Representing Human-Specimen Relationality in Scrapbooks

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Abstract

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Scrapbooks have long been associated with the construction of identity and knowledge systems through the appropriation and recontextualization of externally-sourced material. Sometimes these materials are conventional, like poached newsprint, stationery, and pages from cannibalized books. This project consults materials less typically associated with bookwork: natural specimens. Using posthumanist theoretical frameworks such as Bruno Latour's actor-network theory and Jane Bennett's vital materialism, this project analyzes the work of three amateur naturalists—Laura Hecox, Edwin Lewis, and Nels Bruseth—whose scrapbook-making practices were bound to lifelong self-directed intellectual pursuits within the natural sciences. Through introducing scientific specimens into preexisting social frameworks, arranging prints and texts to construct narratives about human and nonhuman labor, and utilizing data in ways that draw out relationships between seemingly disconnected events, their bookwork embodies the many ways in which humans and specimens engage in dialogues with one another. The treatments of specimens within the scrapbook-making process discussed here encourage a greater attunement to the agency and influences of the nonhuman world.

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Two leaves from a big leaf maple tree adorn two pages in the scrapbook compiled by Nels Bruseth (1886-1957) (Figure 1). At some point during his tenure as a United States Forest Service worker, he found a pair of similarly sized leaves—perhaps from the same tree—brought them inside, and carefully positioned them in the center of each adjacent page. Bruseth taped the first leaf face-down on the verso of the spread, and the second face-up on the recto, so that both sides of the leaf are available for close examination. Because of this placement, it is easier to observe that the back of the leaf is paler than the front. The reader can trace each leaf's veins, compare their silhouettes, and imagine the proud maple that they once sprouted from. While Bruseth's primary job was to make sure that the forest did not catch fire during the drier times of the year, the careful inclusion of these twin objects tells us that he also took the time to learn from the forest's inhabitants by collecting and preserving specimens taken from his surroundings. Within the pages of his scrapbook, Bruseth worked out identities of the plants around him one by one, with the help of a community of botanists that he kept in touch with near his home in Darrington, Seattle, and in the broader western Washington area. Bruseth's amateur botanical undertakings reveal what happens when an individual's relationship with their natural environment is creatively exhibited within a material text.

This thesis examines scrapbooks made by collectors like Bruseth—loosely, amateur naturalists, though their interests within that field differ—which span from the late nineteenth to the mid-twentieth centuries.[1] Scrapbooks were common domestic objects throughout this time: Ellen Gruber Garvey estimates that there could have been hundreds of thousands of scrapbook makers across America in the 19th century alone based on their present-day ubiquity in personal

[1] The window of time discussed here is fairly wide. Dating scrapbooks or categorizing them as being of a certain time period is difficult since they were often assembled over extended periods of time—even decades, as we will see with Lewis's weather record.

and public archives.[2] The practice of scrapbooking in a general sense has been examined in scholarship as a means of crafting identity in the domestic sphere, a tool for learning and documenting knowledge, and a physical manifestation of social networks between people.[3] While the materials that this project analyzes exemplify some of the themes and intentions delineated by previous scrapbook scholars, each is made in connection with extensive, self-directed intellectual pursuits—specifically, the collection and presentation of natural specimens such as shells, fossils, plant matter, and meteorological data, alongside evidence of human intervention and activity.[4]

The following three case studies explore different facets of human-specimen relationality. The first section continues my discussion of Bruseth's botanical scrapbook. Through his deliberate presentation of plant specimens within his correspondence and bookwork, Bruseth facilitates their communicability and thus enables plant specimens to function as social agents.

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[2] Ellen Gruber Garvey, *Writing with Scissors: American Scrapbooks from the Civil War to the Harlem Renaissance* (Oxford: Oxford University Press, 2012), 10.

[3] Ellen Gruber Garvey, *Writing with Scissors*, 10; Jillian M Hess, *How Romantics and Victorians Organized Information: Commonplace Books, Scrapbooks, and Albums*. (Oxford: Oxford University Press, 2022); Sarah McNair Vosmeier, "Picturing Love and Friendship: Photograph Albums and Networks of Affection in the 1860s," in *The Scrapbook in American Life*. Susan Tucker, Katherine Ott, and Patricia Buckler, eds. (Philadelphia, PA: Temple University Press, 2006), 207-219. Most of what has been written on historical American scrapbooks comes from scholars of English literature. When writing about American scrapbooks, perhaps the most referenced scholarly works are Ellen Gruber Garvey's *Writing with Scissors* and *The Scrapbook in American Life* edited by Susan Tucker, Katherine Ott, and Patricia P. Buckler. Both of these texts explore American scrapbooks and their historical uses from their evolution out of commonplacing to the twentieth century, with a particular emphasis on the power of authorship that the extraction and recontextualization of printed media gave to scrapbook makers. This practice of cutting and pasting enabled makers to explore a broad variety of social, intellectual, and self-historicizing uses for the scrapbook.

[4] Susan M. Stabile, "Female Curiosities: The Transatlantic Female Commonplace Book," in *Reading Women: Literacy, Authorship, and Culture in the Atlantic World, 1500-1800*. Catherine E. Kelly and Heidi Brayman Hackel eds. (Philadelphia, PA: University of Pennsylvania Press Inc., 2011), 257-259. There are some precedents for scholarly engagement specifically with the bookwork of collectors like Hecox and Bruseth. Susan Stabile writes about Deborah Norris Logan's (1761–1839) extensive collection and its relationship to her commonplace books and dairies, where she synthesized the artifacts she cared for with her personal reflections and text borrowed from the things that she read. Stabile discusses Logan's acute awareness of the importance of her role as a curator and steward of her collection. Like the aforementioned scrapbook scholars, Stabile—also a literary scholar—approaches bookwork from a literary and textual perspective that this project veers away from. However, Stabile's point that Logan's commonplace book is both a collection on its own and a means of interfacing with an external collection is a concept echoed in both the print collections that appear in my research materials and the specimens that appear within and outside their pages.

The second section will consider the scrapbook of Santa Cruz lighthouse keeper and collector Laura Hecox (1854-1919). Hecox arranged newspaper clippings related to her many passions within the realm of natural history, creating new layers of meaning around their content by having printed materials interact with each other on the page. These insights speak to Hecox's personal relationship with her natural environment. Finally, we will turn to the weather record created by Rhode Island medical practitioner Edwin Lewis (1863-1931), who connects decades of local meteorological data to current events by pasting newspaper clippings alongside his graph of the barometric pressure. His work proposes relationships between the atmosphere and human activities on a global scale.[5] Each of these bookmakers' practices represent networks of influence between humans and nonhumans which prompt a greater awareness of how people, communities, and society as a whole position themselves in relation to their environment.

In order to analyze the work done both by these human arrangers and the specimens that they collect, we will consult the writings of posthumanist scholars, with an eye towards drawing out the places where both human and nonhuman influences work collaboratively to influence the meaning of a scrapbook.[6] Posthumanist approaches to bookwork are informed by several discrete, yet connected ideas about the nature of humanity's relationships with objects which push back against anthropocentrism. Particularly relevant among these approaches is the work of Bruno Latour, whose writings on actor-network theory (ANT) redefine the social world to incorporate a broader array of interactions and entities.[7] As Latour writes, in order to coax

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[5] Throughout this project, I use the term "scrapbook" for each of these objects and "bookwork" for the labor performed by their arrangers. Both of these terms have variable definitions depending on their context. While each of this project's materials could fall into other, more narrow categories, all fall within a zone of activity which can be defined as a scrapbook: they are collections of externally sourced materials—specimens, stationery, newspaper clippings—compiled together in a book format by their creators. Meanwhile, I use the term "bookwork" to encompass the process of collecting, curating, and organizing material within a bound volume.

[6] Jonathan Senchyne, "Vibrant Material Textuality: New Materialism, Book History, and the Archive in Paper." *Studies in Romanticism* 57, no. 1 (2018): 73.

[7] Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory.* (Oxford: Oxford University Press, 2005), 79.

meaning from an object, "tricks have to be invented to make them talk."[8] This is where the scrapbook maker's intervention begins. To facilitate conversations between the human and the nonhuman, scrapbook makers employ a variety of material strategies (or tricks, as Latour puts it). These can include features such as moveable and unfoldable flaps, envelopes, and other mechanisms that encourage physical interactions. They can also be psychological interactions, such as the idiosyncratic juxtapositions of common materials and imagery which give shape to a connection that was previously invisible. In an application of Latour's work, political theorist Jane Bennett takes on the role of thing-advocate, arguing for a greater regard for the vitality of things and the ability of nonhuman forces to impact public life.[9] These approaches can illuminate the role of the scrapbook maker in relation to the material they arrange and coax new meanings from the books themselves, without the rigid hierarchy imposed by centering human agency.

A materialist approach to scrapbooks offers an opportunity to unbind these objects from their original times and contexts.[10] The sparse biographical information available about Bruseth, Hecox, and Lewis—existing records of their lives mostly pertain to their professional pursuits, and none mention their scrapbook-making practices—make drawing historical arguments about their lives and attitudes from their scrapbooks challenging.[11] But my goal in analyzing these materials is not to make an argument about a historical period or context in which these books

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[8] Bruno Latour, *Reassembling the Social,* 79.
[9] Jane Bennett, *Vibrant Matter: A Political Ecology of Things.* (Duke University Press, 2010), 2.
[10] Jonathan Senchyne, "Vibrant Material Textuality: New Materialism, Book History, and the Archive in Paper." *Studies in Romanticism* 57, no. 1 (2018): 75.
[11] I leave behind the feminist and anti-colonial analyses of these scrapbooks partially for this reason, even though there are undoubtedly arguments to be made about Laura Hecox's status as a woman in relation to her studies and Nels Bruseth's connections with the Stillaguamish and Sauk-Suiattle Tribes. In these places it would be relevant to discuss the gendered aspects of scrapbook making and the connections to colonial oppression respectively, however, the information available about these things is very one-sided. For other analyses of scrapbook making in America that foregrounds the relationship between the editorial power of scrapbook and feminism, race, and activist movements that are more grounded in individual biographies, see Ellen Gruber Garvey, "Alternative Histories in African American Scrapbooks" and "Strategic Scrapbooks: Activist Women's Clipping and Self-Creation" in *Writing with Scissors: American Scrapbooks from the Civil War to the Harlem Renaissance*.

were made. Instead, this project substantiates its claims through the ways in which images, texts, and other materials combine on scrapbook pages. While the arranger's context and curatorial agency are important in that regard, they are not solely responsible for the ways that these scrapbooks appear to us today. Looking at these books offers an opportunity to observe sustained dialogues between people and the things in their natural world that speak to them which is just as relevant to contemporary viewers as they were a century ago.

Part I

Nels Bruseth's intellectual pursuits were shaped by his profession and the land that he lived on. His collection and identification practice grew out of his work for the United States Forest Service, for whom he worked from 1916 until he retired in 1951. He started out as a trail worker, then became a lookout on Mt. Pugh in the North Cascades, where he performed his duties with devotion. By all accounts (including his own) he held great respect and affection for the area he cared for. When he married his wife Beate Falk in 1921, they honeymooned at Bruseth's lookout post on Mt. Pugh, where they continued to do Bruseth's usual job of maintaining the area and keeping an eye out for forest fires. During the 40s and 50s, he wrote numerous articles about forestry, recreation, and local history in the town of Darrington, where Bruseth lived when he was not up on the mountain. While Bruseth was primarily a steward of the area's forests and mountains, he also was a prominent figure in Darrington's civic affairs, so much so that when the town was officially incorporated in 1945, the residents tried to elect him mayor, which he declined.[12] He retained a high social status locally, both for his work and his expansive array of

[12] As a federal employee, Bruseth was ineligible to hold a civic office at that time. That is not to say he was not politically active. He was the secretary treasurer of the Silvana Socialist Local in 1914, and voiced his support for social security while advocating for fair treatment and pay for seasonal laborers in a Forest Service bulletin in 1938. "Directory Socialist Locals," *The Washington Socialist,* Thursday, June 11, 1914; Nels Bruseth, "A Short-Termer Speaks," from a Department of Agriculture Forest Service Bulletin, dated December 26, 1938.

hobbies, which included painting, photography, astronomy, gardening, geology, and botany.[13] Though never trained as a botanist, Bruseth identified hundreds of plants in his survey area throughout his career with the Forest Service; this endeavor is the focus of the material that appears in his scrapbook of botanical specimens.

The appearance of botanical specimens in bookwork has many precedents, both before and during Bruseth's time, although the objectives of those books are quite different from Bruseth's less human-centered goals for his scrapbook. The pressing and labeling of Bruseth's scrapbook practice somewhat resembles that of seaweed and algae albums, scientific books that became a fashionable hobby among women (and some men, though with less frequency) in the mid- to late-19th century and remained common well into the 20th.[14] Books like the one compiled by Ellen Browing and Eliza Virginia Scripps perform a different function (Figure 4). Although each marine plant is carefully laid out on the page, as though intended for study, they are not consistently labelled or annotated in any way. Instead, the specimens serve supporting roles in preserving a memory. They frame photographs and remind the compiler of the place they were taken from—in short, they are souvenirs.[15] If Browing or Scripps were investigating the specimens they compiled in any way, all evidence of that process is concealed, whereas Bruseth's scrapbook revels in its role as a tool of botanical inquiry. [16]The recycled papers, short notes, and irregular page layouts of Bruseth's book point to a collection that evolved naturally,

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[13] Beate Bruseth, Nels Bruseth, and Lucile Saunders McDonald. *Scrapbooks Relating to Nels Bruseth, Darrington History and Astronomy, 1910-1956.* B2 Folio; F899.D37 B78 1910, vol. 1 & 2. University of Washington Special Collections.

[14] Sasha Archibald, "Love and Longing in the Seaweed Album." *The Public Domain Review,* 2022. Accessed December 11, 2025 at publicdomainreview.org/essay/love-and-longing-in-the-seaweed-album/.

[15] Susan Stewart, *On Longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection*, (Durham: Duke University Press, 1993), 152.

[16] His scrapbook could also be considered a field journal in addition to a scrapbook for its role as a tool for organizing and labeling a specimen collection. The presence of correspondence and other kinds of material place it in the category of a scrapbook as well—by classifying it as such, I also aim to highlight the scrapbook's role in Bruseth's social life.

with more concern for practical use than conventional visual appeal. Bruseth places focus on the plants themselves, rather than the memories and locations that they might stand in for.

In order to engage with the specimens that he collected, Bruseth used the physical scaffolding that facilitates human interpersonal communication to instead make plant specimens more readable, and therefore more active as social agents. One way in which he achieves this is through the use of stationery. like the envelope taped onto the seventeenth page of his scrapbook (Figure 2). Unlike most envelopes, this one has probably never touched a mailbox. In the place where a recipient's name would go, the envelope reads: "Specimen No 1. Found growing wild on Gold Hill near Darr[ington] Wa[shington]." Enigmatic though they may be, the words follow the format for the face of an envelope: there is an entity (Specimen No. 1) and a location where they can be found (on Gold Hill near Darrington, Washington). Inside the envelope, there is a small, leafy twig, whose dry leaves just barely cling to their greenness. In most instances where envelopes and other kinds of stationery—dance cards, letters, notes, calling cards, etcetera—enter scrapbooks, they are records or tokens of interactions between people.[17] In Bruseth's scrapbook, these conventional traces of socialization between friends and acquaintances are frequently exchanged for evidence of engagement with specimens that he collected. Examining the contents of the scrapbook offers an opportunity to recognize how botanical specimens can function as social agents in the sense that they facilitate and participate in Bruseth's social sphere, as we will see when we look at how they appear in his correspondence and bookwork.

[17] Sarah McNair Vosmeier, "Picturing Love and Friendship: Photograph Albums and Networks of Affection in the 1860s," in *The Scrapbook in American Life*. Susan Tucker, Katherine Ott, and Patricia Buckler, eds. (Philadelphia, PA: Temple University Press, 2006), 207-219. In her study of 1860s photograph albums created by young women, Vosmeier considers scrapbooks as artifacts of affection. The practice of arranging photographs of loved ones on the page made the maker's social life visible.

Botanical Correspondence

The most direct way in which plant specimens function as social agents in Bruseth's work appears in the first few pages of the scrapbook, where Bruseth includes letters between himself and members of the University of Washington's botany department. When Bruseth came across a plant that he was not familiar with, he would mail it to the University. One of his contacts in the department would inspect the specimen, then mail it and their conclusion back to Bruseth. In return, Bruseth would send back specimens or even live plants upon request. In one such exchange, Mrs. Else Frye—an expert gardener whose husband was a botany professor that Bruseth was in touch with—wrote to Bruseth about some specimens he had sent to the University that she was interested in. Towards the end of the letter, she writes:

> Mr. Bruseth, I am going to suggest something to you simply because I am interested in people who like plants and want to learn about them: Why do you not get a botanical key and try to identify your plants yourself—it is great fun and soon you will begin to see how plants are related. It is not likely that you could start out on such a program and be infallible at once so you could send in your plants to be named just the same.[18]

This passage from Mrs. Frye's letter distinguishes two very different ways of achieving the same goal: identifying a plant. Mailing a specimen wasn't trivial; if he found a plant specimen on a mountain in the middle of nowhere that he wanted to ask about, he had to pick it and convey it all the way down into town, post it, and wait for a reply. It was not an especially difficult process, but it still took multiple steps and a fair amount of time. To use the botanical key which Mrs. Frye suggests as an alternative, Bruseth would learn the nomenclature used to describe different parts of the plants and follow written prompts to arrive at the correct identification. Once he learned this method, he could have identified plants much more expediently. While Bruseth may have at some point learned to use a botanical key—if it was not something he knew already—it

[18] Else Frye to Nels Bruseth, August 29, 1940.

is clear that he did continue to mail specimens, indicating that there was something about that transaction which Bruseth saw as valuable, likely the connections themselves that he established in the process of naming the plants.

Living as Bruseth did, in a remote area where people were few and far between and the plants were overwhelmingly numerous, it is easy to understand the appeal of sending and receiving plant specimens as a way of maintaining connections with people who shared his interest in and affection for plants. In the summer of 1941, Bruseth sent a fern specimen for identification to Statira Biggs, who lived across Puget Sound from him. Her reply is pasted onto a page of the scrapbook (Figure 3). In the letter, she expresses her regret that she was unable to travel to Darrington to look for ferns and appreciate the town's charms over the warm season. A little bit of Darrington came to her in the form of the specimen, which she annotated on paper and mailed back to Bruseth. While she does identify the fern frond, she says that Bruseth should send them in future to the Botany Department at the University, as she "really [does] not know enough." Perhaps she was being modest, as she did cultivate ferns. It is also possible that Bruseth sent her the plant for identification not because he thought that she was the only person able to perform the task, but because he knew that she liked ferns and wanted to invite her to participate in his study of them. By the time of Biggs' reply, Bruseth was already in contact with Theodore and Else Frye, as well as George Rigg and other University-affiliated botanists, and therefore likely knew that the botany department could have handled the identification as well. His choice to contact Biggs instead indicates that the social aspect of mailing the specimen was a motivation as well as the naming of fern.

While these interactions which incorporate botanical specimens into Bruseth's correspondence with other members of the plant-loving community are beneficial for

understanding the social environment in which Bruseth conducted his survey of Washington's plant life, many of the informational exchanges that take place within his scrapbook do not involve any other humans at all. These exchanges facilitate the plants' communicability not only as components of Bruseth's social life, but also as independent correspondents that Bruseth engages with on their own terms. Each plant specimen exerts their own distinct influences upon a scrapbook's form through their willingness or reluctance to be preserved and analyzed. These negotiations between Bruseth and his specimens embody the reciprocal relationship between him and the diverse ecosystem that he spent his life caring for.

Making Plants Talk/The Agency of the Specimen

Despite the presence of Bruseth's aforementioned letters, the vast majority of the stationery in Bruseth's scrapbook was ultimately not used for its intended purpose. Instead, they appear in the scrapbook as a backing for the plant specimens Bruseth collected. Bruseth used his official United States Forest Service stationery for labeling, as well as blank receipt papers which may have had to do with getting reimbursed for work-related purchases and travel—there are fields for listing "expenses," "mileage," and "activity charges by projects." A selection of ways in which this practice manifests appears on page forty-five (Figure 5). Here, Bruseth uses lined index cards, receipt lines, and graph paper as guides for positioning the plants, allowing these structures and grids to act as inexact size references for the specimens. Like the other pages, the handwritten notes are mostly limited to the names of the plants—Bruseth allows the details of the plants to speak for themselves.

While unable to communicate in the same way as humans, encountering a plant still constitutes an exchange of information—what manner of information gets exchanged depends

very much on the plant and its circumstances. Latour writes that the ability of things to communicate in this way is often overlooked because their means differ. Interactions are most easily discerned as social when they mirror one another. One person responds to a verbal question with a verbal response, and so on.[19] Specimens have different abilities, and therefore socialize in ways that generally do not align with the abilities of the humans who encounter them. In his scrapbook, Bruseth mitigates this incongruity by manipulating the specimens on the page in ways that help integrate them into a more human realm of socialization. The solution Bruseth arrives at in his attempts to make specimens readable exists somewhere between the standardization of a botanical diagram and the chaos of a fresh plant clipping—they are a little too raggedy to be totally legible, but too orderly to have fallen on the pages as they are by chance.[20] Bruseth's orchestration has not been enough to coax all the plants into revealing their secrets—the flower in the top left of page forty-five is only tentatively labelled. As the annotation says, the plant is "too immature to tell" exactly what it is. While that plant's ambiguity can be chalked up to human error or gaps in the knowledge of Bruseth and his correspondents, there are other places where the plants themselves have obscured the content of the scrapbook.

Specimens have their own ways of influencing the readability of the scrapbook. They rot, mold, bleed, crumble, change color, break, and pull themselves loose from their adhesives. One

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[19] Bruno Latour, *Reassembling the Social,* 79-80.

[20] Lisa L. Ford, "From Plant to Page: Aesthetics and Objectivity in a 19th Century Book of Trees," in *Ways of Making and Knowing: The Material Culture of Empirical Knowledge.* Pamela H. Smith, Amy R. W. Meyers, and Harold J. Cook, eds. (Michigan: University of Michigan Press, 2014). Some precedents for this attention to detail and arranging in botanical works emerge in Lisa Ford's chapter of Ways of Making and Knowing, which examines botanist André Michaux's annotations and pressed specimens in a copy of his book, *Histoire des Chines de L'Amerique Septentrionale* (1801). Ford's work explores the relationship between plants themselves and how they are represented in texts, and the challenges that come up when one attempts to pare down a large living thing into something that is both portable and identifiable. While Bruseth's collection was created much later and in a less official capacity, the two botanists' work with plant specimens emphasizes their concern for making plants as readable as possible in order for him or one of his correspondents to be able to identify the plant.

of the more dramatic examples of ways in which the plants are capable of impacting the scrapbook is revealed by the yellow heather specimen (Figure 6). True to its name, the heather leeches a yellowish brown pigment into the Forest Service stationery behind it. While the pigment makes the plant's labeling text a bit more difficult to read, its radiation outward from the leafy top of the specimen reveals where the plant laid against the paper for the longest. This information is not readily available for the specimens that are in plastic sleeves rather than taped down, and therefore have shifted more over time. These unpredictable manifestations of the specimens' will illuminate the agency that they have to change the material presence of the scrapbook in ways that Bruseth did not facilitate on purpose, but nonetheless alter the information that the scrapbook and its specimens provide to a reader.

Over the years, some of the specimens have changed more than others. The impeccably preserved lichens and mosses next to Biggs' letter seem perfectly happy to remain as they were in life—dried, but still very closely resembling their living selves. Others, like the red penstemon and the purple indian paintbrush, have turned from green to black and started to disintegrate. This uneven process of decay shapes the viewer's experience of the scrapbook. The more intact specimens invite admiration for their endurance, while the deteriorated plants prompt curiosity, or even a sense of loss—the plants' disintegration leaves viewers to speculate as to what they might have looked like before they were clipped and pressed between the pages. Simultaneously, their fragility speaks to the nature of preservation itself, drawing attention to the countless environmental and material factors that have influenced the condition of each specimen. Jane Bennett describes the way in which things can manipulate our attention as an "awareness of impossible singularity," or an acute sense of the uniqueness of a thing's existence and all of the factors that influence both its presence and the circumstances that brought it to the viewer's

attention.[21] The present condition of these particular plants within Bruseth's scrapbook is the result of a particular history of collection, storage, manipulation, and aging that could never be exactly replicated again. Each specimen has deteriorated in its own way, making their current appearance a record of both Bruseth's botanical endeavors and the ways in which the material traces of those endeavors have changed over time.

Seeing the plants in the context of the scrapbook further intensifies this awareness. A typical encounter with a dead plant—outside on an autumn day or littering a neglected garden—does not foster much scrutiny. Such encounters are common and often fleeting. By contrast, a dead plant carefully mounted and preserved within a scrapbook is framed as an object worthy of study. Its placement on the page slows the viewer's gaze and encourages close observation. Bruseth's bookwork thus allows elements of the natural world to communicate with an audience in ways they otherwise might not. The scrapbook choreographs the viewer's attention, inviting them to "read" a plant not merely as a botanical specimen but as a record of human curiosity. The effects of this attention are also made visible in the way the scrapbook has been haphazardly conserved by at least one person after it left its original arranger's hands: adhesives have been replaced, some paper changed out, and not all of the identifications were done by the same hand. There is no way of knowing precisely what is original to the manuscript and what was added on later, but the purpose of pointing out these interventions is not to discern who was responsible for what and when, but to question what it means that someone—perhaps multiple people—made attempts to maintain the scrapbook for future use. This evidence of

[21] Jane Bennett, *Vibrant Matter*, 4. The example that Bennet uses is her encounter with sidewalk detritus: a glove, some pollen, a dead rat, a bottle cap, and a stick. She writes that this grouping of objects was fundamentally inconsequential, yet also elicited a reaction in her that was wholly unique to them: "I was repelled by the dead (or was it merely sleeping?) rat and dismayed by the litter, but I also felt something else: a nameless awareness of the impossible singularity of *that* rat, *that* configuration of pollen, *that* otherwise utterly banal, mass-produced plastic water-bottle cap."

conservation points to a lineage of affection for the environment, local history, and the specimens themselves which has origins in Bruseth's careful treatment of his collection.

The social sphere represented in Bruseth's book of specimens speaks to a practice of close observation and attunement with the natural world. The book actively reaches out and brings people into conversation with the materials that the scrapbook presents through the inclusion of correspondence and the inevitability of change and decay within its pages; it invites people not only to consider the specimens, but to interact with them on a personal level. These personal exchanges within the scrapbook were reflected in the work that Bruseth did for the forestry service. In an article about Bruseth's retirement from the Forest Service on July 5th, 1947, Byron Fish states that his position will be filled by "airplanes, smoke-jumpers, walkie-talkies and other modern improvements." Fish undercuts his optimistic assessment of these new modes of keeping an eye out for forest fires by his enthusiasm for Bruseth's thirty-year career, during which he got to know "personally every rock and tree in the huge district."[22] The technology that watches for forest fires in Bruseth's absence might be more efficient and thorough in some ways, but Bruseth's wealth of personal wisdom about the land he cared for was irreplaceable. Perhaps Bruseth sensed that his retirement would be a loss for the area, as he did not actually end up leaving his post until 1951, four years after Fish published his article. The conflict between efficient systems and one-on-one engagement with things from nature recalls Mrs. Frye's suggestion of the use of a botanical key, while objects like Bruseth's scrapbook push viewers to consider an approach to the earth that regards all things—even the plants—as worthy of individual attention and care.

Part II

[22] Byron Fish, "Forest Fires Won't Be The Same After Bruseth Quits," *The Seattle Times,* July 6th, 1947.

Bruseth's work constitutes one way in which an individual might engage with the agency of natural specimens. And yet there are many other ways in which amateur naturalists have approached creative engagement with scientific materials. In some circumstances, specimens might not always be available or physically able to be pasted directly in the scrapbook. In the late nineteenth century, Laura Hecox used her scrapbook as a venue for contextualizing and making meaning from her own specimen collecting practice. The following discussion of her arrangements will expand upon Bruseth's social interactions with plants by looking at how Hecox juxtaposes different kinds of materials in order to draw out interactions between them on the page.

Lighthouse keeper and autodidact conchologist Laura Hecox (1854-1919) came from a family of white settlers who journeyed from Illinois to Santa Cruz in 1846 via the Oregon-California Trail. Her father, Adna Hecox, held a few local government offices before eventually settling down as Santa Cruz's first keeper of the light.[23] Laura Hecox learned the skills needed to care for the lighthouse from her father and officially took over his duties upon his death in 1883. In addition to her commendable devotion to her post, Hecox came to be known in her time for her lifelong project of collecting and cataloging natural specimens, such as shells, minerals, fossils, taxidermy, and plant matter.[24] The origins of her collection are referred to in a fictionalized account of her childhood published in 1886, where she's referred to as "Clara":

> While other children were playing with their dolls and baby houses, [Clara], after she was able to walk with crutches, and the mental darkness began to grow less, would wander among the rocks and talk to the sea, for it never laughed at her stammering words or slow steps as her brothers and sisters did…At this time,

[23] Frank Perry, *Lighthouse Point: Illustrating Santa Cruz History*, (Santa Cruz, CA: Otter B Books, 2002), 13-19.
[24] Laura Hecox is referenced in more than one newspaper article during her lifetime. The one I am referring to here is: Pomeroy, Genie Clark. "Two Women Who Sit Up All Night." *The Examiner, San Francisco: Sunday Morning*, May 5th, 1895, which Hecox pasted on the first page of her scrapbook.

> while wandering on the beach, a little Spanish girl gave her a foreign shell. The poor weak brain, just beginning to waken from its long sleep, was attracted by the shell and she began to notice other shells and tried to find a mate to the one given her…The shells she found were cleaned and put carefully away in her play room; why, she did not know, only [that] they were pretty and she wanted to know about them.[25]

While the story goes on to veer into the realm of fantasy, it is true that as a small child Hecox suffered a fall of some kind that left her partially paralyzed, and that she concurrently developed a keen interest in collecting and displaying specimens she was able to find on the shores of Santa Cruz.[26] Throughout her life, Hecox's collection was the primary way in which she engaged with the local community and its visitors outside of her role as the keeper of the light. She gave tours of the room where the collection was housed and eagerly shared her extensive knowledge of local ecology and natural history with curious guests.[27] Despite any inaccuracies in the published account of her childhood, it establishes that in one way or another, Hecox grew into an adult who was closely attuned to her environment and for whom the specimens she cared for were vital participants in her social and intellectual life.

While much of Hecox's original collection and correspondence is nonextant, her scrapbooks remain. In these volumes, Hecox compiled vast amounts of information from newspapers, her most readily available reading material. The affordability and quantity of print materials in the United States from the 1830s onward led to a dramatic increase in the

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[25] This story, entitled "The Story of a Lady Lighthouse Keeper on the Pacific Coast," is transcribed in Frank Perry, *Lighthouse Point*, 64-5. While it does not name Laura Hecox, Perry convincingly aligns the narrative with known aspects of Hecox's life, such as her childhood disability, hobbies, and the presence of some characters that are thinly-veiled adaptations of people known to be in her life. Furthermore, Perry notes that he discovered the article through one of its writer's relatives, who knew Hecox personally.

[26] Caroline H. Dall, *My First Holiday* (Boston: Roberts Brothers, 1881). 298, 312. I have not been able to ascertain the extent of her disability, but it seems that she was able to walk unaided and perform the duties of a lighthouse keeper without physical aids as an adult. However, Caroline Dall writes that she still had "a paralysis of one side" at the age of twenty-eight. Since the Santa Cruz Lighthouse was an uneventful posting and therefore not physically taxing, she could very well have been slightly paralyzed her whole life and still been functionally independent in that role.

[27] Frank Perry, *Lighthouse Point*, 66-71; Caroline H. Dall, *My First Holiday*, 298.

accessibility of images. More people were able to see (and manipulate) images than ever before.[28] Though the names of the papers are often excluded from Hecox's clippings, the occasional inclusion of a *San Francisco Call*, *San Francisco Chronicle,* and *Oakland Daily* header suggests that she had access to several papers from the San Francisco Bay area, about sixty miles to the north. Hecox was particularly interested in printed images and descriptions of natural specimens, historical artifacts, and the practices of other collectors and naturalists in California and abroad. The presence of these topics situate the scrapbook as an extension of her collecting practice. These materials intermingle on each page alongside clippings of poems, local news stories, human interest pieces, mentions of her family, and obituaries.[29] Hecox's arrangements combine these very different streams of information from various news sources, allowing materials that would not normally interact to offer insight into one another. These collected agencies of humans and nonhumans perform various kinds of collaborative labor: they preserve information about the natural world and humanity's desire to perceive and understand it, as we have seen in previous examples, and they also work together to make statements about Hecox's relationship with the work that she did for her community.

Hecox's Scientific Identity

A good example of Hecox placing seemingly incongruous materials next one another to produce meaning can be found on the spread of pages 144 and 145 (Figure 7). At its center are eight engravings of "rare and curious" fish from along the Pacific Coast, copied from the plates of a recent publication from Stanford University. Around them, Hecox arranges several smaller

[28] Michael Leja. *A Flood of Pictures: The Formation of a Picture Culture in the United States*. Philadelphia: University of Pennsylvania Press, 2025.
[29] This latter list—newspaper clippings of poems, local news stories, human interest pieces, and obituaries—are all more conventional scrapbook material for Hecox's time. For more information about the relationship between newsprint and scrapbooks, see Ellen Gruber Garvey, *Writing with Scissors.*

texts from different papers and dates: discussions of the short-lived Seal of the Republic of Hawaii, bizarre historical beliefs about eel reproduction, and the discovery of gold in California in 1846. Interspersed among these are items that pertain to Hecox herself, including two accounts from visitors to her lighthouse and an announcement about Margeret Hecox's eighty-first birthday, Laura's mother and one of Santa Cruz's first white denizens. Hecox placed this short text under a poem by Willard B. Farwell titled "Half Mast the Flag!" which mourns the increasingly frequent passing of California's aging pioneers.

Looking at this eclectic tapestry of information, it is not immediately obvious what might have drawn Hecox to combine these particular articles and announcements into a single spread. The key to its organization lies in the personal references. Bleak though the implications of positioning of Margaret Hecox's birthday announcement under the poem which mourns the death of her peers may seem, representing one's family within the context of local history was a fairly conventional use for scrapbooks during Hecox's time.[30] But Hecox complicates this familiar practice by embedding her personal history within a much broader array of scientific and historical material: by placing narratives about herself and her family around material which shows the shifting understanding of the natural world, she literally pastes herself and her labor of collecting and studying specimens within the ongoing project of understanding the natural world.

The fish engravings contribute to the story Hecox tells about her conception of her role as a natural historian. Lined up and labeled with their scientific names and locations, they are a shelf-stable substitute for fragile bodies that would have been difficult for Hecox to acquire and preserve and thus become a small collection in their own right.[31] Even the outdated speculations represented by "Absurd Beliefs About Eels" play a role in this narrative: like California's early

[30] Ellen Gruber Garvey, *Writing with Scissors,* 22-24.
[31] Placed in a jar with a solution of formaldehyde and water, or if too large for a jar, injected with the solution.

white settlers paving the way for the Hecox family, the inquiring minds stumped by the eel's enigmatic anatomy set a precedent that would later be followed by more effective scientific pursuits, such as those taking place in Hecox's time at the Hopkins Seaside Laboratory. Together, these elements suggest a continuity that links regional and scientific histories with Hecox's scientific identity.

Accessibility & Scarcity

In addition to creating a scientific identity for herself through physically contextualizing references to herself in print among clippings of her research interests, Hecox also uses her curatorial agency within the scrapbook in order to contextualize and craft new meanings around natural specimens themselves. This function of the scrapbook benefits from the accessibility of print in Hecox's time: as working and middle class Americans like her were inundated with pictures in their newspapers, periodicals, and advertisements, the pictures themselves and what they depicted gained a greater ability to interact with a wider variety of people and things, broadening the extent of their social and cultural influence beyond the subject's immediate surroundings.[32] The power of this accessibility is especially significant when the specimen in question is rare. Latour describes the ability of things to influence one another as directly related to the number of other things that they come into contact with.[33] An uncommon specimen's ability to influence things outside of itself may only extend to a few other objects, or perhaps a select few people with the means to access them such as museum curators or wealthy collectors.

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[32] Michael Leja. *A Flood of Pictures: The Formation of a Picture Culture in the United States*. Philadelphia: University of Pennsylvania Press, 2025.

[33] Bruno Latour, *Reassembling the Social,* 79. Latour writes that "to be accounted for, objects have to enter into accounts. If no trace is produced, they offer no information to the observer and will have no visible effect on other agents. They remain silent and are no longer actors: they remain, literally, unaccountable."

Hecox's incorporation of these more reclusive specimens into her scrapbook enables them to enter into dialogues with material beyond that limited scope.

The rare and coveted condor's egg on page thirty-three thus benefits greatly from Hecox's intervention (Figure 8). On a page that is otherwise densely packed with text, the paper within the purportedly life-size engraving of the egg stands out starkly. A blob of ink below the egg takes the role of its shadow, an irregular shape which does not entirely cohere with the careful regularity of the hatching behind and on the egg itself. The print furnishes an article about the increasingly endangered California condor titled "Giant in Feathers" which Hecox clipped from the September 30th, 1894 edition of the *San Francisco Chronicle*.[34] Hecox pasted the article so that the egg lays close to the book's gutter, constrained on all other sides by clippings: the condor article itself, Henry Wadsworth Longfellow's "The Legend Beautiful," John Whittier's last poem, and a short anonymous passage called "Nine Winds."[35] Like the spread of pages previously discussed, Hecox took these clippings from different sources and arranged them according to her own curatorial inclinations. Together, these texts create a conversation about the condor's egg which is activated by their proximity within the scrapbook.

Despite their unrelated subject matter, Hecox's positioning of the condor egg and its article alongside Longfellow's poem draws attention to the parallels between the narratives of the two texts. As the unnamed author of "Giant in Feathers" explains, the population of the California condor was declining steeply in Hecox's time due to human activities such as hunting, egg collecting, and the practice of poisoning carcasses in careless attempts by farmers to kill off livestock predators. It is clear that the author finds the vanishing of the condor to be a terrible

[34] "Giant in Feathers." *San Francisco Chronicle,* September 30, 1894.
[35] Henry Wadsworth Longfellow, "The Theologian's Tale; The Legend Beautiful," From *Tales of a Wayside Inn* (Ticknor and Fields, 1863). Accessed 21 February 2026 at https://poets.org/poem/theologians-tale-legend-beautiful. John Whittier's last poem does not seem to have an official title, but it was written to his friend Oliver Holmes for his eighty-third birthday. Nine Winds is a passage that seems to have circulated among American newspapers in the 1890s. I have no idea where it comes from.

misfortune, as the bird is "a privilege to witness."[36] Like the monk in Longfellow's poem beholding his brief vision of Christ, the author is awestruck by the condor's flight and majestic size when given the chance to see one, even if only from a distance. Both narrators mourn, yet are resigned to the seemingly inevitable absence of their respective otherworldly, moving sights. Hecox builds upon this theme of anticipatory mourning with the inclusion of Whittier's poem, in which Whittier recognizes the approaching end of his and his friend's lives in their old age ("The hour draws near, howe'er delayed and late/When at the eternal gate/We leave the words and work we call our own/And lift cold hands alone.")[37] By situating the print of the condor's egg among the poetic narratives that express grief over the impending loss of something precious, Hecox attaches those same sentiments to the specimen itself. Her arrangement lends the loss of the California condor emotional stakes: the bird's extinction is devastating both for the environment and for future generations who might never have the opportunity to see one alive.

In order to fully understand what Hecox's arrangement achieves that other presentations of the specimen might not, we can compare the egg's situation within the scrapbook alongside its source material. Laura Elizabeth Foster, the newspaper illustrator responsible for the print in the *San Francisco Chronicle*, copied the condor's egg from a color lithograph produced by Ketterlinus Printing House for *Life Histories of North American Birds: with special reference to their breeding habits and eggs* (1882) by Charles Bendire (Figure 9).[38] Here, the pale pigments and subtle shading give the condor's egg a soft look. The egg and its companions float together

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[36] "Giant in Feathers." *San Francisco Chronicle,* September 30, 1894.
[37] "Whittier's Last Poem," John Greenleaf Whittier, 1892. This poem is transcribed as it appears in the clipping in Hecox's scrapbook.
[38] Charles Bendire, *Life Histories of North American Birds: With Special Reference to Their Breeding Habits and Eggs*. (Washington: Smithsonian Institution, 1892), viii; J. C. Merrill, "In Memoriam: Charles Emil Bendire." *The Auk* 15, no. 1 (1898): 1–6. https://doi.org/10.2307/4068413. The image is cited in the *San Francisco Chronicle* article. Ketterlinus Printing House was founded in Philadelphia by German-American Eugene Ketterlinus, a commercial lithographer along with his two brothers. The print was in turn copied from a watercolor by John L. Ridgway. Charles Bendire was an amateur naturalist like Hecox, though his interests lay in ornithology and egg collecting. He donated around 8,000 eggs to the Smithsonian's collection upon his death.

in a dove-gray void, liberated from the harsh horizontal lines and oddly weighty shadows of Foster's print. In the text of *Life Histories of North American Birds*, Bendire and his ornithologist correspondents—like the author of the *San Francisco Chronicle* article—bemoan the increasingly restricted range of the California condor.[39] However, sequestered in the appendix, the lithograph of the egg in Bendire's book is separated by over 250 pages from the text describing the bird's dire circumstances. Much like the specimen, it takes labor on the part of the reader to access—not to mention wealth, as books such as Bendire's were expensive to produce and buy. The ability of its content to enter into dialogues with other things and people is therefore restricted by the book's exclusivity and the egg's scarcity, unlike the clipping from the *San Francisco Chronicle* that appears in Laura Hecox's scrapbook.

Interestingly for page thirty-three of Hecox's scrapbook and for the fate of the California condor, Longfellow's and Whittier's poems both end on hopeful notes. Longfellow's monk is able to return to his vision of Christ after tending to the needy, while Whittier closes his poem with an optimistic stanza about his and Holmes' return to God's eternal life and love following their deaths. The final, short passage listing the characteristics of nine winds described by different cultures could be Hecox's idea of a condor's heaven: wide open skies, and endless gusts of wind under the bird's wings. While the texts Hecox paired the bleak article with anticipate the future trials of the species, they also inadvertently allude to its uncertain ending. For better or worse, the California condor's successes and failures as a species remain bound with human

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[39] Charles Bendire, *Life Histories of North American Birds: With Special Reference to Their Breeding Habits and Eggs*. (Washington: Smithsonian Institution, 1892). 159. Walter E. Bryant writes to Bendire, "I doubt if I have ever seen it in its wild state. Many reports of its being common, its breeding, etc., which I have investigated at considerable trouble, time, and expense, have been either the Turkey Buzzard or the Golden Eagle seen on the wing," while Mr. A. L. Parkhurst states that the population is stable, but that the birds are "extremely shy." Additionally, Bendire writes that he himself has only seen two California condor eggs. One lived in the U.S. National Museum collection, and the other in the Academy of Natural Sciences of Philadelphia, Pennsylvania, though the latter "has since disappeared."

activity.[40] Hecox's arrangement reflects that ongoing exchange, while also suggesting her own personal feelings on the matter as someone who—like Bendire, his associates, and the writer of the condor article—has a deep personal affection for California's ecology.

Arranging Labor

As we have seen in previous examples, the collected agencies in Hecox's scrapbook work together to illuminate Hecox's identity in relation to the specimens she studied and help rare specimens enter into dialogues with materials that they otherwise would not encounter. Hecox's arrangements suggest her understanding that her primary role as keeper of the light necessitated both human and nonhuman labor. Nonhuman labor is directly addressed on page forty-nine of Hecox's scrapbook, where two illustrated articles sit side by side. The left, titled "Our First Factory," describes the discovery of a large steatite quarrying and manufacturing operation on Santa Catalina Island managed by the Tongva and neighboring Chumash peoples.[41] The right article describes Californian coral and its classification within the animal kingdom. Though the coral article appears straightforward, its stacked-deckheadlines—"The Old-Time Moral Out of Date" and "Polyps Do Not Toil, but Simply Die"—refer to the widespread 19th-century sentiment which manifested in popular literature, song, and political writings. It held that coral was an admirable model for productive and harmonious labor, as its polyps appear to work

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[40] John Nielsen. *Condor: To the Brink and Back--the Life and Times of One Giant Bird*. 1st ed. (HarperCollins, 2006). Although the population of the California condor continued to decrease through the 20th century until the bird was temporarily declared extinct in the wild in 1987, its demise in the wild sparked one of the most complex—and ongoing—recovery programs in United States History. The California condor is still critically endangered.

[41] Virginia Howard, "Santa Catalina's soapstone vessels: Production dynamics." Pages 598–606 in D. R. Browne, K. L. Mitchell, and H. W. Chaney, editors. *Proceedings of the fifth California Islands Symposium.* (Minerals Management Service, Camarillo, CA: 2000); Robert J. Wlodarski, "Catalina Island Soapstone Manufacture." *Journal of California and Great Basin Anthropology* 1, no. 2 (1979): 331–55. Without the date, it's difficult to say which excavation the article is referencing. However, the steatite quarry and manufacturing operation on Santa Catalina Island was first excavated in 1878 by Smithsonian contributor Paul Schumacher, a process which generated a lot of interest from Californians.

together in order to build the structures they inhabit.[42] The article begins by pointing out the flaw in the idea of the coral polyps as workers. Far from industrious, the polyps' "toil" is passive. In fact, the construction of the coral structure is merely an inevitable consequence of their skeletons piling up upon each other when each polyp dies, and therefore unworthy of any special praise. The polyps consume until they die, without making any conscious choice to do so.

By placing the articles alongside one another, Hecox encourages the viewer to consider the two articles in tandem: together, the articles comment on human and nonhuman labor and their mutual influence. The Tongva tools reflect the properties of available materials, showing how nonhuman matter shapes human culture. Likewise, while coral polyps might not consciously participate in creative labor in the way that 19th century morals would have us imagine, popular conceptions of coral's labor did very much shape discourse in its service as an allegory for human work forces—a different, yet no less impactful manner of exerting their agency. Instead of privileging one kind of production over another, the juxtaposition of human and nonhuman labor highlights their ability to influence one another, and displays two ways in which culture is shaped by nature—regardless of whether or not that shaping is something we humans would typically recognize as labor.

The articles pasted on the first pages of the scrapbook illuminate what this discussion of labor might have meant for Hecox and her relationship with her job and her community (Figure 10). It is an article discussing the labor that she performed every day as the keeper of the light, written by Genie Clark Pomeroy, a reporter who spent the night in the Santa Cruz lighthouse in order to observe Hecox at work. Pomeroy describes the "ceremony" of lighting the lamp and the

[42] Karl Marx appropriated the metaphor in *Das Capital* to articulate the benefits of equal labor and consumption: "In corals, each individual is, in fact, the stomach of the whole group; but it supplies the group with nourishment, instead of, like the Roman patrician, withdrawing it." For an account of the cultural biography of coral in America in the 19th century, see Michele Currie Navakas, *Coral Lives: Literature, Labor, and the Making of America*, Princeton University Press, 2023.

toil of keeping it bright throughout the night. Between 8pm and sunrise, keepers were required to check on the light periodically; on stormy nights, that labor was continuous.[43] According to Pomeroy, Hecox did not mind the labor. She quotes Hecox on her affection for the light itself as an object ("I have grown to love it in all these years.") and refers to Hecox's "personification" of the light through Hecox's mentioning of the light's presence and beauty. Pomeroy's words are supported by the article's illustration, drawn from a photograph, which shows Hecox diligently polishing the body of the lamp with a cloth, another important aspect of caring for the apparatus. The treatment of the lamp as having certain human qualities has precedents in the it-narratives popular in the eighteenth and nineteenth centuries—stories told from the perspective of objects. Unlike an it-narrative, however, the personification of the lamp does not seek to convey an understanding of what it's like to be that object.[44] Instead, the lamp is positioned as a collaborator in Hecox's stewardship of the coastline. Its condition is just as crucial as she herself is in guiding ships through the night. The two of them are dependent upon one another in their service to their community.

Part III

Though Hecox's posting at the Santa Cruz Lighthouse was uneventful, the nature of her duties demanded an acute awareness of the vast power that the nonhuman world could have over people on a much larger and more catastrophic scale. When she admired a dried piece of a coral skeleton, did it call to mind the centuries of ships' hulls that have cracked against submerged reefs, or was she merely drawn to the beauty of these objects independently, as the story about her childhood tells us? With such limited records of her personal life, it's impossible to say for

[43] Instructions to Light-Keepers, July, 1881.
[44] Leah Price, *How to Do Things with Books in Victorian Britain*. (Princeton, NJ: Princeton University Press, 2012), 128-133.

certain. In this final section, we will examine a hybrid object—both a scrapbook and a weather record—whose maker demonstrates a closer eye on the possibility of catastrophe when the nonhuman world intervenes in daily life. The manuscript presents environmental data alongside concurrent events in the news, resulting in a continuous timeline of data which positions small-scale, local weather conditions among atmospheric and human conditions on a much more global scale, drawing out parallels and connections between the two streams of information.

Scrapbooks and weather records were independently common varieties of domestic bookwork which fused in the work of Edwin Lewis (1863-1931), a medical doctor from Westerly, Rhode Island.[45] Like Hecox and Bruseth, Lewis was an individual who was both highly active in his community and engaged with his natural environment through his work and hobbies. Lewis enjoyed a level of local prominence reflected in the printed coverage of his death and other life events. He appears in a booklet of caricatures of Westerly men from around 1900 (Figure 11). While the other men in the booklet are mostly depicted doing their jobs, Lewis's cartoon figure perches near a body of water, fishing with a branch propped up between two rocks. A small collection of papers rest beside him on the ground. They read: "Game Laws," "Game Warden," "Water Commissioner," and "Town Council." The unknown artist took the time to sketch out the clouds behind Lewis's cartoonishly enlarged head—probably not an intentional nod to Lewis's weather-recording habits, but still appropriate. One might note that there is no reference to his medical practice in the array of activities attributed to his persona: despite his work as a physician, it seems that Lewis was best known in his time for his other commitments

[45] Lewis's practice of recording the weather was nothing new on its own. Humans around the world have been watching the skies, making note of rainfall and temperature fluctuations, for centuries in order to know when to plant, travel, or expect dangerous weather. In a specifically American context, colonists' survival depended on being able to anticipate the weather and its impacts on human activity. For an overview of the relationship between weather records and colonialism, see Elaine LeFay, "Looking at the Weather: The Politics of Meteorological Data." *Harvard Data Science Review,* 5(3), 2023. https://doi.org/10.1162/99608f92.dab5e00b; for more about the cultural history of weather in 20th century America, see Bernard Mergan, *Weather Matters: An American Cultural History since 1900*. (Kansas: University Press of Kansas, 2008).

to his community, most of which have a direct connection to the relationship between Westerly's residents and the land they live on.[46]

For nearly forty years of his life, Lewis took it upon himself to record the weather twice a day at the exact same spot. The title page of the weather record says the measurements were taken at the "Hydrant corner (NE) of Park." Based on the location of Lewis's home, the part he refers to is likely Wilcox Park—the hill at that location would also account for elevation that he specifies ("Reading at 60ft elevation" and "46.68 feet above sea level"). The record begins in 1891 and continues, with some occasional gaps, until just under four months before his death. Lewis graphed the data he collected in signatures of irregular length, then bound these together with a canvas cover using a thick black string. When Lewis began recording in 1891, the scope of his observations was limited only to the barometric pressure. Through the 1890s and the early 1900s, he gradually incorporated more detailed notes (Figure 12). By 1894's entries, descriptions of the weather conditions accompany almost every data point along the graph, including the wind direction, average temperatures, information about the cloudcover, and anything else Lewis deemed noteworthy. The most unique additions to the weather record start to appear in entries 1904, when Lewis began pasting newspaper clippings near their corresponding dates. The description of the weather record provided by its current repository states that the clippings mostly document "unusual meteorological phenomena," but this does not encompass all of what Lewis includes. There are articles about fires, earthquakes, astronomical phenomena, illnesses, shipwrecks, and advancements in technology all around the world.[47] Lewis positions the

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[46] "Funeral Service for Well Known Physician Held This Afternoon." *The Westerly Sun,* Monday, March 2nd, 1931. He also gave medical examinations to scouts of the Quequatuck District of Boy Scouts before they went off to camp, and was involved with the U.S. Coast Guard. Somewhat eerily, his depiction in the cartoon mirrors the story of his abrupt death by cerebral hemorrhage, published in *The Westerly Sun*: on February 27th. He was found dead at a campsite near Pawcatuck river.

[47] Ironically, more shipwrecks than can be found in Laura Hecox's scrapbook. Though in Hecox's defense, there was only one shipwreck during her tenure as Santa Cruz's lighthouse keeper.

barometric pressure in Westerly as a through-line that binds his circumstances with a diverse array of happenings. Though these events might occur thousands of miles away, they are subject to the same shared atmosphere.

Collecting Weather Data

The early years of Lewis's recording practice were a busy time in the cultural history of meteorology in America. The United States Weather Bureau, known today as the National Weather Service, was established as a civilian agency within the Department of Agriculture in 1891—the very same year that Lewis began keeping track of the barometric pressure. The Bureau was primarily concerned with forecasting dangerous weather. In order to do that, they needed a lot of meteorological data, which was partially supplied by a network of volunteer observers known as the Cooperative Observer Program.[48] There is no documentation stating that Lewis was officially one of these individuals, however, his practice does seem to follow many of the guidelines for the records that these volunteers were required to make. The following text comes from the 1895 edition of the *Instructions for Observers of the Weather Bureau,* in the section on "Meteorological Observation":

> The object in keeping a daily journal is to make a record of those characteristics of the weather not easily susceptible of tabulation, and to preserve for reference a complete history of the events of the day. Questions frequently arise as to the details of the weather on some particular day which can not be gleaned from the tabulated records, and can only be had from a well-kept journal.[49]

As we can see from these instructions, volunteers were encouraged to both record data and also contextualize it within their personal experience of the weather. In addition to these guidelines,

[48] Bernard Mergen, *Weather Matters: An American Cultural History Since 1900,* (Kansas: University Press of Kansas, 2008), 20.
[49] U. S. Department of Agriculture: Weather Bureau, *Instructions for Observers of the Weather Bureau,* (Washington: Government Printing Office, 1895), 20.

Instructions for Observers of the Weather Bureau also includes lists of recommended reading, suggesting a desire not only for volunteers to be mechanically accurate in their observations, but personally knowledgeable as well. The project was not only concerned with what the weather was in terms of numerical data, but what the weather was doing and how people were interacting with it. Lewis's record performs this role exactly through the combination of his notes on the conditions in Westerly—the lines of handwritten text which sprout off of his barometric pressure graph—and by couching the data in information about human activity happening simultaneously.

In her discussion of data archives and their historical manifestations and uses, Lorraine Daston argues that first and secondhand experiences of the scientific data that can be found in archives like Lewis's manuscript are foundational to making meaning from scientific inquiry. For Daston, questions about what it means for data to be truly objective when we consider who is compiling scientific data, what they are using it for, and why.[50] In Lewis's manuscript, the empirical data that he collects is contextualized within events which sometimes—but not always—have a direct cause-and-effect relationship with the atmosphere. This offers a way of engaging with data in a way that does not bury itself entirely in literal meaning or pure logic. By laying out such an impressive spread of minutiae, Lewis creates a vast timeline of information that both displays data and synthesizes it with events from the news. Take the month of April, 1912: the graph tells us that the barometric pressure in Westerly on April 15th, was 30.15 inHg. We also know from his annotation that the Titanic sank on that same day, over one thousand miles away, killing 1,635 people. Setting these two pieces of information beside one another foregrounds the sharp contrast in scale between them. One is just a number, the other carries a massive death toll. Together, they draw attention to the billions of things that occur alongside

[50] Lorraine Daston, "The Sciences of the Archive," *Osiris (Bruges)* 27, no. 1 (2012): 156–87. https://doi.org/10.1086/667826.

Lewis's continuous flow of data. The chart of the barometric pressure concentrates and compresses time into one line, off of which human activity branches off infinitely. Lewis's weather record offers potential for extrapolating meaning that goes beyond each individual data point and event represented in its pages, connecting tiny details about his particular circumstances to all kinds of events.

Despite his similar degree of involvement in local and community affairs, unlike Bruseth's and Hecox's scrapbooks, Lewis's weather record looks out much farther beyond the scope of local happenings. While Westerly's climate is always prioritized, it is also positioned among a global network of atmospheric consequences. The weather record is an embodiment of what Bennett would call an assemblage, where interconnected systems of people, machines, natural forces influence each other equally, but also have a collective capacity to influence things outside of the assemblage when they interact. Weather is one of these systems.[51] Each element of the weather—the temperature, barometric pressure, precipitation, quality of the sunlight, and direction of the wind all work together to influence human activities. Weather is both quotidian and entirely specific to each day, creating infinitely unique sets of circumstances.[52] When Lewis represents the weather in data, he is also tracking the agency of the weather as a system and its ability to manipulate how people exist in the world—and in some cases predicting its effects.

Lewis's engagement with the barometric pressure and weather conditions as variables which could predict or correlate with human activity suggests that forecasting itself is a creative

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[51] Jane Bennett, *Vibrant Matter,* 24. Bennet borrows the term "assemblage" from Gilles Deleuze and Félix Guttari. Bennett discusses this distinction between the agency of a system's components and that of the system itself using the example of an electrical power grid. The power grid is a collection of interacting elements made up not only of people and infrastructures that support and maintain it, but also nonhuman entities such as electrons, trees, wind, fire, and electromagnetic fields. Bennett's argument points out that focusing solely on the agency of any one part of such a complex system severely limits how its effects can be understood. The system is not only varied, but changes every second as things enter or leave it—for a dramatic example, a transformer could be struck by lightning and cause a power outage.

[52] Bernard Mergen, *Weather Matters*, 5.

endeavor which relies upon the agency of assemblages. As Philadelphia journalist Harvey Maitland Watts astutely said in an article written in defence of the Weather Bureau's weather predictions, "Forecasting is an art rather than a science."[53] Lewis's work attests that it can be both. Like any other science, interpreting weather data requires a sensitivity to relationships and the ability to speculate as to where those relationships might lead. This mode in which the weather record functions comes to the fore when Lewis turns his attention to disasters, both local and remote.

Forecasting Misfortune

When Lewis places an article in the context of the barometric pressure graph, he proposes a relationship between them. Some of these relationships are direct and measurable: under one sharp dip in the barometric pressure on August 27th, 1893, Lewis records the death toll and property damage of the Sea Islands hurricane in Georgia; under another on December 26th, he makes note of downed powerlines and electricity failures due to snowfall. Other relationships are less easy to discern. On the page for June 1926, several overlapping articles related to a deadly train wreck interrupt Lewis's coverage of Westerly's weather conditions (Figure 13). The sensational photographs of twisted metal and compressed parts of the locomotive are folded and tucked into the book's gutter, creating a small book-within-a-book covering the devastation. Lewis also took the time to cut and paste captions from the newspaper onto the images themselves in order to save as much of their context as possible. Below these larger articles, there are a few bits of text from earlier in the month pasted directly on the barometric pressure

[53] Harvey Maitland Watts, "The Forecaster and the Newspaper," *Popular Science Monthly* 58 (February 1901): 387. This was within the context of the early days of the Weather Bureau, when the general public was still skeptical of meteorologists' ability to effectively predict the weather better than they could. This historical debate is outlined in Bernard Mergen, *Weather Matters: An American Cultural History Since 1900,* (Kansas: University Press of Kansas, 2008).

graph itself: short lines announcing low temperatures in the Carolinas and "the coldest June 6 in history," along with an article titled "Brilliant Halo Encircling Sun Warns of Storm." The last article on the page is long and narrow, also folded to fit on the page. Under the headline "Wreck Inquiry Findings," the text contains a log of the many warning signs that the locomotive which exploded on June 26th had been malfunctioning all month and should not have been allowed to run at all. The narrative Lewis constructs by including coverage of the inquiry alongside the images of the wrecks is clear: if someone had cared to heed the locomotive's many prior malfunctions, the train wreck could have been predicted and prevented.

The connection between the barometric pressure in Westerly and the mismanagement of the rail system is a bit less obvious. Since the discovery that rapid drops in barometric pressure often warn of snow or a storm, barometers have historically been associated with both rising and falling pressures in the air and in human affairs as well as atmospheric ones.[54] When Lewis made his weather record, he was participating in an ongoing cultural fascination with the seemingly predictive power of the barometric pressure, which—while not always completely reliable—gave even amateur climatologists the sense that they could foretell bad weather in advance.[55] By juxtaposing daily recordings of the local temperature and barometric pressure with a timeline of current events rendered in newspaper clippings, Lewis fashions the atmospheric conditions as a reflection of the circumstances which resulted in the accident: the forewarnings in the inquiry findings are mirrored in the unseasonable chill and the halo of light around the sun. Lewis's book makes the role of the atmosphere as a connective tissue not only visible, but interactive as well. Leafing through the images of the train wreck and uncovering at the base the

[54] Jan Golinski, *British Weather and the Climate of Enlightenment,* (Chicago: University of Chicago Press, 2007), 111, 130-136. Here, Jan Golinski is writing about Enlightenment-era British weather diaries, but the sentiment holds true for Lewis's time as well.
[55] Bernard Mergen, *Weather Matters,* 18; Jan Golinski, *British Weather and the Climate of Enlightenment,* 114.

many mishaps and omens that came before it, it is hard not to pass judgement on the many people who failed to read the warning signs—even the weather-related ones, which could not rationally have been connected to the wreck itself.

Lewis's particular interest in connecting weather and large-scale tragedies is reflected in some of the very intermittent personal additions to Lewis's weather record as well; these notes also speak to the role of data collection as a means of predicting misfortune and nod to my previous discussion of scale within the weather record. Lewis's personal notes are uniformly short, vague annotations under the barometric pressure graph, no different visually from the descriptive notes he makes about the weather. For example, the line for December 31st, 1913 reads "good riddance to an unfortunate year" in slightly smudged letters. There's no way to know what about that year so dismayed Lewis—if it was something going on in his community, in the news, or a personal grievance—but the emotion is clearly present in the record nonetheless. Lewis's note embeds his individual experience in the overarching timeline of events that he records, and in doing so, he adds himself to the list of variables that he tracks.[56] Though the area of effect is much smaller than the trainwrecks, tsunamis, and storms that he records, he nonetheless endeavors to monitor misfortune on all scales.

A Climate of Interconnectivity

I have focused thus far on the disasters that make their way into Lewis's weather record, but there are some other themes that emerge which point to some more optimistic ideas about the ways in which people interact with their atmosphere. Lewis was very intrigued by the transfer of information and people over distances. He saved articles that discussed developments in radio

[56] Lorraine Daston, *Objectivity,* 235-236. This line of thinking echoes Daston's points about enlightenment-era scientific journals, in which observations about the sciences are inexorably bound up in observations about the scientist themself.

technology, early television tests, and particularly long flights. When Charles Lindbergh flew his nonstop transatlantic flight in the *Spirit of St. Louis* on May 20–21, 1927, Lewis pasted an article about the event over the corresponding date (Figure 14). In keeping with Lewis's demonstrated affection for timelines, the coverage of Lindbergh's journey that Lewis chose to include takes the form of a flight log, showing the time at specific benchmarks along the way between New York and Paris. Lewis aligned the right edge of the clipping with the entry for May 20th on his barometric pressure graph. The pressure rises to a crest in the evening of the 21st—around the time Lindbergh would have been landing his plane in Paris—then descends over the following few days.

Through his inclusion of material concerning Lindbergh's flight, Lewis's weather record indicates a cultural awareness of the increasing global connectedness made possible by the technology advances of the time, and how atmospheric conditions contributed to those advances. Lindbergh's flight across the Atlantic Ocean from New York to Paris in 1927 made him a global celebrity, prompting other transatlantic flights and massive amounts of media attention. The peak in the barometric pressure is the highest point on the graph for the month of May; it is almost as though the national fervor over the flight is echoed in the air itself.[57] The peak in pressure also calls attention to the atmospheric and physical factors that the plane and its pilot had to contain in order to reach its destination—factors like wind speed, air density, cloud cover, not to mention temperature extremes and other unpleasant cockpit conditions. Lindbergh and the other pilots who completed the journey at that time were, quite literally, under a lot of pressure. By

[57] One of the products produced following these flights was a transatlantic flight puzzle game (Figure 15). In the game's metal box, three plane routes between New York and Paris are marked in red, white, and blue run, representing the three flights of Lindbergh, Richard Evelyn Byrd Jr., and Clarence Chamberlin. The object of the game is to get three plastic pills into the corresponding chamber in one of the corners of the box, a feat requiring patience and manual dexterity. Like Lewis's weather record, the puzzle game compresses time and space. The player must negotiate with the miniature "atmosphere" inside the box to get the pills in their slotsFor more on Lindbergh's flight and its impact on American culture, see Thomas Kessner. *The Flight of the Century: Charles Lindbergh & the Rise of American Aviation.* (Oxford: Oxford University Press, 2010).

incorporating these articles into his weather record, Lewis demonstrates one way in which the general public could participate in the pilot's challenge of navigating these environmental conditions from afar, and thus share in the triumph of successfully working together with the atmosphere to achieve a goal. Unlike some of his previous associations, where the weather seems almost hostile to human endeavors, Lewis's coverage of the flight celebrates a collaboration between humans, their machines, and the atmosphere.

When Lewis wrote his final entries just months before his death, the world looked very different from how it did when he began collecting his data specimens in 1891. While he lived his whole life in Westerly, he watched the world rapidly become more connected than it ever had been before. His careful, continuous practice of monitoring the barometric pressure meant he was looking out for his community and the meteorological influences that it was at the mercy of, while also situating that data among a much broader array of human activities that are influenced—or seemingly influenced, as the case may be—by the weather. His inclination towards information stewardship through collection of information about the environment connects his practice to those of Laura Hecox and Nels Bruseth, but he looks further out than the other two scrapbook makers. The weather record is both singularly local and also aware of its position within a global context.

Conclusion

Bruseth, Hecox, and Lewis each demonstrate life-long commitments to their environments and their communities. Their devotion was shared through conventional means—they kept watch for incoming ships, forest fires, physical ailments—but also through their careful preservation and organization of information about the natural world around them.

By assembling these fragments over years or decades, their scrapbooks acknowledge the continuity of these natural processes as they unfold over time. In doing so, the maker places themselves in the role of attentive observer and steward, recognizing their position within a larger web of human and environmental interactions. The afterlives of these scrapbooks in turn invite contemporary book scholars to use archival materials to contextualize today's climate crisis within a longer history of how people have conceptualized the state of their environment and their responsibilities towards it.

Building upon this perspective, posthumanist approaches can illuminate the role of the scrapbook maker by decentering human authority. Rather than drawing conclusions from scrapbooks that are focused on human intention and interests, this framework emphasizes the collaborative nature of collecting and assembling material in a scrapbook. A scrapbook's life cycle diverges from those of the published volumes and printed matter; not only is each scrapbook overtly, chaotically unique, but they also serve as collection points for ephemera and objects which have had their own lives, both prior to and within the pages where we encounter them. Instead of having a scrapbook maker at the center of a web of things and ideas that they manipulate to their will, they are positioned *among* those things, both acting on them and being acted upon in turn. Meaning is created as much by a book's materials as it is by its makers, owners, and readers. Considering scrapbooks as a nonhierarchical and ongoing conversation between people and things provides a deeper insight into how this project's scrapbook makers understood their position in relation to the natural world. Like the diverse coastal ecosystem explored by Laura Hecox, the atmospheric conditions diligently recorded by Edwin Lewis, and the plants identified and preserved by Nels Bruseth, the scrapbook itself is a network of interconnected forces that describe, obscure, and influence one another equally.

The collaborative nature of the scrapbook also offers an avenue for considering people's relationships with the environment in a way that emphasizes individual creative engagement with specimens without the restrictions imposed by Western scientific institutions. As I have stated, none of the individuals that this project focuses on were taught to perform the kinds of observations and studies that they devoted so much of their time to; they were guided by their desire to understand and collect information about the world around them. By linking this innate curiosity with bookwork as a means of organizing and presenting their findings, scrapbook makers challenge the strict hierarchies and unyielding structures of scientific learning in the West which have omitted so many ways of making meaning from things that come from nature by excluding all but a small percentage of people and perspectives.[58] Rather than presenting nature as a distant object to be measured and controlled, these scrapbooks situate their makers within the environments that they documented. In an era defined by the climate crisis, scrapbooks' reflections of interdependency and nonhuman agency are a crucial part of our collective renegotiation with the planet and how we intend to live on it.

One of Jane Bennett's primary points in favor of privileging the world of things is her argument that humans will be uplifted through a greater care for and awareness of the nonhuman world: "If matter itself is lively, then not only is the difference between subjects and objects minimized, but the status of the shared materiality of all things is elevated." While Bennett does not claim that this attention to things and matter will single-handedly improve conditions for all of humanity, acknowledging the ways in which all things are necessarily related to one another reveals the repercussions of bleeding dry natural resources and disregarding the harm of human negligence.[59] Being able to correspond with the leaves in Bruseth's collection, discern narratives

[58] Jennifer M. Black,"Gender in the Academy: Recovering the Hidden History of Women's Scholarship on Scrapbooks and Albums." *Material Culture* (October 1, 2018): 38-47.
[59] Jane Bennett, *Vibrant Matter, 13.*

of extinction and loss within Hecox's arrangements, and track the dire consequences of failing to read the warning signs in our skies and technology in Lewis's record—these are all ways that the book can direct human attention and care for the benefit of all things.

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Figure 1: *Nels Bruseth writings, correspondence and scrapbook of botanical specimens,* 1918-1949. acc0228-001 Box 2–flat T0429b. University of Washington Special Collections, Seattle, WA. Image taken by the author.

Figure 2: *Nels Bruseth writings, correspondence and scrapbook of botanical specimens,* 1918-1949. acc0228-001 Box 2–flat T0429b. University of Washington Special Collections, Seattle, WA. Image taken by the author.

Figure 3: *Nels Bruseth writings, correspondence and scrapbook of botanical specimens,* 1918-1949. acc0228-001 Box 2–flat T0429b. University of Washington Special Collections, Seattle, WA. Image taken by the author.

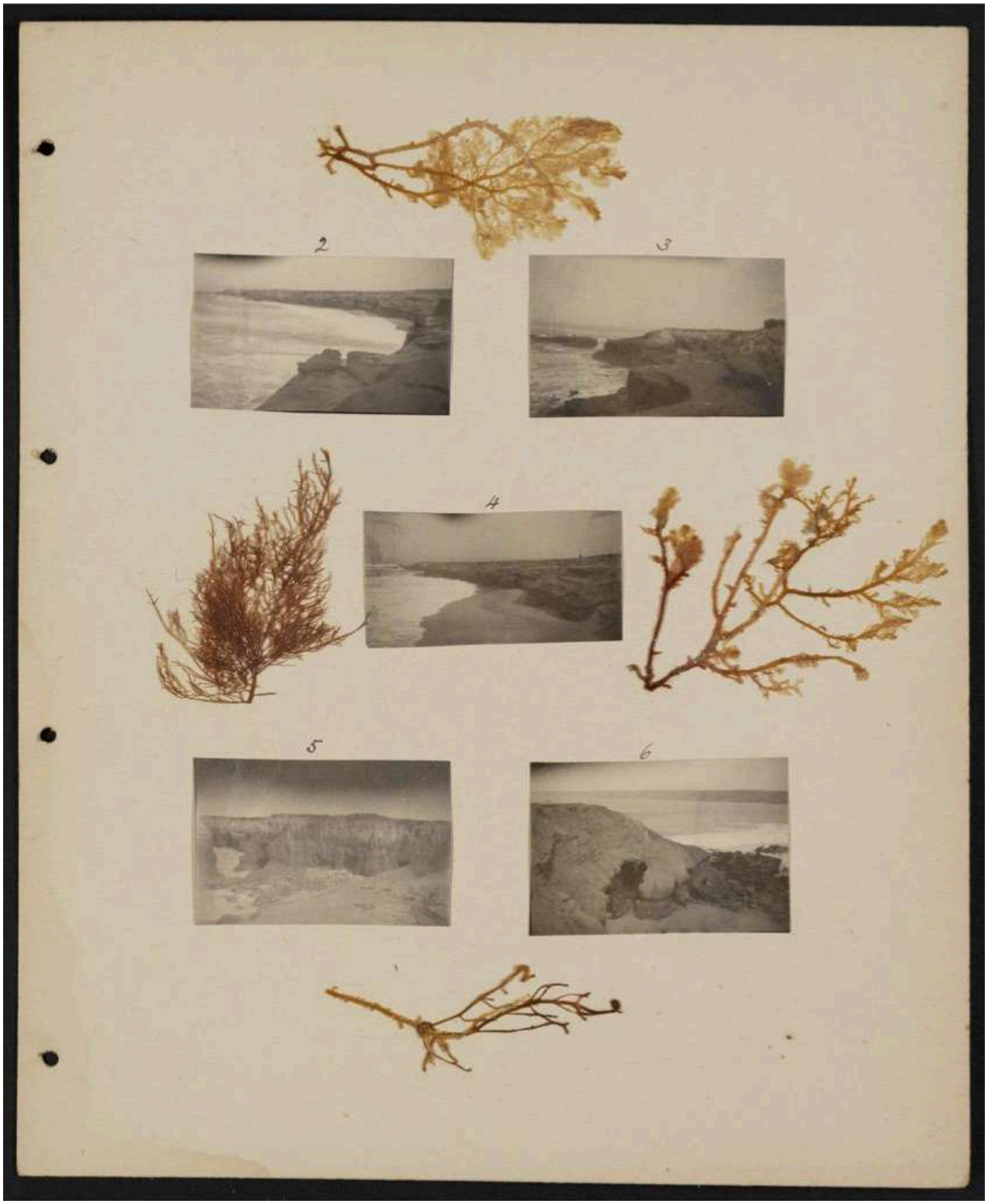


Figure 4: Page from Eliza Virginia Scripps (1852-1921) and Ellen Browing (1836-1932) seaweed albums, 1901-1905. 2 albums (10; 29 unnumbered leaves): photographs; 16 x 21 cm + 3 leaves (23 cm). Mms: 991004369359706535. Special Collections & Archives, UC San Diego, La Jolla, CA. Image courtesy of the UC San Diego Library.

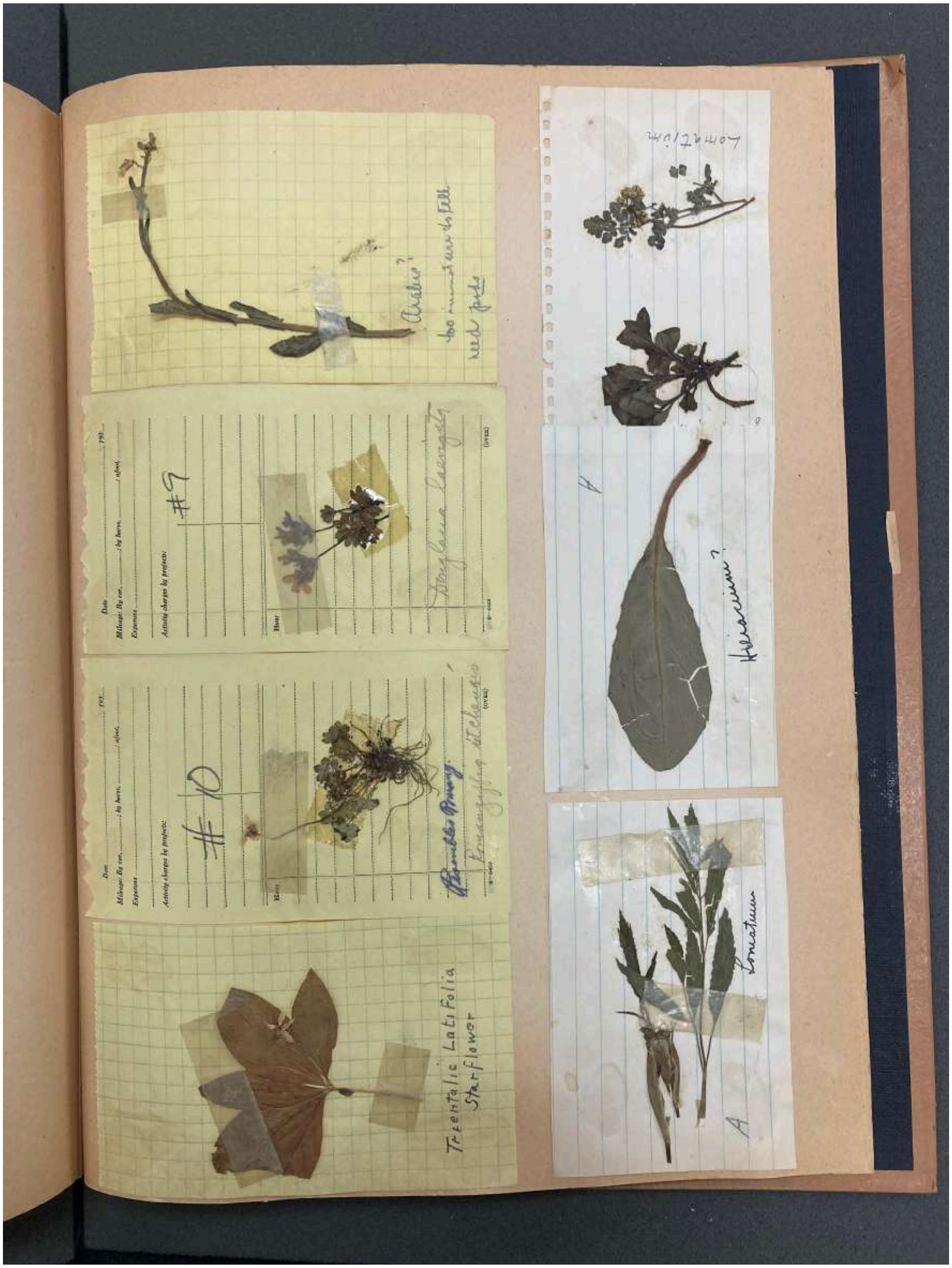


Figure 5: *Nels Bruseth writings, correspondence and scrapbook of botanical specimens,* 1918-1949. acc0228-001 Box 2–flat T0429b. University of Washington Special Collections, Seattle, WA. Image taken by the author.

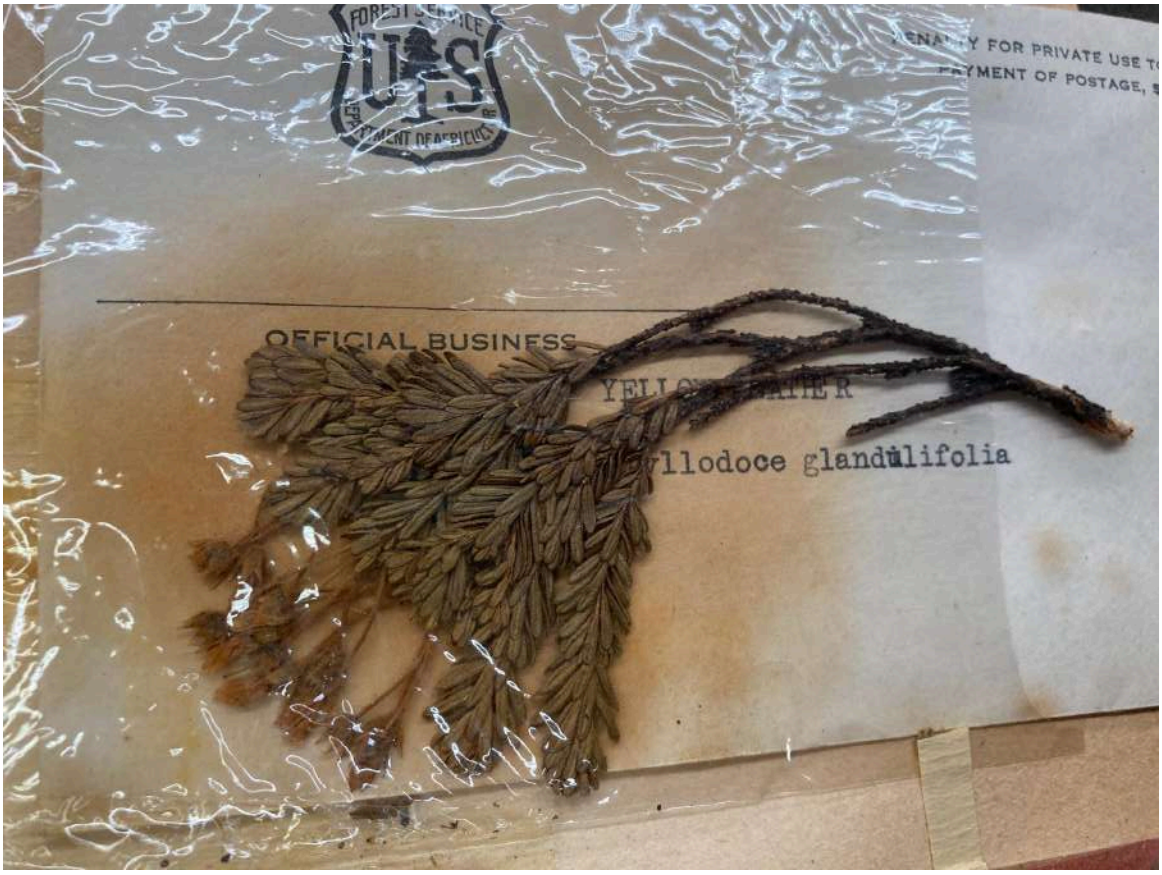


Figure 6: *Nels Bruseth writings, correspondence and scrapbook of botanical specimens,* 1918-1949. acc0228-001 Box 2–flat T0429b. University of Washington Special Collections, Seattle, WA. Image taken by the author.

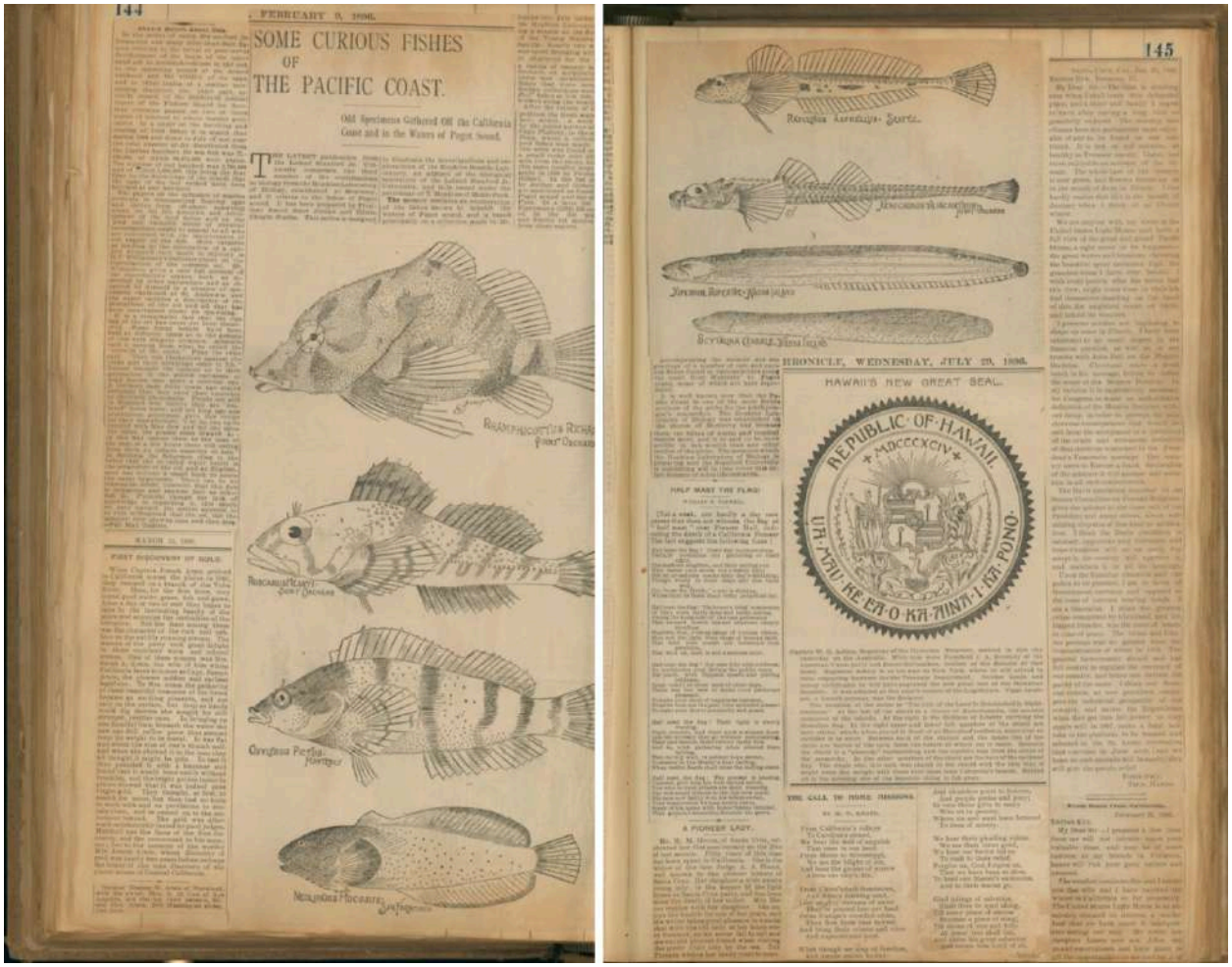
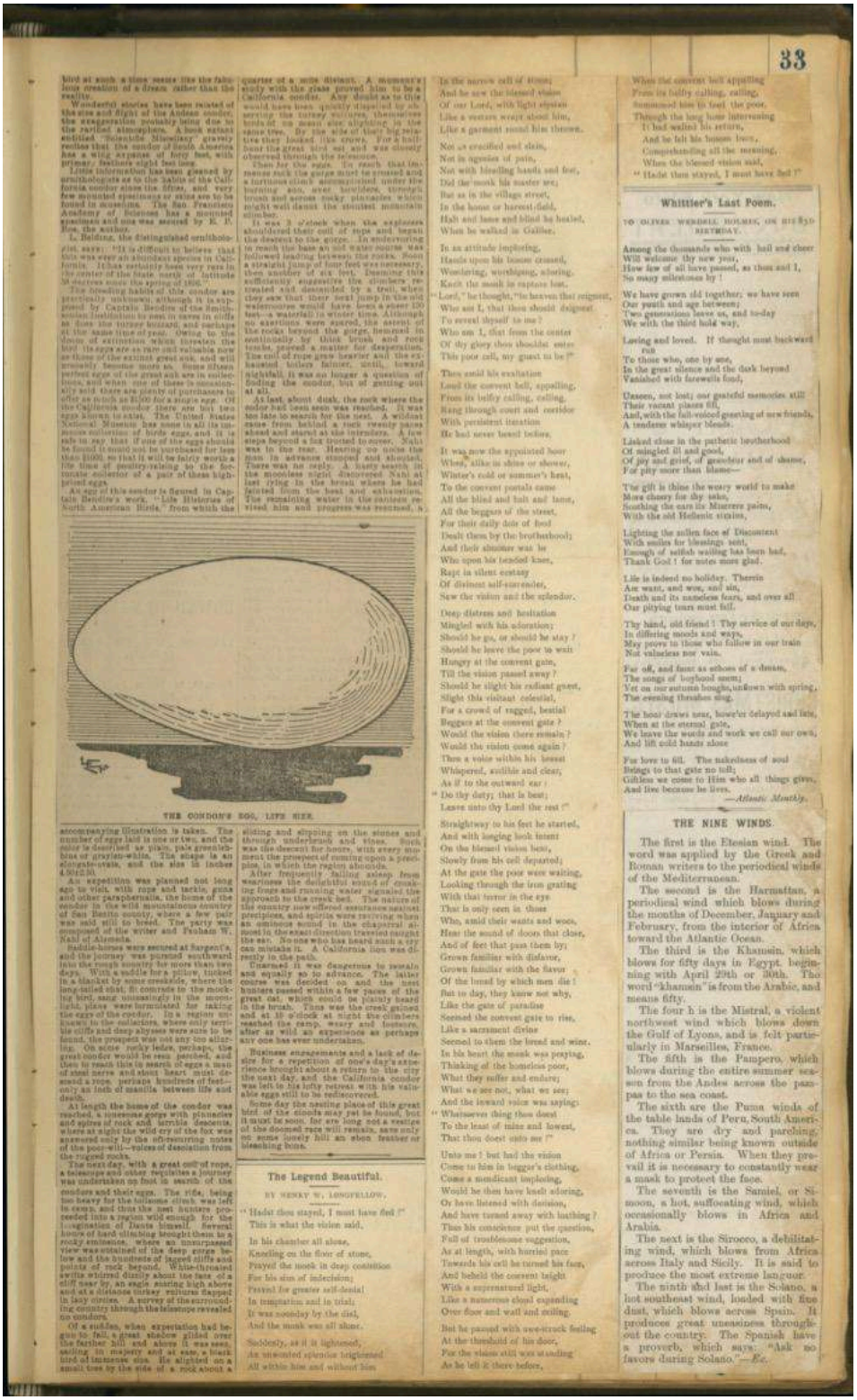


Figure 7: *Scrapbook of Lighthouse Keeper Laura F. Hecox,* c. 1890-1900. Santa Cruz Museum of Natural History, Santa Cruz, CA. Image courtesy of the Santa Cruz Museum of Natural History.



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blind at such a time seems like the fabulous creation of a dream rather than the reality.

Wonderful stories have been related of the size and flight of the Andean condor, the exaggeration possibly being due to the rarified atmosphere. A book extant entitled "Scientific Wanderings" gravely recites that the condor of South America has a wing expanse of forty feet, with primary feathers eight feet long.

Little information has been gleaned by ornithologists as to the habits of the California condor since the fifties, and very few mounted specimens or skins are to be found in museums. The San Francisco Academy of Sciences has a mounted specimen and one was secured by E. P. Hoe, the author.

L. Beldini, the distinguished ornithologist, says: "It is difficult to believe that this was ever an abundant species in California. It has certainly been very rare in the center of the State north of latitude 34 degrees since the spring of 1876."

The breeding habits of the condor are practically unknown, although it is supposed by Captain Beedire of the Smithsonian Institution to nest in caves in cliffs as does the turkey buzzard, and perhaps at the same time of year. Owing to the threat of extinction which threaten the bird its eggs are as rare and valuable now as those of the extinct great auk, and will probably become more so. Some fifteen perfect eggs of the great auk are in collections, and when one of these is occasionally sold there are plenty of purchasers to offer as much as $1,000 for a single egg. Of the California condor there are but two eggs known to exist. The United States National Museum has none in all its immense collection of birds eggs, and it is safe to say that if one of the eggs should be found it would not be purchased for less than $1000, so that it will be fairly worth a fifty time of poultry-raising to the fortunate collector of a pair of these high-priced eggs.

An egg of this condor is figured in Captain Beedire's work, "Life Histories of North American Birds," from which the accompanying illustration is taken. The number of eggs laid is one or two, and the color is described as plain, pale greenish-blue or greenish-white. The shape is an elongate-ovate, and the size is inches 4.50x2.50.

THE CONDOR'S EGG, LIFE SIZE.

An expedition was planned not long ago to visit, with rope and tackle, guns and other paraphernalia, the home of the condor in the wild mountainous country of San Benito county, where a few pair was said still to breed. The party was composed of the writer and Prahan W. Nahl of Alameda.

Saddle-horses were secured at Sargent's, and the journey was pursued southward into the rough country for more than two days. With a saddle for a pillow, tucked in a blanket by my bedside, where the long-tailed chat, fit comrade to the mocking bird, sang unceasingly in the moonlight, plans were formulated for raiding the eyrie of the condor. In a region unknown to the collectors, where only terrific cliffs and deep abysses were sure to be found, the prospect was not any too alluring. On some rocky ledge, perhaps, the great condor would be seen perched, and then to reach this to search of eggs a man of steel nerve and stout heart must descend a rope, perhaps hundreds of feet—only an inch of manilla between life and death.

At length the home of the condor was reached, a lonesome gorge with pinnacles and spires of rock and terrible descents, where at night the wild cry of the fox was answered only by the oft-recurring notes of the poor-will—voices of desolation from the rugged rocks.

The next day, with a great coil of rope, a telescope and other requisites a journey was undertaken on foot in search of the condors and their eggs. The rifle, being too heavy for the toilsome climb, was left in camp, and thus the nest hunters proceeded into a region wild enough for the imagination of Dante himself. Several hours of hard climbing brought them to a rocky eminence, where an unsurpassed view was obtained of the deep gorge below and the thousands of jagged cliffs and points of rock beyond. White-throated swifts whirred dimly about the face of a cliff near by, an eagle soared high above and at a distance turkey vultures flapped in lazy circles. A survey of the surrounding country through the telescope revealed no condors.

Of a sudden, when expectation had begun to fail, a great shadow glided over the farther hill and above it was seen, sailing in majesty and at ease, a black bird of immense size. He alighted on a small tree by the side of a rock about a quarter of a mile distant. A moment's study with the glass proved him to be a California condor. Any doubt as to this would have been quickly dispelled by observing the turkey vultures, themselves birds of no mean size alighting in the same tree. By the side of their big relative they looked like crows. For a half hour the great bird sat and was closely observed through the telescope.

Then for the ropes. To reach that immense rock the gorge must be crossed and a perilous climb accomplished under the burning sun, over boulders, through brush and across rocky pinnacles which might well daunt the stoutest mountain climber.

It was 3 o'clock when the explorers shouldered their coil of rope and began the descent to the gorge. In endeavoring to reach the base an old water course was followed leading between the rocks. Soon a straight jump of four feet was necessary, then another of six feet. Deeming this sufficiently suggestive the climbers retreated and descended by a trail, when they saw that their next jump in the old watercourse would have been a sheer 100 feet—a waterfall in wet time. Although no exertions were spared, the ascent of the rocks beyond the gorge, hemmed in continually by thick brush and rock tombs, proved a matter for desperation. The coil of rope grew heavier and the exhausted hollers farmer, smith, toward nightfall, it was no longer a question of finding the condor, but of getting out at all.

At last about dusk, the rock where the condor had been seen was reached. It was too late to search for the nest. A wildcat came from behind a rock twenty paces ahead and stared at the intruders. A few steps beyond a hut trotted to cover. Nahl was in the rear. Hearing no noise the man in advance stopped and shouted. There was no reply. A hasty search in the moonless night discovered Nahl at last lying in the brush where he had fainted from the heat and exhaustion. The remaining water in the canteen revived him and progress was resumed, sliding and slipping on the stones and through underbrush and vines. Such was the descent for hours, with every moment the prospect of coming upon a precipice, in which the region abounds.

After frequently falling asleep from weariness the delightful sound of croaking frogs and running water signaled the approach to the creek bed. The nature of the country now offered assurance against precipices, and spirits were reviving when an ominous sound in the chaparral almost in the exact direction traveled caught the ear. No one who has heard such a cry can mistake it. A California lion was directly in the path.

Unarmed it was dangerous to remain and equally so to advance. The latter course was decided on and the nest hunters passed within a few paces of the great cat, which could be plainly heard in the brush. Thus was the creek gained and at 10 o'clock at night the climbers reached the camp, weary and footsore, after an wild an experience as perhaps any one has ever undertaken.

Business engagements and a lack of desire for a repetition of one's day's experience brought about a return to the city the next day, and the California condor was left to his lofty retreat with his valuable eggs still to be rediscovered.

Some day the nesting place of this great bird of the clouds may yet be found, but it must be soon, for are long not a vestige of the doomed race will remain, save only on some lonely hill an shon feather or bleaching bone.

The Legend Beautiful.

BY HENRY W. LONGFELLOW.

"Hadst thou stayed, I must have fled!"
This is what the vision said,

In his chamber all alone,
Kneeling on the floor of stone,
Prayed the monk in deep contrition
For his sins of indecision;
Prayed for greater self-denial
In temptation and in trial;
It was noonday by the dial,
And the monk was all alone.

Suddenly, as it it lightened,
An unwonted splendor brightened
All within him and without him
In the narrow cell of stone;
And he saw the blessed vision
Of our Lord, with light elysian
Like a vesture wrapt about him,
Like a garment round him thrown.

Not as crucified and slain,
Not in agonies of pain,
Not with bleeding hands and feet,
Did the monk his master see;
But as in the village street,
In the house or harvest-field,
Hale and hale and blind he healed,
When he walked in Galilee.

In an attitude imploring,
Hands upon his breast crossed,
Wondering, worshiping, adoring,
Knelt the monk in rapture lost.
"Lord," he thought, "in heaven that reignest,
Who art I, that thou should deignest
To reveal thyself to me?
Who am I, that from the center
Of thy glory thou should enter
This poor cell, my guest to be?"

Then said his exultation
Loud the convent bell, appalling,
From its belfry calling, calling,
Rang through court and corridor
With persistent iteration
He had never heard before.

It was now the appointed hour
When, alike in shine or shower,
Winter's cold or summer's heat,
To the convent portals came
All the blind and halt and lame,
All the beggars of the street,
For their daily dole of food
Dealt them by the brotherhood;
And their almoner was he
Who upon his kneeled knee,
Rapt in silent ecstasy
Of divinest self-surrender,
Saw the vision and the splendor.

Deep distress and hesitation
Mingled with his adoration;
Should he go, or should he stay?
Should he leave the poor to wait
Hungry at the convent gate,
Till the vision passed away?
Should he slight his radiant guest,
Slight this visitant celestial,
For a crowd of ragged, bestial
Beggars at the convent gate?
Would the vision there remain?
Would the vision come again?
Then a voice within his breast
Whispered, audible and clear,
As if to the outward ear:
"Do thy duty; that is best;
Leave unto thy Lord the rest!"

Straightway to his feet he started,
And with longing look intent
On the blessed vision bent,
Slowly from his cell departed,
At the gate the poor were waiting,
Looking through the iron grating
With that terror in the eye
That is only seen in those
Who, amid their wants and woes,
Hear the sound of doors that close,
And of feet that pass them by;
Grown familiar with disfavor,
Grown familiar with the flavor
Of the bread by which men die!
But to day, they know not why,
Like the gate of paradise
Seemed the convent gate to rise,
Like a sacrament divine
Seemed to them the bread and wine.
In his heart the monk was praying,
Thinking of the homeless poor,
What they suffer and endure;
What we see not, what we see;
And the inward voice was saying:
"Whatsoever thing thou doest
To the least of mine and lowest,
That thou doest unto me!"

Unto me! but had the vision
Come to him in beggar's clothing,
Come a mendicant imploring,
Would he then have knelt adoring,
Or have listened with derision,
And have turned away with loathing?
Thus his conscience put the question,
Full of troublesome suggestion,
As at length, with hurried pace
Towards his cell he turned his face,
And behold the convent bright
With a supernatural light,
Like a luminous cloud expanding
Over floor and wall and ceiling.

But he paused with awe-struck feeling
At the threshold of his door,
For the vision still was standing
As he left it there before,
When the convent bell appalling
From its belfry calling, calling,
Summoned him to feed the poor.
Through the long hours intervening
It had waited his return,
And he felt his heart within him
Comprehending all the meaning,
When the blessed vision said,
"Hadst thou stayed, I must have fled!"

Whittier's Last Poem.

TO OLIVER WENDELL HOLMES, ON HIS 85D BIRTHDAY.

Among the thousands who with hail and cheer
Will welcome thy new year,
How few of all have passed, as thou and I,
So many milestones by!

We have grown old together; we have seen
Our youth and age between;
Two generations we have met, and to-day
We with the third hold way.

Loving and loved. If thought must backward run
To those who, one by one,
In the great silence and the dark beyond
Vanished with farewells fond,

Unseen, not lost; our grateful memories still
Their vacant places fill,
And, with the full-voiced greeting of new friends,
A tenderer whisper blends.

Linked close in the pathetic brotherhood
Of mingled ill and good,
Of joy and grief, of grasshear and of shame,
For pity more than blame—

The gift is thine the weary world to make
More chesry for thy sake,
Soothing the ears its Minerva pains,
With the old Hellenic strains,

Lighting the sullen face of Discontent
With smiles for blessings sent,
Enough of selfish wailing has been had,
Thank God! for notes more glad.

Life is indeed no holiday. Therein
Are want, and woe, and sin,
Death and its nameless fears, and over all
Our pitying tears must fall.

Thy hand, old friend! Thy service of our days,
In differing moods and ways,
May prove to those who follow in our train
Not valueless nor vain.

For oft, and faint as echoes of a dream,
The songs of boyhood seem;
Yet on our autumn boughs, unknown with spring,
The evening thrushes sing.

The hour draws near, howe'er delayed and late,
When at the eternal gate,
We leave the words and work we call our own,
And lift cold hands alone

For love to fill. The nakedness of soul
Brings to that gate no toll;
Giftless we come to Him who all things gives,
And live because he lives.

—*Atlantic Monthly.*

THE NINE WINDS.

The first is the Etesian wind. The word was applied by the Greek and Roman writers to the periodical winds of the Mediterranean.

The second is the Harmattan, a periodical wind which blows during the months of December, January and February, from the interior of Africa toward the Atlantic Ocean.

The third is the Khamsin, which blows for fifty days in Egypt, beginning with April 29th or 30th. The word "khamsin" is from the Arabic, and means fifty.

The four h is the Mistral, a violent northwest wind which blows down the Gulf of Lyons, and is felt particularly in Marseilles, France.

The fifth is the Pampero, which blows during the entire summer season from the Andes across the pampas to the sea coast.

The sixth are the Puna winds of the table lands of Peru, South America. They are dry and parching, nothing similar being known outside of Africa or Persia. When they prevail it is necessary to constantly wear a mask to protect the face.

The seventh is the Samiel, or Simoon, a hot, suffocating wind, which occasionally blows in Africa and Arabia.

The next is the Sirocco, a debilitating wind, which blows from Africa across Italy and Sicily. It is said to produce the most extreme languor.

The ninth and last is the Solano, a hot southeast wind, loaded with fine dust, which blows across Spain. It produces great uneasiness throughout the country. The Spanish have a proverb, which says: "Ask no favors during Solano."—*Ex.*

Figure 8: *Scrapbook of Lighthouse Keeper Laura F. Hecox,* c. 1890-1900. Santa Cruz Museum of Natural History, Santa Cruz, CA. Image courtesy of the Santa Cruz Museum of Natural History.

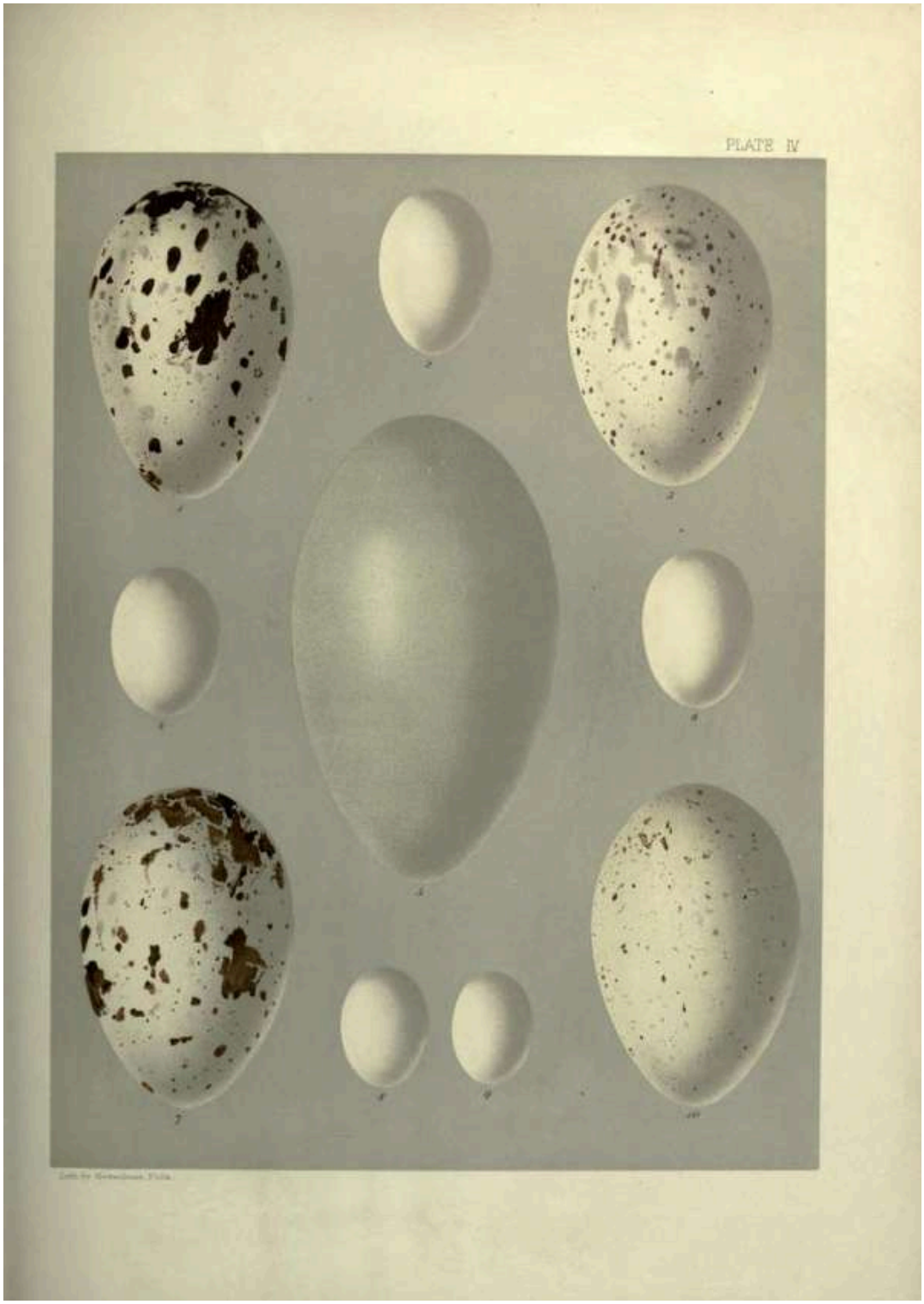
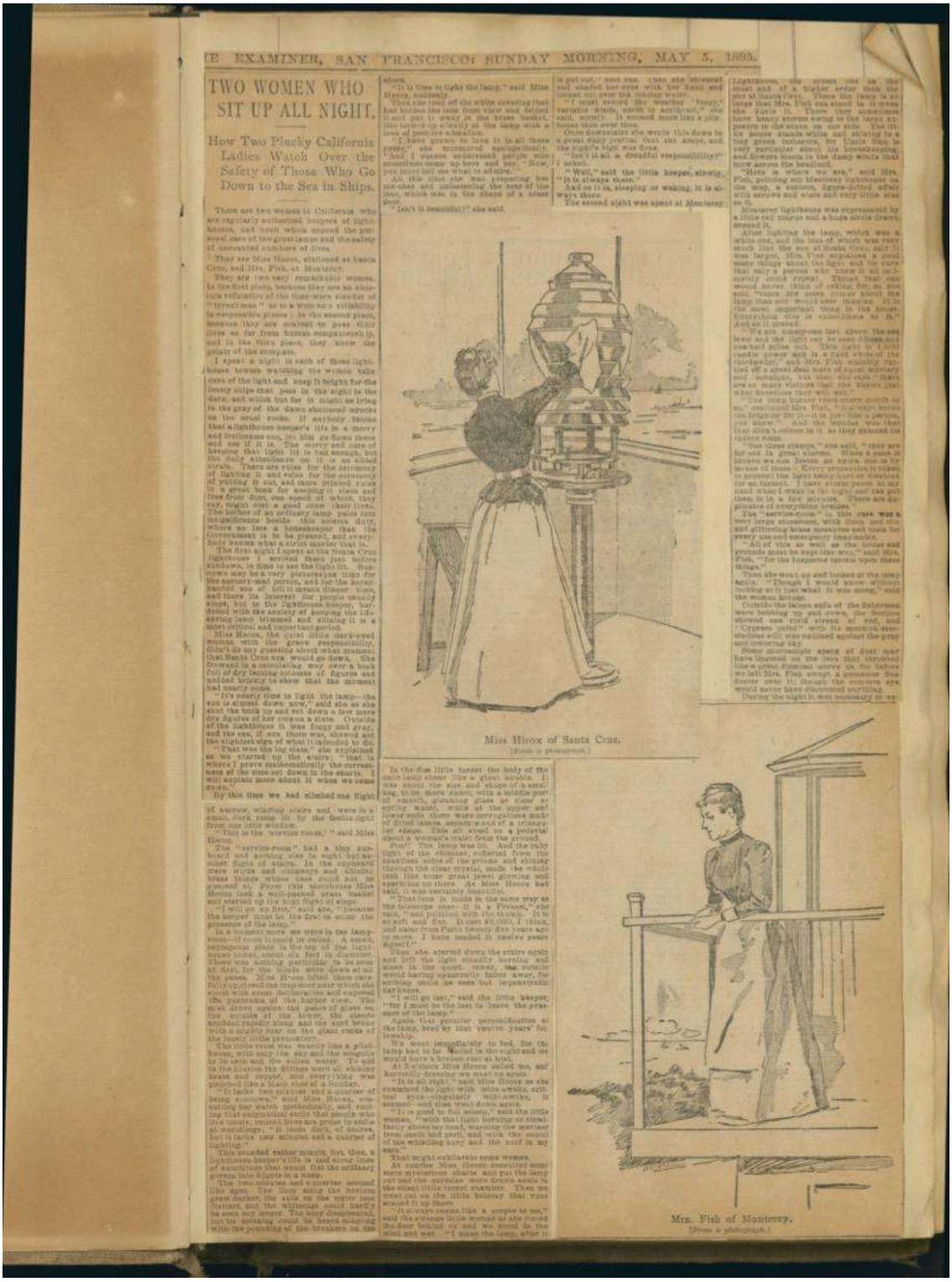


Figure 9: Color lithograph of birds' eggs, California condor in the center. Printed by Ketterlinus Printing House, Philadelphia, PA. In Charles Bendire, *Life Histories of North American Birds: With Special Reference to Their Breeding Habits and Eggs*. Washington: Smithsonian Institution, 1892.



E EXAMINER, SAN FRANCISCO: SUNDAY MORNING, MAY 5, 1895.

TWO WOMEN WHO SIT UP ALL NIGHT.

How Two Plucky California Ladies Watch Over the Safety of Those Who Go Down to the Sea in Ships.

There are two women in California who are regularly authorized keepers of lighthouses, and upon whom depend the personal care of the great lamps and the safety of uncounted numbers of lives.

They are Miss Hecox, stationed at Santa Cruz, and Mrs. Fish, at Monterey.

They are two very remarkable women. In the first place, because they are an absolute refutation of the time-worn slander of "breast man" as to a woman's reliability in responsible places; in the second place, because they are content to pass their lives so far from human companionship, and in the third place, they know the points of the compass.

I spent a night in each of these lighthouse towers watching the women take care of the light and keep it bright for the many ships that pass in the night in the dark, and watch but for it might as long as the gray of the dawn shimmered streaks on the coral rocks. If anybody thinks that a lighthouse keeper's life is a merry and frolicsome one, let him go down there and see if it is. The worry and care of keeping that light lit is bad enough, but the daily attendance on it is an added strain. There are rules for the accuracy of lighting it and rules for the accuracy of putting it out, and more printed rules in a great book for keeping it clean and free from dust, one speck of which, they say, might cost a good sailor their life. The bother of an ordinary lamp pales into insignificance beside the solemn duty, where no less a housekeeper than the Government is to be pleased, and everybody knows what a strict master that is.

The first night I spent at the Santa Cruz lighthouse I arrived there just before sundown, in time to see the light lit. Sundown may be a very picturesque time for the sensory-mal person, and for the homesteaded son of toil it means dinner time, and there is interest for people in such simple, but to the lighthouse keeper, burdened with the anxiety of keeping the life-saving lamp trimmed and shining it is a most critical and important period.

Miss Hecox, the quiet little dark-eyed woman with the grave responsibility, didn't do any guessing about what moment that Santa Cruz sun would go down. She frowned in a calculating way over a book full of dry looking columns of figures and nodded briskly to show that the moment had nearly come.

"It's nearly time to light the lamp—the sun is almost down now," said she as she shut the book up and set down a few more dry figures of her own on a slate. Outside of the lighthouse it was foggy and gray, and the sun, if sun there was, showed not the slightest sign of what it intended to do.

"That was the log slate," she explained as we started up the stairs; "that is where I prove mathematically the correctness of the time set down in the charts. I will explain more about it when we come down."

By this time we had climbed one flight of narrow, winding stairs and were in a small, dark room lit by the feeble light from one little window.

"This is the 'service-room,'" said Miss Hecox.

The "service-room" had a tiny sideboard and nothing else in sight but another flight of stairs. In the cupboard were oils and chimneys and shining brass things whose uses could not be guessed at. From this storeroom Miss Hecox took a well-packed brass basket and started up the next flight of steps.

"I will go up first," said she, "because the lamper must be the first to enter the presence of the lamp."

In a moment more we were in the lamp-room—if room it could be called. A small, octagonal place in the top of the lighthouse tower, about six feet in diameter. There was nothing particular in its area at first, for the blinds were down at all the panes. Miss Hecox lifted them carefully, opened the trap-door next which she stood with great deliberation and explored the quaintness of the harbor view. The small room against the panes of glass on the outside of the tower, the clouds scudded rapidly along and the surf broke with a mighty roar on the giant rocks of the lonely little promontory.

The little room was exactly like a pilot-house, with only the sky and the seagulls to be seen and the rolling water. To add to the likeness the fittings were all shining brass and copper, and everything was polished like a black shoe of a Sunday.

"It lacks two minutes and a quarter of being sundown," said Miss Hecox, consulting her watch professionally, and adding that suggestion smile that people who live lonely, natural lives are prone to smile at worldlings. "It looks dark, of course, but it lacks two minutes and a quarter of lighting."

This wounded rather mixed, but then, a lighthouse-keeper's life is said along lines of exactitude that would fret the ordinary person into fits in a week.

The two minutes and a quarter seemed like ages. The lines along the horizon grew darker, the dots on the water more distant, and the whitecaps could hardly be seen any longer. The lamp disappeared, but its dressing could be heard mingling with the pounding of the breakers on the shore.

"It is time to light the lamp," said Miss Hecox, suddenly.

Then she took off the white covering that had hidden the lens from view and folded it and put it away in the brass basket. She looked up silently at the lamp with a look of positive adoration.

"I have grown to love it in all these years," she murmured apologetically. "And I cannot understand people who sometimes come up here and say, 'Now, you must tell me what to admire.'"

All this time she was preparing for sun-down and unscreening the rest of the lens, which was in the shape of a crown door.

"Isn't it beautiful!" she said.

"Isn't it a dreadful responsibility?" I asked.

"Well," said the little keeper, slowly, "it is always there."

And so it is, sleeping or waking; it is always there.

The second night was spent at Monterey.

Miss Hecox of Santa Cruz.

Mrs. Fish of Monterey.

Figure 10: *Scrapbook of Lighthouse Keeper Laura F. Hecox,* c. 1890-1900. Santa Cruz Museum of Natural History, Santa Cruz, CA. Image courtesy of the Santa Cruz Museum of Natural History.

Figure 11: Unknown artist. *Caricatures of Westerly Men* (Most Important Men in Westerly c. 1900). acc50982, donated to the Westerly Historical Society by Faith Beam Benson. Image courtesy of the Westerly Historical Society.

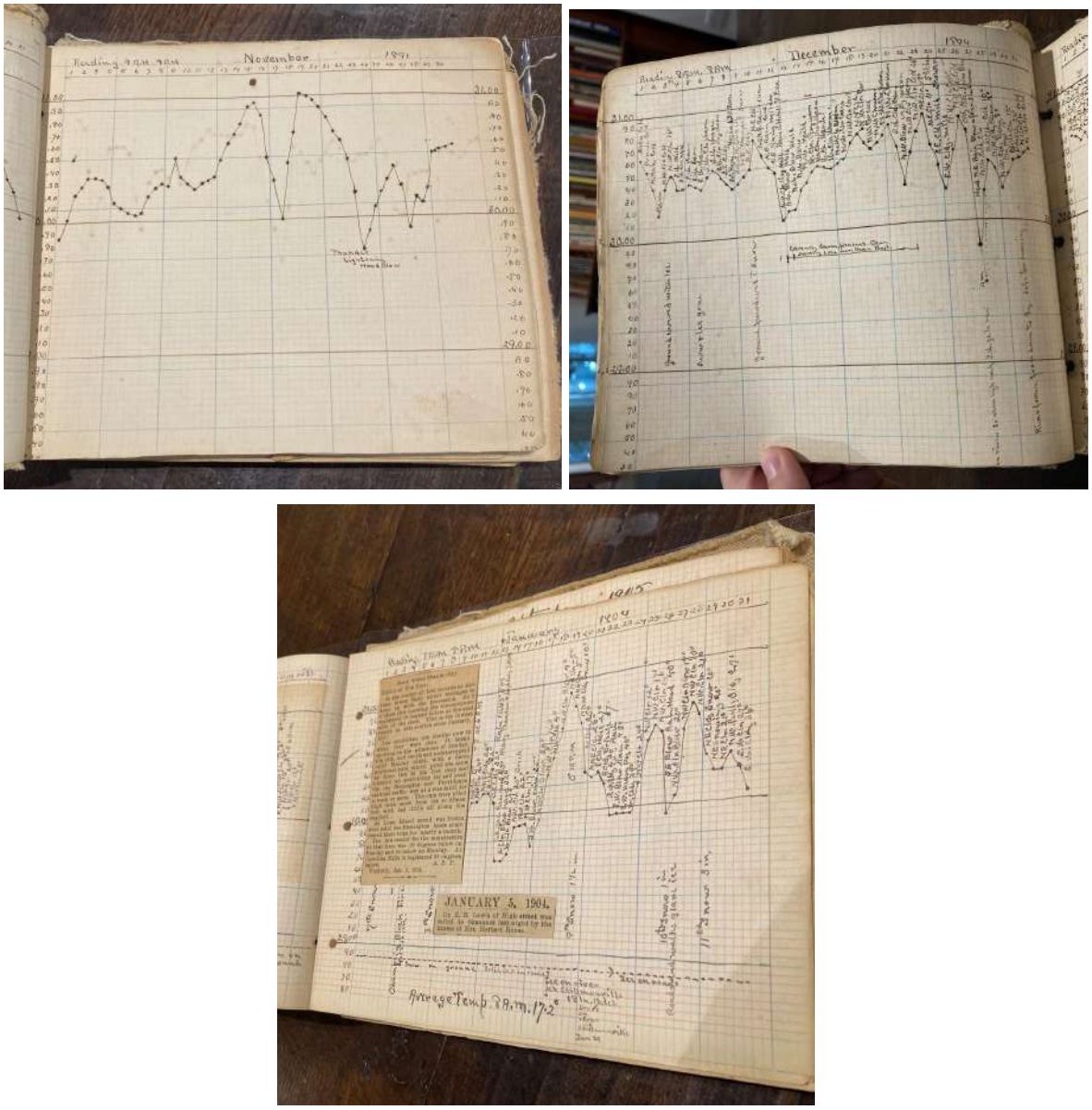
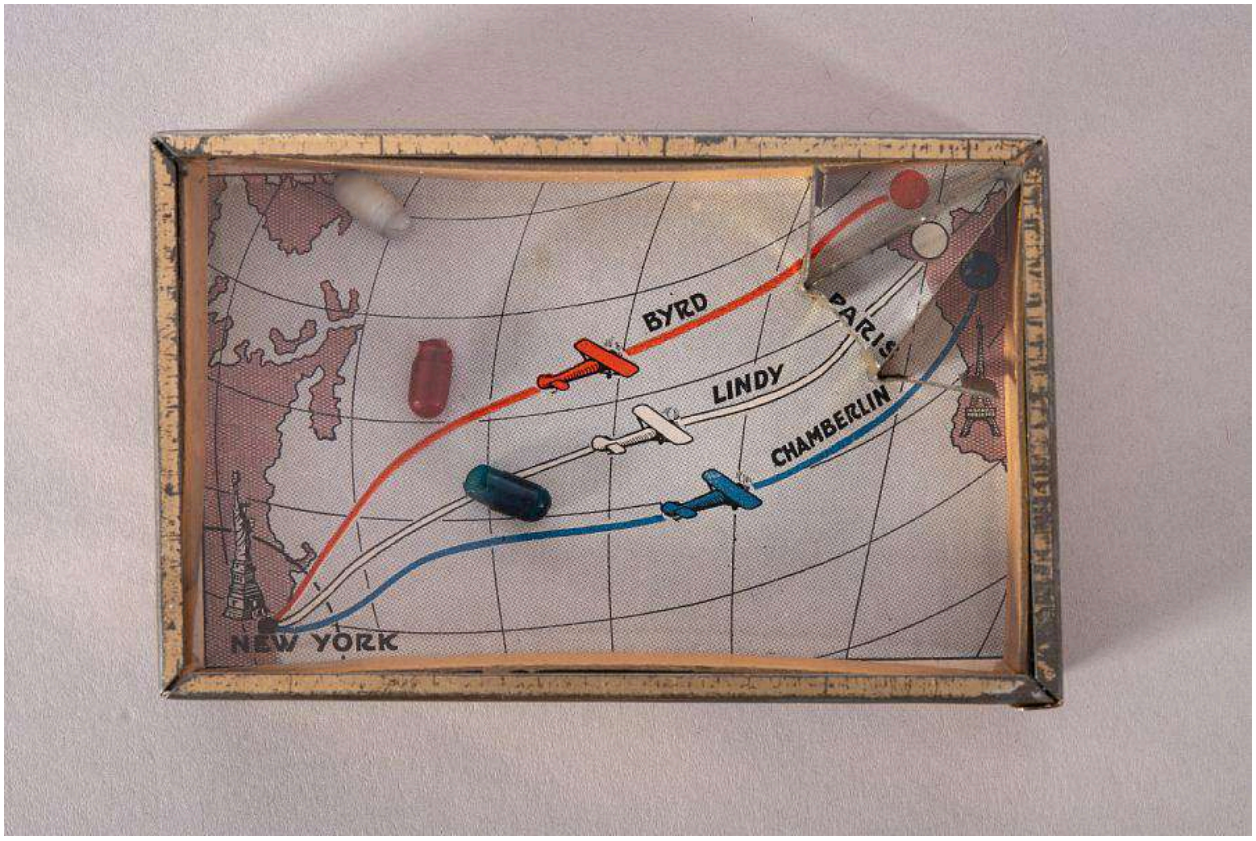


Figure 12: Lewis, Edwin R. *Weather Record: Readings Corrected to Sea Level,* 1891-1930. Peter Harrington Rare Books, London, England. Image taken by the author. Shows the evolution of the weather record through the pages for November 1891, December 1894, and January 1904.

Figure 13: Lewis, Edwin R. *Weather Record: Readings Corrected to Sea Level,* 1891-1930. Peter Harrington Rare Books, London, England. Image taken by the author.

Figure 14: Lewis, Edwin R. *Weather Record: Readings Corrected to Sea Level,* 1891-1930. Peter Harrington Rare Books, London, England. Image taken by the author.



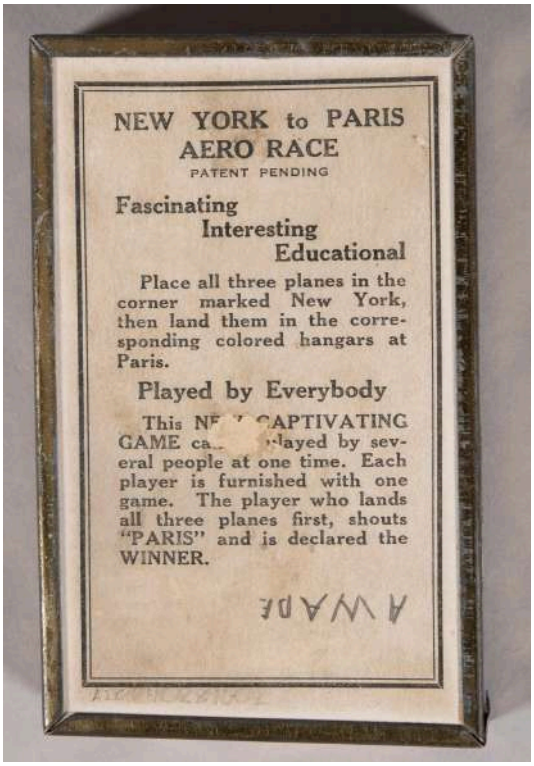


Figure 15: *New York to Paris Aero Race* (Charles Lindbergh Puzzle Game) c. 1927. Metal, glass, paper, plastic. 10.3 x 6.4 x 1.9cm (4 1/16 x 2 1/2 x 3/4 in.) A20040289002, gift of the Stanley King Family. Smithsonian National Air and Space Museum, Washington, DC.