Introduction

An unpublished manuscript entitled "Honzō sjasin," compiled in 1826 by the scholar Mizutani Hōbun, first revealed to me that a vital part of the history of nineteenth-century Japanese visual culture had yet to be written. The term shashin, I discovered later, would be the keyword to apprehend the interconnected fields of visual culture and scientific studies in Tokugawa Japan.1 The manuscript resides today at the Special Collection of Leiden University Library as part of the collection of books and maps amassed by Phillip Franz von Siebold, a German physician who worked in Japan at the Dutch factory from 1823 to 1829. I had initially traveled to Leiden in search of a Japanese zograscope, a viewing device for vue d'optique (uki-e) brought back to Europe by Siebold. The uki-e prints, which gained popularity around the end of the eighteenth century, employ one-point linear perspective, and when seen through a zograscope they create an optical illusion that gives the viewer a sense of receding and expanding space. This device is one of the few extant examples of its kind produced in Japan before the latter half of the nineteenth century. As transparent transmitters of light, lenses are often overlooked in studies of visuality, yet lenses for uki-e were often opaque and warped, unintentionally calling attention to the mediating mechanism of the lens itself. The way the materiality of the *uki-e* lenses underscores the refracting of light—the lenses' alteration rather than mere transmission of the light—provides a metaphor for how conceptual categories and frameworks of knowledge similarly shaped practices of representation and the reception of photography in Japan.

The manuscript "Honzō sjasin" crystallizes in its very title the question of the impact of concepts and discourses upon Japanese visual culture. The first part of the title, honzō, refers to a discourse on materia medica, the medicinal properties of plants and minerals. Honzōgaku, the study of materia medica, was integral to medical training in early modern Japan. The other word in the title, sjasin, is a nineteenth-century rendering of the word now Romanized as shashin. In contemporary Japanese shashin means "photography." But the medium did not exist when "Honzō sjasin" was compiled. The invention of photography was announced years later on another continent (in 1839 in France and England) and did not reach Japan until the 1850s.² Exploring what the term shashin—"transposition (sha) of the real (shin)"—meant to the manuscript's author and his circle in 1826 opens a window onto the sophisticated relationship posited between seeing and knowing. This relationship rested upon a premise of fidelity in visual representation that would shape artistic practices, including photography, for decades.

Around 1828, a few years after compiling "Honzō shashin," Mizutani Hōbun founded the Shōhyaku-sha, a small group of scholars with an interest in materia medica (honzōgaku) based in Nagoya, the castle town of the Owari domain. Many were practicing physicians and pharmacologists, while others worked in the employ of the government bureaucracy. Still other members were directly engaged in agriculture as farmers and gardeners. The Shōhyaku-sha (the Society of One Hundred Tasters) took its name from the story of Shen Nong, a mythological Chinese god of agriculture and medicine who was said to have tasted one hundred plants in order to find the correct natural preparations to cure a given disease.⁴

"Honzō shashin" exemplifies a group of materials—some printed, others left as manuscripts—produced by Shōhyaku-sha, which remained active through the Meiji Restoration of 1868 and into the mid-1880s. But "Honzō shashin" is also only one part of an extraordinary archive comprising objects and images ranging from specimens of dried plants and minerals to numerous botanical illustrations in etching, ink rubbing, and woodblock. The activities of the Shōhyaku-sha were many and varied: they made excursions to collect botanical specimens, organized exhibitions of materia

medica, and printed and published their findings. In addition to their public activities, the group also got together to share and examine ideas, and exchange texts, objects, and scientific instruments.⁵ None of the members of the Shōhyaku-sha, including those most directly responsible for production of the extraordinary quantity and array of extant images, fits easily into a discursive field of art history, the discipline in which I am trained. As art historians Kitazawa Noriaki and Satō Dōshin have demonstrated, the categories of "art" (bijutsu) and "art history" (bijutsushi) were not readily available frameworks before the Meiji period; rather, it was the concerted effort of the Meiji bureaucrats who actively applied and refined these concepts through their exhibition practices and institutionalizations of artistic production in Japan that cemented these categories as meaningful and useful sources for their nation building.6 The textual and pictorial records produced by the Shōhyaku-sha do not fall within this trajectory of art and its history. Indeed, the diversity of repositories in which their work is held today—art museums, libraries, natural science museums, and botanical gardens scattered across Japan and Europe—attest to the difficulty modern disciplines face in attempting to capture the interconnected and interpenetrating aspects of the group's activities.7

"Honzō shashin" consists of seventeen botanical images, fifteen of which were drawn in great detail, one a mere sketch, and one an inked impression of a plant (see Fig. 1.1 in Chapter One). Each image is accompanied by the name of the plant in Japanese and Chinese, with no other text. This stark juxtaposition of image and text in two languages underscores one of the central concerns for the group: naming, particularly with matching the Chinese names found in imported texts such as Compendium of Materia Medica (Bencao gangmu) to the local flora of Japan.8 Indeed, many of the major publications by members of the Shōhyaku-sha, such as Clarification on the Names of Things (Buppin shikimei, 1809) by Mizutani Hōbun and Nominal Differentiations in Western Materia Medica (Taisei honzō meiso, 1829) by Itō Keisuke, are records of their efforts to concretize the relationship between names and things by reexamining the Chinese canon of materia medica within the context of the local environment and the importation of Western texts on natural history. The representational practices that the Shōhyaku-sha engaged in throughout the nineteenth century hinge on securing the relationship of fidelity among textually rendered knowledge, illustrations, and the existent plants native to Japan. The recursive probing in their study of materia medica that entailed correlating published knowledge

with their own experience and observations required that all three spheres of their knowledge function together and mutually reinforce one another.

The Shōhyaku-sha emerged from a line of inquiry that began over a century earlier with Kaibara Ekken, an influential Neo-Confucian scholar and an avid practitioner of traditional pharmacology. In his Materia Medica in Japan (Yamato honzō), published in 1709, Ekken noted the wide disparities between the plants and minerals catalogued in the Chinese canon of materia medica and his own environment. As a result of this observation, he urged a refocusing within the study of materia medica from faithful memorization and recitation of the Chinese text to a more flexible approach that reconsidered Chinese knowledge within the context of a Japanese ecology. Ekken thus sought to recalibrate the relationship between texts and reality. In the century that followed, a variety of scholars such as Inō Jakusui, Ono Ranzan, and Hiraga Gennai began a turn toward an encounter with things-plants, trees, minerals, animals, birds, fish, and insects—as well as noncanonical texts of natural history—Dodonaeus's Cruijdeboeck (1544) or Johannes Jonstonus's "Zoological Album" as it was known (1660),9 for instance—to address what they saw as a widening gulf between the ossified world presented in the Chinese canon and the living environment to which they increasingly redirected their attention.10 These scholars were trying to "make sense" of the world by correlating the two, an endeavor that resonates with Peter Dear's deeply historicist conviction that "the world pictures that we believe in owe much more to what we find plausible than to the way the world 'really' is: their acceptance, rather than being determined by the natural world itself, depends on the ways in which we choose to live in the world."11

The members of Shōhyaku-sha were distinguished by an emphasis on the medical utility of this body of knowledge. What was at stake for the eighteenth-century predecessors of the group was a discrepancy between representation and reality, but their concern still remained largely theoretical and abstract. The rectification of names was here not tied to the specific efficacy of the *materia medica* in treatment but rather to a broader reordering of classificatory systems and reimagining of natural world. For the Shōhyaku-sha, the concerns were more immediate and more practical: the medical efficacy of the materials they studied, and their use in treating the patients they saw daily as practicing physicians.

These underlying conceptual and pragmatic motivations inform how the imagery in Hōbun's manuscript participates in the process of naming and knowing alongside the Chinese and Japanese texts, a process that is most

effectively explored through the term *shashin* in the manuscript's title. The manuscript lacks a preface or any other written indication explaining the use of this term. The mixture of drawing and inked impressions of plants in the manuscript indicates that whatever specific meanings shashin had for the manuscript's author, they were not tied to one specific medium. Art historians who have traced the shifting meanings of the term shashin argue for a close connection between the history of this concept and the emergence of the practices of pictorial realism in Japan beginning in the late eighteenth century.¹² Originating from discourses on portrait painting in the late Han period, the term came into common use in Japan during the eighteenth century among literati painters influenced by theories and images of Ming visual culture. 13 While in China the term shashin (Ch: xiezhen) was distinctly used for portraits, and shasei (Ch: xiesheng) for flower and bird paintings, in Japan shashin came to encompass both subjects. Two decades later, those scholars who took to Western learning (rangaku) began to reappropriate the term as a concept that designated Western pictorial methods. Shiba Kōkan, a late-eighteenth-century painter and printmaker and one of the early exponents of Western theories of pictorial representation, deployed the term to describe a "method" absent in the representational traditions of China and Japan, in his 1799 Discussion of Western Pictures (Seiyō gadan). For him, the method of shashin would "give an illusion to the viewers that the depicted subjects are about to move out of the picture." 14 This shashin method, in his estimation, made indigenous modes of representation appear "similar to children's play." 15 Six years later, Kōkan would pair this method with a device when he referred to camera obscura as shashin kyō (literally, "lens/mirror that does shashin") in Dutch Navigation (Oranda tsūhaku, 1806).16

Kōkan's approach to picture making and his uses of the term *shashin* have come to be accepted as standard for the entirety of the early modern discourse on *shashin*. Historians of Japanese photography perceive the association Kōkan made among the pictorial techniques of Western pictures, the device of the camera obscura, and the term *shashin* as a kind of originary moment that would lead more than fifty years later to the equation and conflation of photography and *shashin*.¹⁷ Historians of paintings and prints, on the other hand, use the same term to refer to the emergence of an early modern discourse of realism in Japan. As a result, the advent of photography in Japan becomes a telos in scholarly accounts of the history of medium toward which the term *shashin* invariably points.¹⁸ In such a narrative, the

question of whether and how a photographic image corresponded to what was in front of the camera, and how viewers perceived the images, become obscured by an overgeneralized teleological conception of the term *shashin* as already embodying pictorial realism and an affinity for Western pictorial traditions. In other words, the conflation of the pictorial method with the device in Kōkan's writings is taken as the self-evident statement that *explains* why photography would later be called *shashin*.

Yet Kōkan's own attitude toward representation and his practices as a maker of images can account neither for the diverse ways in which this term shashin was used from the late eighteenth century onward nor for the array of surviving pictures that were considered by their makers and viewers as shashin. Indeed, this obsessive focus on a single genealogy of shashin running through the figure of Kōkan, which was only part of a larger discourse on the transposition (sha) of the real (shin), has flattened out of the complexities and ambiguities that inhered in discourses on representation that cross a number of modern disciplines, ranging from art history proper to the histories of science, medicine, and technology.

The "Honzō shashin" evinces precisely this problem with the prevailing scholarly understandings of shashin and the histories of visual representation in nineteenth-century Japan, since the illustrations in the manuscript neither accord with Kōkan's notion of illusionistic effect nor were produced with Western devices for picture making such as the camera obscura. It was a meeting in Nagoya in 1826 of some of the future members of Shōhyaku-sha and Phillip Franz von Siebold that led to the German physician's possession of the manuscript now kept in Leiden. Siebold has long been understood to be one of the central figures in the introduction of Western scientific and medical knowledge to Japan. The Shōhyaku-sha occupies a complementary role in accounts of the history of science in Japan, and the group is now primarily remembered and celebrated as a liaison between the "premodern" science of the Tokugawa era and the practices of "modern" science institutionalized by the Meiji government. Yet the process through which Hōbun and the Shōhyaku-sha came to understand and even to transpose "Western science" was very much guided by practical concerns, and dependent on a language and conceptual framework that they brought to, rather than took from, their encounters with "Western science."

The future members of Shōhyaku-sha had requested the 1826 meeting with Siebold in part to inquire after the proper Linnaean names for the plants that would later be represented in "Honzō shashin." This meeting

superficially validates conventional narratives of Western scientific progress that attach primary importance to the understanding and implementation of scientific theory-whether Linnaean nomenclature or the Copernican heliocentric model of the solar system—in constructing a teleological account of the advance of knowledge.¹⁹ Underlying this narrative of movement from premodern to modern is the assumption that characterizes the study of materia medica prior to the introduction of "Western science" as an activity incommensurable—and antithetical—to modern science. These narratives construe instances such as the meeting between Siebold and the Japanese physician-scholars as moments of active transmission by Europeans and passive inculcation of a theory by the Japanese that signifies the "leap" necessary to the development of proper science. Hōbun and Keisuke's investigation of Linnaean nomenclature is thus interpreted as an indication of their farsightedness in anticipating "modern science," rather than a historically driven curiosity that was grounded in their studies of materia medica. This understanding obscures the vital roles of practice and representation in mediating and forming knowledge of the world, and it overlooks the consequences of mingling scientific ideas with discourses on visual representation for the practice of science and Japanese visual culture. Methodologically, my approach in this book emphasizes the material as an integral part of scientific practice within which linguistic and conceptual understanding of the scientific theory was articulated and secured.²⁰

Thus we return to the key term, *shashin*, with which I opened the introduction. At the center of the Shōhyaku-sha's translingual negotiation—and the intersection of epistemologies that it represents—lies this term, which traces its origins back a millennium to Han China. But the term is not easily reducible to any of its constituent parts; it is of Chinese origin used to represent a collection of pictures of Japanese plants. Yet *shashin* is not peculiar either to this manuscript or to this encounter; rather it serves as part of the bedrock of the Shōhyaku-sha's ongoing struggle to reconnect names and things. Indeed, for the Shōhyaku-sha *shashin* referred not to the effects of conjuring an illusion of reality but to attempts to quite literally create a residue of the real itself.²¹

In the Shōhyaku-sha's constant negotiation among the canonized knowledge of Chinese *materia medica*, Western botanical nomenclature, and the actual environment in which members lived, the concept of *shashin* emerges at the very intersection between visuality and knowledge. For Hōbun and other members, the role of direct observation began to gain more currency

and value in this process of synthesizing their text-based understanding and their observed physical conditions. In the various types of pictorial representations they produced and studied, the group questioned not only what is represented but also *how* it is represented and *where*. The problem of method carried intellectual implications that were informed by the desire to make the image knowable and intelligible as the representation of something real. The group incorporated and experimented with numerous methods of picture making, including copper etching, hand sketches, copying, woodblock printing, and ink rubbing—many of which we see grouped together in Hōbun's manuscript under the associated meanings of *shashin*. Thus images occupy an extremely important place in the work of the Shōhyaku-sha as these various techniques of pictorializing their subjects helped them visualize, question, and articulate their knowledge in ways that language alone could not.

This is not to say that textual renditions lost significance in the work of the Shōhyaku-sha. Quite the contrary, the pictorial aspect of written language itself became an issue of visuality. The group worked with four languages (classical Chinese, Japanese, Latin, and Dutch) and four scripts (Chinese characters, *hiragana*, *katakana*, and Roman alphabet). While translation served to introduce particular bodies of knowledge, the very mode of writing within which the knowledge was expressed came to play a role as a visual code. The strategic choice to represent a name in a particular script played a decisive role in stabilizing the relationship between the plant and its nominal expression. Thus both pictorial and linguistic representation functioned as visualizations of a relationship between seeing and knowing that became a running theme of their work.

Significantly, some of the members of the group decided to take up photography when it became available to them in the 1860s, and they unhesitatingly called the technology shashin.²² In France and England a variety of new terms were coined to describe and comprehend the new medium of photography. In Japan, something rather different happened: an existing term with a dense semantic history related to representation was co-opted. This raises an intriguing question, especially considering that it has been called by other names, such as in'ei kyō (literally, "impressing shadow lens") and rui'ei kyō ("arresting shadow lens").²³ To understand the early history of photography, therefore, we need to understand both the semantic history and the history of the very process through which it would become conflated with the new medium. The Shōhyaku-sha's choice of shashin to describe photographic

technology attests that they identified a continuity between the representational possibilities offered by photography and their own representational practices that supported their studies.

The Shōhyaku-sha emerges, therefore, as a group of key practitioners of seeing, representing, and knowing in nineteenth-century Japanese visual culture. The group offers a chance to reimagine the early history of photography and the visual culture of nineteenth-century Japan in a way that does not rely on the uncritical dichotomy between Japan and the West that has played such a crucial role in many prevailing narratives of visual modernity. Rather, analysis of the oeuvre of the Shōhyaku-sha emphasizes the role of practice. In the last twenty years, historians of photography have distanced themselves from a modernist account of the medium—an approach championed by Beaumont Newhall in The History of Photography in 1937-and dispensed with the idea of photography as a unified subject for which an internally coherent narrative can be written.²⁴ At the same time, historians have also begun to examine histories of photography in non-Western contexts. Turning away from universalizing histories of photographic technology, scholars such as Christopher Pinney, Karen Strassler, and Rosalind C. Morris have revealed specific histories of photography in Asian contexts that defy the modernist approach.²⁵ In these pioneering works, photography is not an autonomous technology that produces consistently hegemonic experience and representations, but rather a parasitic medium that latches on to a historical and cultural context to transform preexisting local practices and needs, while also creating new hybrid visual expressions. Rearticulations of photographic history through the lens of intricate social, cultural, and economic relations have produced historical insights that could not be reasoned through the assumption of a Cartesian formation of subject and object as an essentialized tenet of photography. These new scholarships on photographic history share the emerging conviction, best summarized by Pinney, that "photography is a cultural practice with no fixed outcome." 26 Yet because of the elusiveness of Shiba Kōkan's treatise on Western pictorial representations, coupled with the persistent influence of the distorting dichotomy of West versus Japan, writings on the early history of photography in Japan continue to avoid serious engagement with contemporaneous representational and intellectual issues that occupied the minds of the very people who took up the technology.

The practices of the Shōhyaku-sha with a particular attention to their understanding of *shashin* enable us to write a new history of Japanese photog-

raphy and nineteenth-century visual culture that more accurately captures the complex shifts in which the meanings and practices were embedded in the deeper negotiations between epistemologies of seeing and knowing that characterized the era. Like the lens Siebold brought back from Japan, the lens formed by the term *shashin* marks a specific history. Just as a physical lens alters visual perception in particular ways, so too does the Shōhyakusha offer a "lens" that filters our understanding of a visual culture in the past and opens a new perspective on history.

What I offer in my exposition of the genealogy of shashin is an account of photographic history in Japan that differs from-and thus questionsthe received narrative. Shashin, originally a compound word and a concept from China, was more than a term associated with the camera obscura or Western pictorial method. Its multiple uses and significance in the activities of the Shōhyaku-sha reveal how the group deployed the term to negotiate, rearticulate, and most importantly concretize the relationship of plant names, pictorial representations, and the existence and availability of the actual plants. The conceptual history of shashin thus reveals that the challenges in representational practices in the Owari domain were not confined to naïve effort at mimetic representation assisted by application of Western pictorial devices and techniques. Rather, the representational challenges that faced the Shōhyaku-sha emerged from the persistent questioning and probing of their knowledge of materia medica. The term shashin occupied a pivotal position in this particular epistemological discourse as a primary arena for negotiating the conceptual relationship among representations, represented objects, and names. When photographic technology became available, the Shōhyaku-sha had already established shashin as a term that designated the fidelity of a representation to the name of the represented object, and to the object itself. This history begs us to reflect upon the implications of conceptual appropriations in studying a history of imported technology. Moving beyond the history of photography as a history of technological adaptation, serious consideration of the very language through which photography was understood in nineteenth-century Japan allows us to recapture the densely entangled meanings and roles of representations.



Each of the chapters that follow addresses one arena where the notion of fidelity played out in the intellectual endeavors of the Shōhyaku-sha: in their profession as physicians, in translations of texts from China and the

West, within organized public exhibitions, in the production of pictorial representations, and finally in the governmental institutions in which certain members of the Shōhyaku-sha were employed. In each chapter, the notion of fidelity is examined in relation to the real (*shin*) and transposition of the real (*shashin*) by examining a set of overlapping practices of the group. The succession of chapters thus builds a cumulative view of the intellectual genealogy of *shashin* from a variety of key perspectives.

Chapter One, "The Eye of the Shōhyaku-sha: Between Seeing and Knowing," opens by situating "Honzō shashin" historically on two levels: within the local context of Owari, and within the discursive context of medicine and materia medica. Central to this chapter is an account of the role of visuality in medicine and materia medica, which foregrounds how a particular mode of processing knowledge was formed: a triangular relationship among textually rendered knowledge, the actual object, and illustrations.

In Chapter Two, "Ways of Conceptualizing the Real: Scripts, Names, and Materia Medica," I turn to the issue of translation in the study of materia medica. In 1829, Itō Keisuke, a leading member of the group, published Nominal Differentiations in Western Materia Medica (Taisei honzō meiso), the first published attempt to apply the Linnaean botanical nominal system to Japanese flora. I focus on the process through which Keisuke articulated the Linnaean system in textual representations to show how the visuality of the script itself played a significant role in this publication. The centrality of the concept of the real (shin) in Keisuke's articulation of the Linnaean nomenclature is explored by attending to how various scripts employed in this publication solve the epistemological and representational issues that faced the Shōhyaku-sha, and more broadly the study of materia medica in nineteenth-century Japan. Rather than evaluating the group's activity against what is assumed to be a transcendent set of values such as scientific accuracy and objectivity, this chapter grapples with the particular local and historical stakes in introducing and understanding the Linnaean nomenclature and the effort to best ensure the transplantation of this abstract system into textual representations.

In the following chapter, "Modes of Observation and the Real: Exhibition Practices of the Shōhyaku-sha," I situate the group within the discursive history of *materia medica* and detail the process in which the faculty of vision began to influence this discourse. Approaching the practice of public exhibition as an innovative response to reevaluate the content of *materia medica*, this chapter focuses on the significance of direct observation and

how the exhibitions served as a site of contention and reevaluation of previously shared knowledge by privileging the actual object. This chapter throws into relief specific observational modes, tactics, and strategies explored by the group, a process of negotiation among what and how they saw, what they knew previously, and what they could discern on site.

In Chapter Four, "Picturing the Real: Questions of Fidelity and Processes of Pictorial Representation," I consider two techniques of representation used by the group: copper etching and ink-rubbing prints. Central to the group's understanding of these prints was the idea of the real (*shin*, the second character of the compound *shashin*). The Shōhyaku-sha differed from other contemporary scholarly groups by continuing to use the ink-rubbing method into the Meiji period, referring to these images as shadows of the real (*shin'ei*). I assert that the modalities of existence that these prints articulate emerged out of the group's collective desire for access to a particular plant. Compared to other pictorial media that the group employed, such as woodblock and copper etching, ink-rubbing prints guaranteed and authenticated the fidelity between the object and images with an indisputable certitude.

Finally, in Chapter Five, "Shashin in the Capital: The Last Stage of Metamorphosis," I give an account of the Shōhyaku-sha's use of photography itself from the 1860s onward and situate the group's interest in photography within a broader discourse of art history and photographic history. Central to this chapter are the figures of Itō Keisuke and Yanagawa Shunsan, two members of the Shōhyaku-sha who occupied important posts in the scientific establishment of the last years of the Tokugawa period and the early years of the Meiji period; and Takahashi Yuichi, an artist who worked at the same government institutions as Keisuke and Shunsan. By recovering the process through which the Shōhyaku-sha's discourse on the transposition of the real became linked with the new technology of photography, this chapter reopens the problem of what photography meant to its earliest practitioners in Meiji Japan. In this way, I delineate the process through which the meanings of shashin merged during this critical period of transition.

Although the Shōhyaku-sha began as a small provincial group, their concern with the relationship between names and things came to occupy a central place within the scientific establishment of modern Japan. As members of the group left Nagoya and took up posts first in the Academy for Western Studies (*Bansho shirabejo*) and then in the Academy of Developing Intelligence for Successful Enterprises (*Kaiseijo*), the forerunner of Tokyo

Imperial University, the discourse on shashin that had developed out of the particular concerns of practicing physicians assumed a central role in how the modern world came to be apprehended. This book, then, is not simply a biography or portrait of the Shōhyaku-sha but a study that highlights the interdependence of the history of ideas, scientific practices, and visual culture. By returning to the moment of photography's introduction to Japan, my hope is to show not the inevitable triumph of a new technology in transforming a static visual field but rather the historically contingent ways in which the new technology was understood within an established epistemology and set of representational practices, which unsettles the very equivalence that came to be established between shashin and photography. Indeed, what the case of Japan allows us to see is that the history of photography is also a history of photographic technology and practices being understood and used in particular places at particular times. It should allow us to return to the various sites of photography's "origins" to reexamine the history of photography not only as a technology but also as a particular site of negotiation between seeing and knowing.