrated periodicals. Focusing on a photograph of the picture-industrial production line, it reads this representation in tandem with a set of guidelines on efficient picture librarianship that was published around the same time, to show how pictures were accumulated and processed for reproduction across the expanding range of illustrated print commodities, and what tools and systems existed for classifying, preserving, and searching through pictures stored in paper and emulsion formats. Considering who performed this work of intermediation, and what kind of skills and knowledge they needed to carry it out, this chapter further reveals the picture library as a gendered workplace, which nevertheless offered white-collar women a rare environment in which to forge a career in the early postwar period.

Chapter 3 focuses on the central theme of research, the work of intermediation that brought the contents of libraries to the attention of viewers. This chapter exposes the many stages of intermediation involved in procuring and producing pictorial commodities during the period in the mid-1970s when a truly global market for stock photography emerged. Its protagonists are Hilary and Mary Evans, who together founded the eponymous Mary Evans Picture Library in London and edited the *Picture Researcher's Handbook* across eight editions from 1975 until 2006. Through a close reading of the first edition of this handbook, this chapter reveals how its recommended standards of good research practice reflected the affinities between researchers and collectors as cultural intermediaries with an ability to transform the significance of an object by the power of their knowledgeable attention.

Part II of the book opens with an exploration of intermediation as a performance of search and re-search in a library setting. Chapter 4 sees the arrival of digital technologies to disrupt established practices of picture librarianship and picture research in the 1990s. It shows that everyday experiences of digitization occurred more in the realm of discourse than of lived reality until the end of that decade by analyzing a television drama set in a picture library that showcases the picture librarian as a highly skilled cultural intermediary. Reading this fictional representation

alongside contemporaneous research by information scientists seeking to automate the work of intermediation performed by picture librarians, this chapter explores the expectations that picture professionals harbored about the capabilities of digital technologies to enhance the work of capturing, accumulating, extracting, and transmitting pictures to a public, as well as the affordances offered by picture libraries, which in return could serve the purposes of digitization.

Disintermediation characterizes chapter 5, which picks up when the efforts of information scientists to reconfigure picture research as a problem for computing had come to fruition in the early 2000s. Focusing on the digital disintermediation of traditional picture libraries and the reintermediation of picture research through platformization, exemplified by Getty Images, the chapter shows how digitization solved specific problems inherent to the work of accumulating, extracting, and transmitting pictures, and that the particular solutions it offered had consequences both for the business models of picture libraries and for the work of picture research. Giving voice to practicing picture researchers interviewed during the period, it also demonstrates how individuals experienced the disintermediated search offered by online platforms as empowering in comparison to having their search terms interpreted by human intermediaries in the form of picture librarians.

Finally, chapter 6 illustrates the concept of reintermediation in the 2010s through visual evidence of the labor of digitization itself—the practical processes of rendering of photographic originals into digital surrogates—that enables the disintermediation represented by searchable online repositories. In this chapter, Hayles's notion of intermediation as mutual feedback comes particularly to the fore as I explore the dynamic relations between photographic and digital reproduction technologies first in a series of documentary digital photographs showing digitization activities, and then by tracing the digitization history of one individual photographic slide. This chapter also develops the concept of post-digitization to denote a pattern of behavior that assumes everything worth seeing or reading will already have been digitized.

Across its six chapters, this book traces a history of the modern pictorial economy through the work of intermediation that has been successively

enabled by pre-photographic, photographic, and digital machineries of capture, accumulation, extraction, and transmission. In doing so it makes visible and explicit the invisible labor that has built and still sustains the visual commodity culture that has characterized everyday life in the global north for the best part of a century. Intermediation is like infrastructure in the sense that as long as it's working, we don't notice it. Lifting the lid on the machineries of intermediation to show their working, this book shows why and how it matters.


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