

Smudges, Snakeskins, and Pins, Oh My!

BACKGROUND

The Field Book Project at the Smithsonian Institution has been a focus of interdisciplinary collaboration since 2010, with the Smithsonian Institution Archives (SIA) and Smithsonian Libraries working with diverse collection departments within the National Museum of Natural History to catalog, describe, digitize, and physically preserve unique research records related to field work, and to join them to comparable collections worldwide through such resources as the Smithsonian Transcription Center, the Biodiversity Heritage Library (BHL), and Digital Public Library of America. Much about the digital and social networking infrastructure for these efforts has been published (Decker 2016); the aim of this contribution is to present conservation and preservation approaches that have heretofore only been published in blogs, feeding the digital humanities engagement that has made this project so exciting (Parilla and Ferriter 2016).

Field books are legacies of research—sometimes still ongoing—complementing the understanding of specimens and/or continuance of research programs and their output. Habitually, field books were held closely by generations of researchers, in individuals' offices or file drawers, sometimes adopted and arranged into department libraries. While enumerating and cataloging these born-Smithsonian records was the first project focus, goals grew to include digitization and transcription of these varied materials that are unfriendly to optical character recognition. Aside from the difficulty of scanning characters, many of the books presented physical challenges to mass digitization—or were vulnerable to damage and unacceptable losses. A pilot condition assessment survey identified needs that were used as the basis for strategic grant requests to support intern and staff time for assessment, digital preparation, collections care, and conservation treatment interventions, to complement the staff already committed to cataloging and digitization.

DEFINITIONS AND TERMS

A word about words: In this text, the authors refer to *field books* and *field notes*, and *book blocks* rather than *text blocks*, to describe the many forms of *blankbook* structure in stationery binding and information-recording tools used throughout the history of note-taking (Etherington and Roberts 1982; Metzger 2013; Miller 2014). Across different institutions and cultures of archives, libraries, and field research, the accumulated material of notes, sketches, and other data may be described variously over time as field- [diaries, books, journals, logs, logbooks, note-books, notebooks, notes, records], with hyphenation or without. Sometimes the trailing word has a specific intent or meaning, which will be briefly addressed in sections below. (In languages other than English, the same pattern may apply, such as *cahier de recolte*; *nota/s de campaña*, whereas languages with compound words incorporate context, such as *feldnotiz* or *veldaantekeningen*.)

Why should one care about the use of one word for another? First, because you may run into nomenclature used differently between subject areas and professional disciplines. Such precisions matter to better understand the nature of the work and associated accessioned collection material. For example, in natural history collections (but which may apply in other field work, such as anthropology or other types of surveying), field notes, whatever their structure, are unique research records that are considered *ancillary collections* that help with interpretation: “for example details of the collection locality and the date of collection, add considerably to the value of any material” (Ethics Working Group of the ICOM NATHIST 2013). Ancillary collections might not be accessioned items, as compared to departments' “working records,” but are retained to support collections, especially where the collections are specimens, and stand as proofs in case of loss of the accessioned object. Also, they may be considered to be permanent records for federally funded research (Smithsonian Institution 2015; Smithsonian Institution Archives 2018). To this end, SIA's recently revised guidance for retention of *research records* expands beyond book formats to “any materials created or

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collected while conducting research as part of a Smithsonian employee's official duties," which include ancillary collection material such as "raw data, written observations, field books, annotated maps, and images and audiovisual recordings taken for observational purposes" (Smithsonian Institution Archives 2018).

Second, it follows that conservators, preservation librarians, archivists, and collection care professionals, like their colleagues in the natural sciences, should enjoy taxonomic classification for the following reasons:

- Nomenclature and classification as expressed in controlled taxonomic vocabularies help to identify characteristics of a work. Description of characteristics informs values, which helps guide decisions about keeping, assessing, using, or potentially making a change to that structure. Definitions vary from *field notes* (Getty Art and Architecture Thesaurus; American Library Association-Rare Books and Manuscripts Section) to *field book* (Society of American Archivists).
- Until the emergence of a notebook with intentional formatting that separates it from other uses, it is only the *contextual* use and/or inscription or afterthought applied label added by the user to a stationer's blankbook that clarifies the use as a field book, as opposed to any other type of diary, journal, sketchbook, or scrapbook album, that was used for simultaneous note-taking, drawing, or recording.
- The narrower definition of *field book* (specifically, a stationer's blankbook made for note keeping *and was used for the collection of scientific data or observations in the field*) may have been, or should be, used in controlled vocabulary fields for description such as scope, genre or object type in collection databases, and treatment reports. Whether the material is bound in a permanent or a loose-leaf structure, or none at all, such as a grouping of sheets of paper intended or not for later binding, may apply per the local definition (Parilla 2013). Alternately, *field notes* may be used as a larger concept. (Note: a Google Ngram shows a steady rise of the latter term from 1800–2000, trending sharply upward and predominating after 1880, although this analysis may not cover all relevant topical contemporary use.)

Lastly, with some of the newer technology in field-note-taking, it is known that the preservation process will necessarily include migration to new stable formats as the original media and tools to read it may not last. This paper argues that for original *field book* formats, which range over a couple of hundred years of blankbook history, preserving their technological changes over time, or reversing wholesale changes applied to original structures, are also worth examining—and hence, onward to the material matters.

THE MATERIAL MATTERS

CHARACTERISTICS OF STATIONERY BINDINGS AS FIELD BOOKS: THEIR FORM

A factor in assessment of field books is to consider both how the material *matters* (v) and the *material* matters (n). For the former, are content and context irrevocably changed if the structure is physically altered but the information is carried forward in a rebound or altered state? For the latter, does it matter to the end user if the written content is presented in a virtual form via reformatting or digitization? In the observations to follow, the authors find that preservation and representation of the physical material are both implicit and mutual goals, that one approach does not fit all, and also advocate for weighing needs of multiple end uses, including conservation intervention for better digitization and access, and preservation of the material culture and historiography of science.

Structures and forms matter to use and content, in note-taking and -keeping, even in the most prosaic or *commonplace* book. Form ever follows function, and this gave rise to the primary divisions in the industrial bookbinding trade, between *stationery*—those books made to be written in, and *letterpress binding*—those texts bound after being printed. (Etherington and Roberts 1982, Metzger 2013). From the commonplace blankbook to ruled and lined or otherwise preformatted books, to padded or punched sheets meant for a loose-leaf binder to water-resistant or waterproof plastic "paper," technical innovations continue to abound for the keeping of permanent accounts, journals, or other writing or list-making practices. The preference and trends of a researcher for a certain style of field book tell something about their planning and practice in the field or their academic lineage, regional travels, and habits to the perceptive user.

Regardless of the book structure—sewn folios (supported or unsupported), bound or cased, stubbed-out album, its orientation in the horizontal or vertical axis (as in a reporter's memoranda or stenographer's book), or made up of single leaf attachments (spiral binding, loose leaf), and is pocket-sized or larger—a central principle uniting field books and other notebooks is the requirement to lay flat when opened for writing (Miller 2014). The ability to lay flat allows for full use of the page, into the margins, and is often exceeded by some thrifty or copious notetakers!

The transition to a lay-flat book made up as a purposeful field book likely occurs before the formalization of systematics in the 18th century. Functional structural elements such as wallet pockets in boards, fore edge flaps, keeper straps, loops, or pen-holders (fig. 1), and useful preformatting such as ruling lines are described in books made for diverse uses by other scholars (Metzger 2013). Another significant feature common to the field book is a preference toward minimal squares or flush boards, the better to slip into pockets or

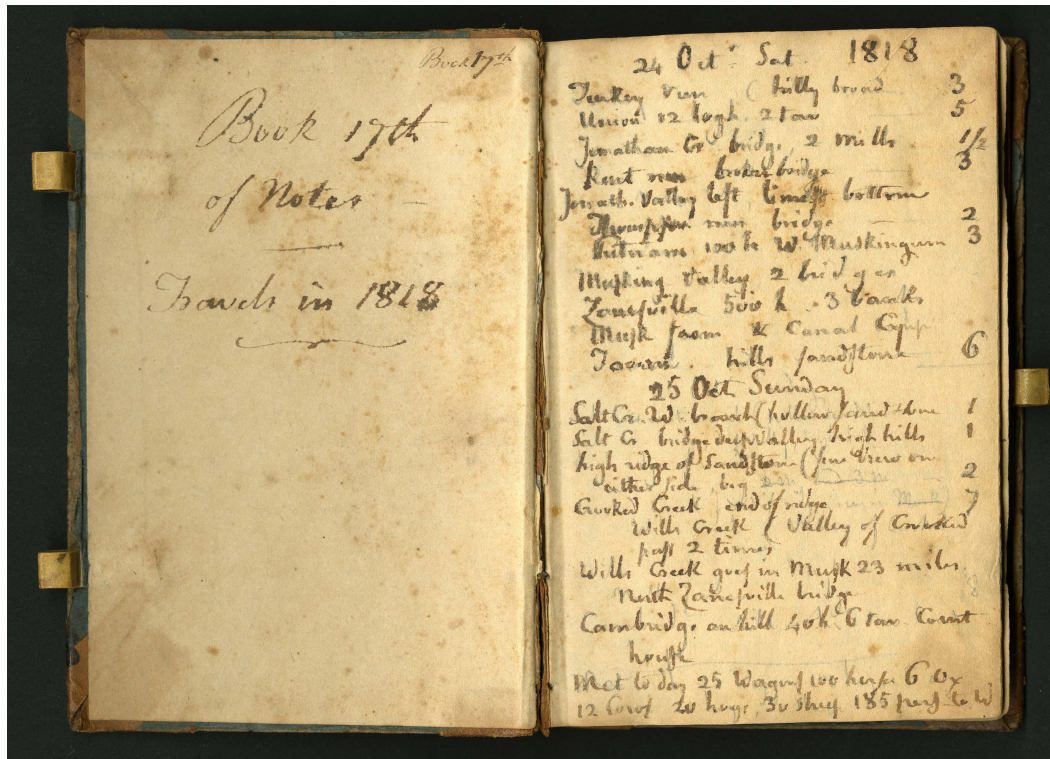


Fig. 1. An early field book (1818), made up of a blankbook with intentional pen loops, made of parchment, attached under the pastedowns. C. S. (Constantine Samuel) Rafinesque Papers, 1815-1834 and undated. Smithsonian Institution Archives. Record Unit 7250, Box 1, Folder 3, Image SIA2012-6043.

satchels, especially in small formats. While sturdiness under heavy field use is a desirable characteristic, so is flexibility and minimal expense, and one can observe minimally supported sewing, tight backs of leather and cloth, and covering material trimmed and/or colored with the book block. If handy details such as pen loops, ribbon ties to prevent loss, and cartouches or labels to bear owner information are not found in the purchased book, they may appear as vernacular afterthought interventions by the user (fig. 2). Specifically, labels and marks that designate the blankbook as a field book may be penned onto the front cover, endpapers, or first leaf. This customization is not limited to the 18th century, continuing well into today (fig. 3).

Instructions for Use(rs); Creators and Collectors

As exploration and Western expansion campaigns, systematics, and museology become more formalized in the 18th and 19th centuries, so do instructions for collecting (Overstreet 2018). Aside from specifying manner of capturing, describing, and preserving specimens, suggestions for documentation of observed phenomena that cannot be expected to be preserved—such as color—arise likely due to frustrations arising from incomplete information; the suggestions become more detailed by the provision of tabulated lists or preformatted

forms for recording data. In the Smithsonian's own *Directions for Collecting, Preserving and Transporting Specimens of Natural History*, this is clearly observable with changes made from the initial publication of a "general list of apparatus for collecting" in which no notebook is mentioned (Smithsonian Institution and Baird 1852), to the later edition, which includes an enumerated list including a "Pocket note-book" (moreover, one "not liable to being defaced," which suggests one made up of a paper prepared for metal point [Baird 1859; see also L.R. 1828]).

Eventually, envisioning repeat voyages to the same area over time, or to plan future uses of land, some sources—such as the U.S. Geological Survey (Rabbitt 1975), and Joseph Grinnell at Museum of Vertebrate Zoology, UCLA at Berkeley (Herman 1986)—develop complex systems for recording data in a consistent manner, so that notes over decades of research may be compared. Grinnell in particular made important contributions to regularization of note-taking, using a "card-system" (Grinnell 1912), leaving ample space on leaf versos of a written "field note-book" for drawings, maps, or photograph, recommendations to "always use Higgins' Eternal ink!" and "high-quality bond stock of a standard page size" for later permanent binding (Perrine and Patton 2011). The Grinnell Method is a triad system, regularized by 1908, of Species Notes, Catalogue, and Journal



Fig. 2. Fielding Meek's field books shows a preference for closures, perhaps for holding his pen. This series shows one with purposeful loops (left), and two altered after purchase with punched slits through which a leather strip (center) and a woven ribbon (right) are laced, respectively. Notebooks 2–4. Smithsonian Institution Archives Record Unit 7062, Fielding B. Meek Papers, 1843–1877 and undated. Box 10, Folder 2.

(completed in longhand with a lengthier description at the close of day from the “field-notes”), which continues in use today (Fidler 2013). Although Grinnell describes occasional pauses to write observations in a field notebook in 1912, when teaching, he actually did not include a notebook for use *in* the field (Perrine and Patton 2011), although many of his students surreptitiously relied upon them in actual practice, ever in fear of being caught out by teaching assistants (Herman 1986)! It is extraordinary to compare Grinnell's field notes, which appear remarkably consistent from over some 30 years' time, and also the legacy of scholarship built on that foundation (Museum of Vertebrate Zoology at Berkeley 2015).

Preformatting and Systematization

While many field books may be ruled, they may also be numbered or otherwise preprinted in a tabulated manner to provide the basis of lists of specimens, dimensions, land features, or other requirements. Again, this may be born of frustration of returning from the field with messy, irregular, or incomplete data. Form-based approaches lead to single-sheet loose-leaf or tear-away padded notebooks that may be then reshuffled, indexed, and compared via mechanical and, later, automated sorting systems. Perforated memo pads and prepunched holes offer utilitarian reorganizing ability from which formal notes can be written up longhand, or typed

up more consistently, or with further interpretation in field journals. (Modern versions of these are discussed in a later section.) With the organization of museums and other formal survey organizations, labels declaring the function of the now-purposeful field book begin to appear mid-19th century.

CONTENT PROBLEMS

While it may be that form ever follows function, unsurprisingly, not every user follows the intended form, or intended function (of permanence, durability, and legibility). This next section shows some physical problems that result.

Smudges/Media Offset

A primary issue that we see that threatens access is legibility. Leaving aside critique of handwriting habits (see later section), soft or unbound media smudged and offset onto facing pages is nothing new to book and paper conservators. This is a similar condition typology to artists' sketchbooks and ledger art, more about which can be researched in the literature (fig. 4). Whether this happened from use in the field, is due to years of unmoderated direct handling, or derives from a condition issue that promotes friction such as a weakened structural issue, all are to be considered if one is assessing treatment to reverse smudges through erasure.

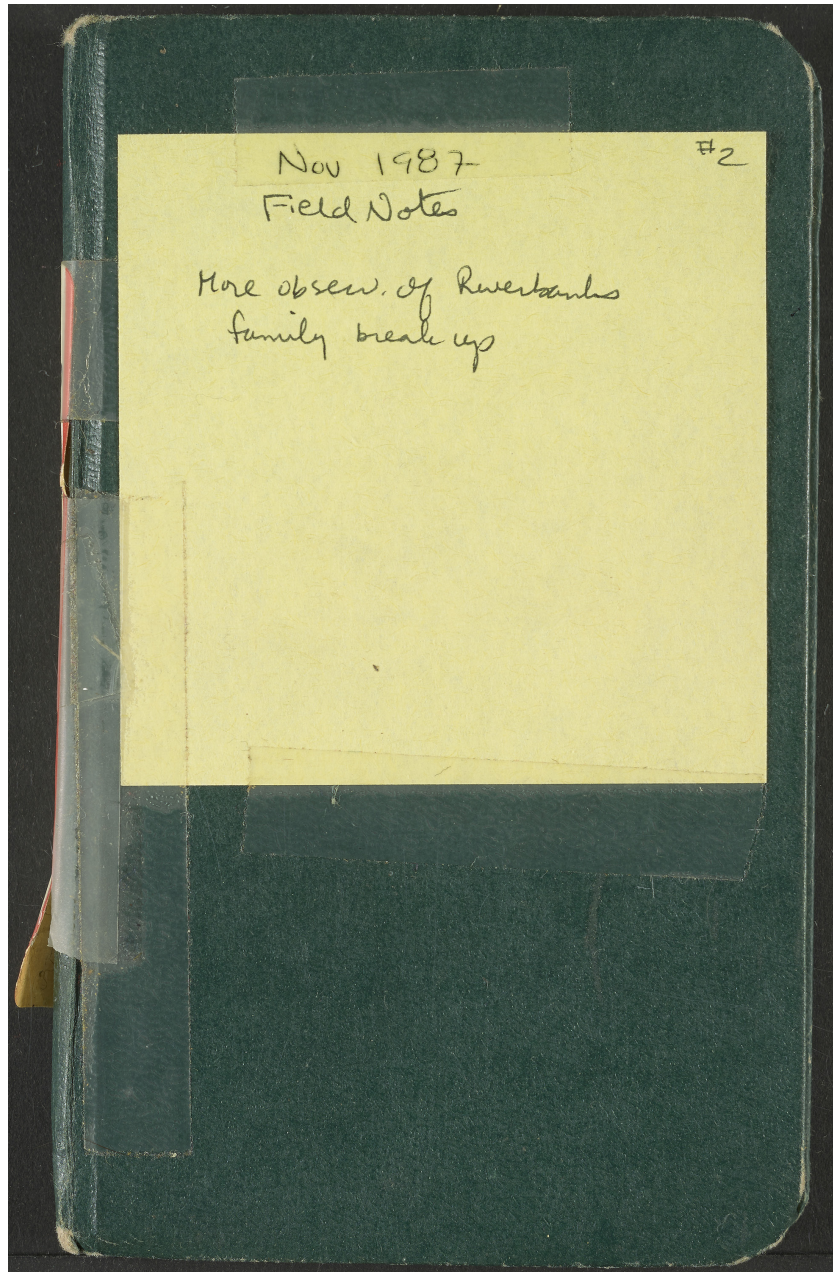


Fig. 3. The Post-it note as afterthought label, presumably placed by the creator. Indeed, her other ad hoc stationery blankbooks bear her handwriting on address labels, and other pressure-sensitive label stocks, reinforced with tape. Brazil field notes, November 1987, #2. Devra G. Kleiman Papers, 1967-2010. Smithsonian Institution Archives Accession 11-124, Box 9, Folder 21. SIA2018-036340.

Water Exposure

Also threatening legibility may be bleeding from water spots, water events, and more mysterious stains or splotches. While these may be evidence of use in wet field conditions or arrived via habit of taking refreshment at one's desk at the close of a long field day, certainly moisture-driven bleeding of manuscript indicates solubility. The worst byproduct of solubility includes loss of comprehension and risk of dissociation to specimens (fig. 5).

Inclusions

Inclusions, as used here, cover a very large portion of potential problems—adherends, inserts, attachments, specimens, photographs—in short, stuff.

Generally, original content relevant to the collector's practice or the collected objects is a reasonable part of practice. However, the choice to stuff contents into bindings not designed for that purpose can at times present issues of legibility, order, meaning, and physical behavior, including



Fig. 4. Soft pencil has offset onto drawings in ink on upper leaf, notes have faded and smudged to a point of illegibility (as noted by a transcriber in the online edition). Diary 1865–1867. William H. Dall Papers, ca. 1839–1858, 1862–1927. Smithsonian Institution Archives. Record Unit 7073, Box 20, Folder 3. <https://transcription.si.edu/transcribe/8555/SIA-SIA2015-004545>.

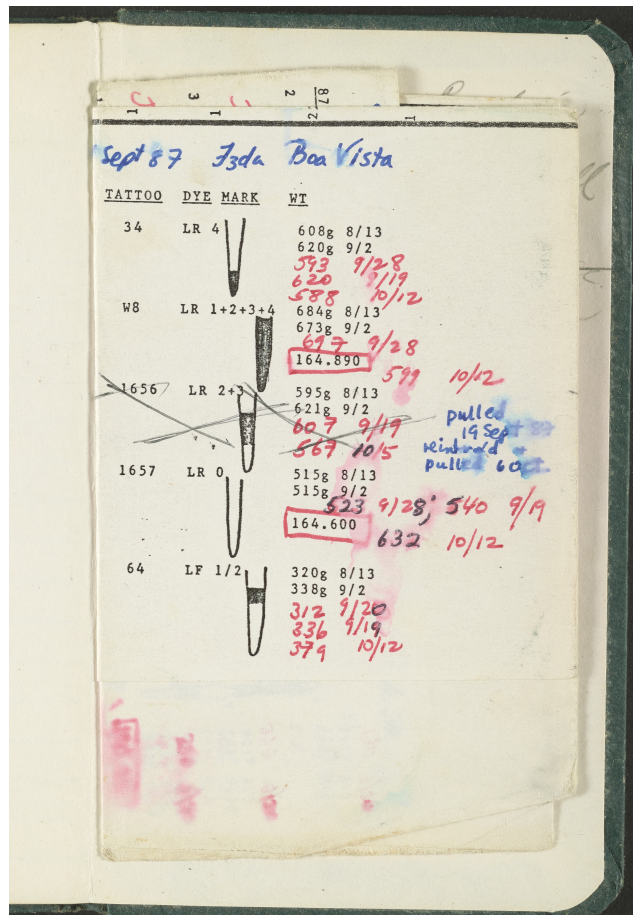


Fig. 5. Solubility leading to partial illegibility of field notes made with water soluble media. Brazil field notes, November 1987 #2. Devra G. Kleiman Papers, 1967–2010 Smithsonian Institution Archives Accession 11-124, Box 9, Folder 21. SIA2018-036357.

breakage and potential for loss whether in the researcher’s workplace, catalogers’ or digitization station, reading room, or stacks. Inclusions must be literally reckoned for image capture, as items must be enumerated for digital object naming, their placement should be in as reasonable an order as possible and the individual objects, tipped or loose, may have to be lifted or turned over by the photographer to be captured as unique objects themselves, and to view the written information on the primary support.

This is not dissimilar to intentional scrapbooks and albums for which much insight can be gained from the excellent contributions already in the literature (Scrapbooks 2018). However, those often have space built into them for the accumulation of content. In field books, inclusions can lead to: books yawning open; objects, heavier than the pages are meant to hold, dragging on page openings, and any number of afterthought attachments and ties meant to keep the contents inside.

Fragility or brittleness, crumpled edges or folds, chemical sensitivity, adhesive or attached restraints all present handling

challenges to the end user. As such, interventions for handling purposes should be clear and easy to understand, and not add new complications, thickness, or change context and order, where it can be avoided. If an inserted object must be relocated due to an excess of dimensions, a key or list should be provided in the catalog record and annotation on the new housing to indicate original placement. Ideally, visual means such as digitization or conservation documentation in the original order will supplement the future reader's understanding. However, the reality is that for many projects on a library or archive level, mass treatment protocols apply and the documentation may not exist or be attached in a manner that follows the object into the revised or annotated catalog description. This is even true of some museums, as technical documentation often lives behind the firewall of the image service portal.

Order, like condition, is part of the object's history. Questions that should be asked prior to intervention toward inclusions include:

- Is the placement known or able to be reasonably assumed from dates, annotations, or contextual clues, such as adhesive remnants, stains or matching edges, handwriting, and content?
- Does the placement reflect the creator or a legacy user?
- Can the creator or colleagues in the research group be interviewed about habits or annotations they recognize?
- Is the inclusion actually damaging anything or at risk itself?

Inclusions—Adherends

For adhered objects, failure of the adhesive can lead to simple detachment or create page turning issues, such as hanging and pulling away from the recto during turning, which can lead to creases and dog-ears or detached body, leaving corner remnants behind still adhered to the page. Attempts can and should be made to treat in situ, but if the problems will likely reoccur, it may make sense to sleeve the inclusion in place rather than reattach. Alternately, reattachment with a flexible method, such as lightweight hinges rather than spots of adhesive, may be more sympathetic.

Inclusions—Attached and Inserted

In archives and libraries, original fasteners such as paper clips, staples, and pins, are usually seen as the enemy and are removed for the sake of bulk as well as rust- and tear-prevention measures. Yet to a hammer, everything may look like a nail—or pin—and important contextual history may be lost. There are reasons to review immediate discarding practices, if not substitution of hinges or sleeve for the mode of attachment, of pins. Use of pins to attach important items in books and correspondence are a tangible record of early writing

practice (Sutherland 2010, Duroselle-Melish 2015). In field work, colleagues may travel in multidisciplinary research teams, and may be sharing scarce material resources. If perhaps one's mucilage had frozen or wafer seals had run out, it would not be surprising to ask a neighboring entomologist for an extra pin, or to purchase ad hoc materials in the next available town (Hall 2013; Young 2014).

Loose inserted materials may be bundled in envelopes, tied, or rubber banded together. For folded materials tucked in alone or in envelopes, risk of repeated wear and tear to view the contents may be the primary reason to intervene, but bulk too can play a part (see Structural Problems: Breakage and Difficulty in Opening).

Inclusions—Biological

Aside from dimensional materials that may be held in place by pins, such as extra voucher specimens, some biological inclusions might at first fall under the category of mysterious stain or splotch. In botany, it is not uncommon practice to take rubbings or prints of leaves to capture vein formation; for example, a researcher took prints directly from a prickly pear fruit to capture the cross-section (fig. 6). A vertebrate specialist noted their attempt to retain the distinct color and reproductive organs of a frog (fig. 7), although, from the written description, it appears the color did not stand the test of time or pH change as it dried and aged. Although degraded, there could be genetic material present in either sample that could be a subject for future analysis.

Inclusions—Specimens

As a fitting end to Inclusions, the eponymous snakeskin of the title was a surprising find, loose and flat but nearly broken between pages of a field book. This, among more usual finds of leaves and flowers, can be mounted as a specimen, following guidelines for herbarium mounting including the use of nonbuffered rigid supports and ribbons of *hanji* or *washi* to serve as retention strips, rather than adhering the specimen overall. Alternately, for very small or irregularly shaped objects, scrap slips of .003 in. Mylar might be used to spot encapsulate. Because the rigidity of even a 40-point folder stock with overleaf adds extra bulk to a small volume, consider insertion of a note placed at the back of volume or within a four-flap enclosure with an annotation about where the object was found (e.g., found between pp. 14–15; facing entry for July 16).

STRUCTURAL PROBLEMS

BREAKAGE AND DIFFICULTY IN OPENING

Breakage can happen against hard edges for brittle papers, perforated pages (intentional tearaway pads, punctures from

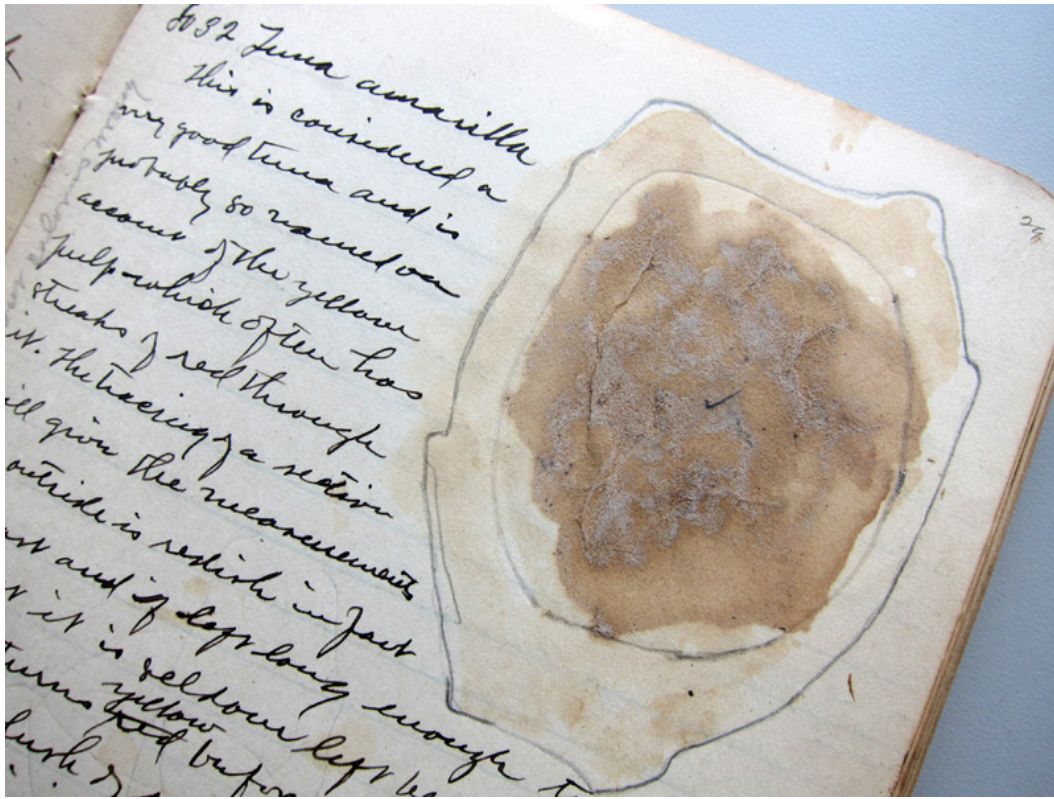


Fig. 6. Print taken directly from the prickly pear fruit, with encrustations of biological material. D. Griffiths' field notes, Texas and Mexico, 1905. Smithsonian Institution Archives Acc. 11-106. Photo by Emily Hunter (Hunter 2012).

machine top-stitching, spiral wire binding, screwpost binding, aggressive oversewing), or those restrained by metal keeper strips or restrictive clamp binders. Figure 8 is a composite image showing many features that lead to breakage. Although the intention is a tearaway structure for later use of individual page content in a loose-leaf system, its *actual* use was as a journal written out in a serial codex and was retained in that fashion. In long-term use, the perforated leaves break against the rigid tearaway strip with repeated turning.

SECONDARY BINDINGS

Bound-withs/sammelbands/stubbed-out Library Bindings

Over time, and for various reasons, original field books may have been relieved of their primary bindings and rebound. In the Grinnell system, that may always have been a goal, to bind into a permanent sewn structure beyond their ring-binder format of matched size. For some books found at the Smithsonian, secondary bindings appear to have been a way of uniting no-longer "working materials" in a more physically convenient, that is to say, *shelvable* library, not archive, format. At some point in their history, the decision to remove original covers and sew small and tall, thick and thin books

into stout buckram library bindings (reflecting a series of numbered logs or the results of a, or several, field seasons' work) was made. It is a general assumption that the books were sent out to the Government Printing Office, which previously served as bindery for the Smithsonian Institution. It is important to recognize that this imposition of library binding practice was done presumably as a preservation effort prior to establishment of current best practice preservation standards. It is unclear whether it was the creator's or a legacy researcher's decision to rebind the books or if it was understood that there would be limited openability of the chosen structure. Even books that opened well and stood steadily on shelves (such as the ubiquitous green cloth-covered government "record book") were occasionally subjected to this procedure (fig. 9).

Many of the manuscripts were pulled from their original covers and method of attachment, guarded with adhesive tape, sawn-in, oversewn, or sewn through the fold over cords or tapes along with makeup stubs added to manage height differences, rounded and/or backed, (sometimes) trimmed, and heavily lined before casing in. The degree of opening already being limited by the heavy hand of the bookbinder, excess material, and rounding, over time the opening behavior became worse as the materials deteriorated. In most cases,

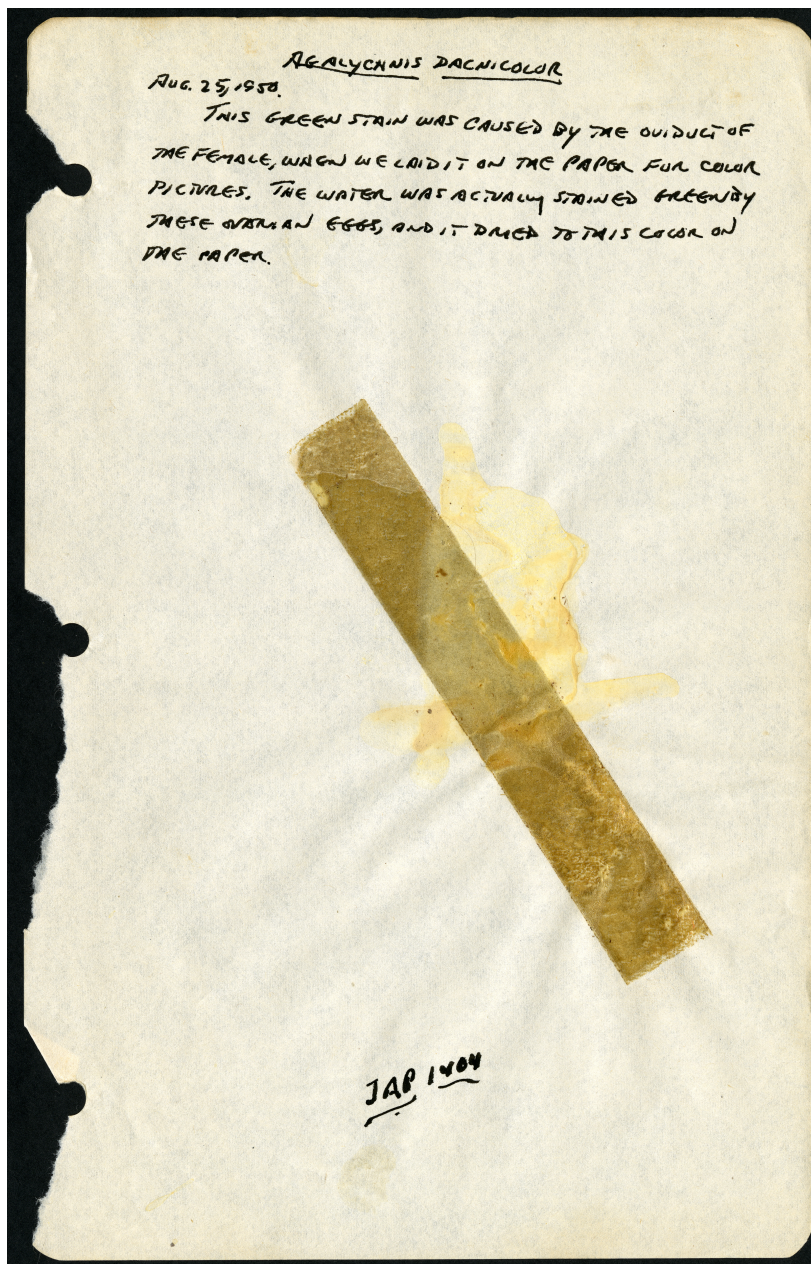


Fig. 7. This inclusion may contain DNA from soft tissue materials and its original color is described above: “This green stain was caused by the oviduct of the female, when we laid it on the paper for color pictures.... it dried to this color on the paper.” Field notes: Mexico. James A. Peters papers, and records of the Division of Reptiles and Amphibians: series 15, field notes, 1946–1965. Smithsonian Institution Archives RU 007175, Box 49, Folder 4. SIA2012-6355.

but especially where the researcher had a habit of scribbling well into the center margins, the content simply could not be read, now being trapped in the spine fold. Worse, to gain access to the information, users pushed open the book to the extent possible and beyond, leading to breakage at the spine and in the leaves.

The degree to which the book opens—or will open as a result of treatment—is an extremely important consideration

in choosing a course of action. Not only does it permanently affect the book and its contextual understanding, it also affects the apportioning of staff time and labor, from the conservation lab down through the workflow queue. A flat or nearly flat opening greatly increases the ease and success of digital imaging and readership. For the field books, a flat opening is nearly always an original characteristic that was lost through a well-meant but overzealous intervention. The behavior

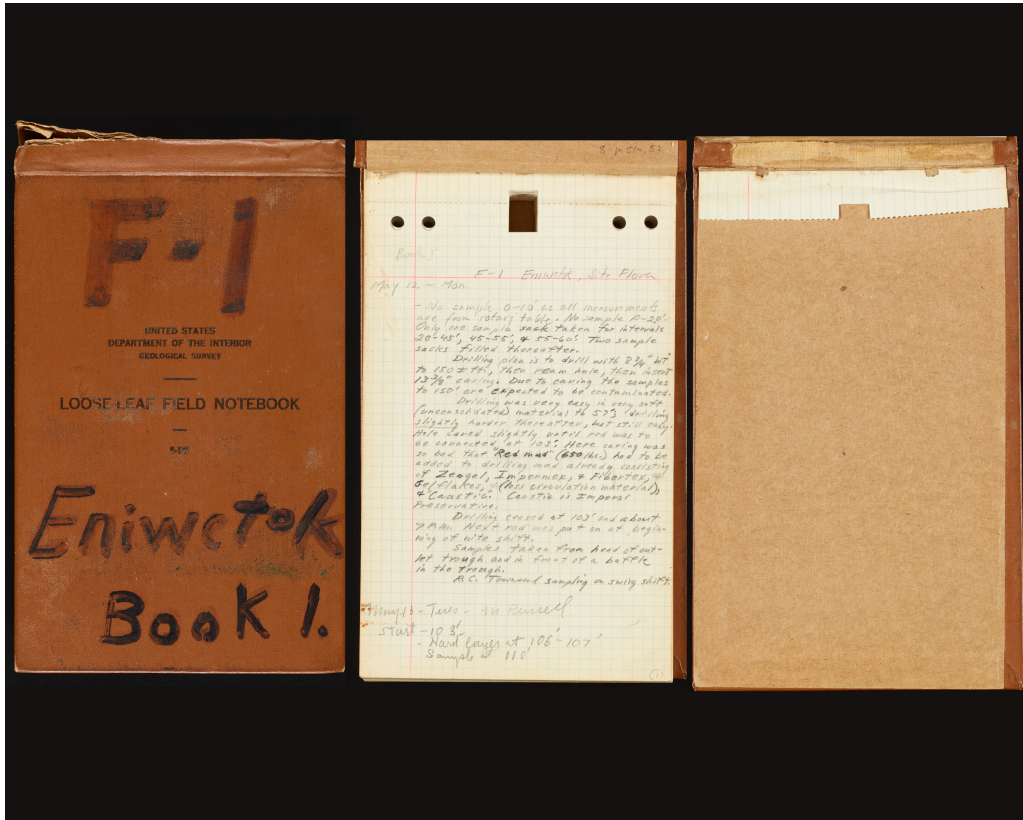


Fig. 8. This composite image usefully shows several features that lead to breakage. Rigid cover (left), rigid strip to tear against and punched holes for a Rolodex type binder with serial descriptive writing that continues to the following page (center); last leaf torn away at perforations (right). Harry S. Ladd-Eniwetok, book 1, May 12–June 1, 1952. Chalmer L. Cooper papers, ca. 1932–1944. SIA Acc. 16-046.

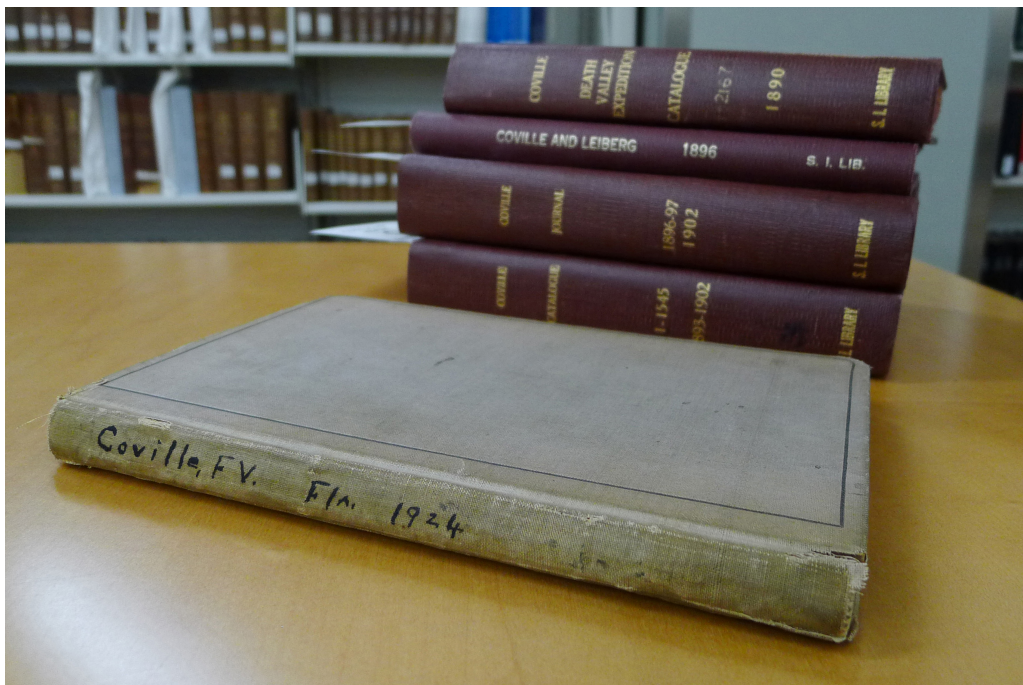


Fig. 9. A Frederick Coville field book in its original format, a typical green canvas government notebook, in front of bound-withs of his later notes.

many researchers had of writing well into the page margins can be proof of this. Important data such as specimen numbers, names, drawings, and more may be blocked from view by secondary bindings. Inclusions—often specimens, or evidence thereof—encountered trapped between the pages are at risk of disassociation or breakage. A restricted opening due to oversewing, adhesive run-in or pressure-sensitive adhesive creep, or other factors can lead to damage incurred and loss of information during digitization or handling in the reading room, particularly if the bookblock is made of fragile or deteriorating paper. These problems all lead to risk of disassociation and loss of meaning of the related collection object.

Treatment Options

For these reasons of preservation and access, where possible, the authors' choice to restore the flat opening characteristic serves to fulfill their purpose as data recording tools that

communicate over centuries. A conservation rebinding treatment that facilitates flat opening for imaging of the book is desirable and helpful and may demand the disbinding of a secondary structure, for an improved preservation status (fig. 10).

When making a treatment choice that affects the structure of the volume, several factors are at play; returning a book to its original, working, or most complete state is often the goal. However, there is not always sufficient evidence to determine an original structure exactly. Some clues may remain, such as a lone volume—one by the same researcher that was left out of a rebinding campaign, or a clipped fragment of a cover that was bound in as a vestige (fig. 11). These can serve as models to match a particular researcher's habits in material selection and preferences of notebook style.

In rebuttal to the practices of the past, the conservators on the Field Book Project have found that one size does not fit all, and have had an opportunity to experiment with



Fig. 10. A composite image of a secondary bound-with, including adhesive tape guards (now brittle), makeup stubs, and heavily lined binding, compared with a flat-opening conservation binding.



Fig. 11. For its secondary binding, the library binder had obligingly cut and pasted in a fragment of the original cover onto the flyleaf, from which the color of the covering material was selected for the conservation binding (long-stitch with sewn-boards). Alaska notes 1897. Walter H. Evans field book, 1897. Smithsonian Institution Archives. Acc. 12-033.

applying treatment variations on sewn-board, long-stitch, and laced-case bindings, which with their flat opening and flexible structure (Miller 2014) particularly suit the needs of both the object and the end user. In addition, choosing to rebind bound-withs into individual volumes returns both intimacy to the unique field book and improves space use and handling if the book is transferred to a managed archive as has happened for some of these collections. (The irony of imposing another treatment to aid a storage need is noted.) The variations on these treatment options are explored fully in the accompanying poster session from Houston 2018 (Bennett and Lockshin 2018). A treatment matrix, arranged along axes of lower-higher technical complexity and closer-further fidelity to the original is incorporated, along with images showing degree of opening and other practical considerations for the conservator. Some notes are captured here and in table 1.

- Rather than restoring the oft-found tightback spine in these practical but inexpensive bookblocks, choosing a natural hollow or baggy back allows the spine of the bookblock to flex freely and open flat.
- Insertion of blank endpaper folios with return guards in a sewn-board binding may provide added protection but may be discordant with the material experience of reading notebooks, which are not always preceded by flyleaves.
- Variations on the sewn-board binding and covering include one- and three-piece styles:
 - Covering sewn-board bindings may be easily done from one piece of case paper, done up as for traditional covering in full leather (turned in or trimmed). This echoes the standard sewn-board convention of incorporating the exterior covering into the sewing structure of the book, albeit in a different manner.
 - The three-piece version permits an aesthetic finish that mimics the cloth or leather quarter binding, and in a long-stitch allows a separate scored spine piece to be perfectly sized to the spine during sewing and tucked into boards used with their opening to the spine, and the fold to the fore edge without worry of premaking a full case of folder stock. This can make for effective use of scrap material.
 - In instructions for sewn-board binding for modern editioned books, squares are trimmed flush at board edges—this mimics an original characteristic of stationery notebooks. However, since the book will no longer need to be slipped into a vest pocket or satchel (one hopes!), choosing to extend length and height of the sewn boards a few millimeters to protect vulnerable edges at all sides is a preferable option. A yapp edge can also be factored into one's measurements.
 - Similarly, while double-sided pressure sensitive adhesives are used in some sewn-board bindings for modern works for speed and simplicity, more stable adhesives that do not creep may be preferred for items of permanent value.

Problem	Goal	Strategy	Solutions
Breakage—along leaves, against memo pad stiffeners, perforations, or tight-turning radius	Loss prevention; mitigate damage	Reduce handling. Intervene. Consider release or modification of restrictive stiffener, prong clamps, posts, ties. Consider rebinding to a conservation structure.	Intervene with damaging structures, retaining parts of attachment method with book in box or enclosure. Mend tears. Add alternate hinges, channels, or photo corners. Adhere/tip with reversible adhesive where appropriate. Sleeve in buffered paper folders or safe plastic enclosures if static is not a problem for adjacent material. Reduce pressure-sensitive adhesive.
Difficulty opening, content inaccessible or damaged due to structure ¹	Increase access	See Breakage above. After due consideration of creator's intent and practice, consider rebinding to a period-appropriate or conservation structure.	For secondary bindings: Disbind (pull oversewing), repair, and rebind in original or sympathetic format, or box if brittle. Consider individual bindings such as sewn-board binding or long-stitch binding for small pamphlet, pocket-size notebooks, and/or boxing individual small books or pamphlets together in a set. For loose-leaf material in damaging binders: Remove/release damaging attachments (prongs, spring clamps). Provide enclosure (box or four flap). Consider double fan adhesive bind.
Inclusions—adherends	Loss prevention; mitigate damage	Reduce handling. Isolate damaging chemical interactions.	Add photo corners or hinges. Adhere/tip with reversible adhesive where appropriate. Sleeve in buffered paper folders or safe plastic enclosures if static is not a problem for adjacent material.
Inclusions—pressure-sensitive adherends	Loss prevention; mitigate damage, w/o interfering with meaning	Consider value of creators' field use and repair vs. binders' conservation campaign	Pressure-sensitive adhesive removal, if content is not soluble or written on tape. If appropriate to replace in situ, replace tacky or nontacky adhesives with reversible conservation-grade adhesives or add hinges.
Inclusions—loose, biological	Loss prevention; mitigate damage; retain physical integrity (DNA; parts for identification)	Reduce handling. Provide in situ mount or move to back within a new enclosure, noting location.	Mount per herbaria specifications. Use thin four-flaps and folder stock to add rigidity. Use unbuffered materials if possible. Consider creating layers or tray in a box or enclosure to protect materials from flexing, weight, and abrasion.
Inclusions—photographs	Loss prevention; mitigate damage	Reduce handling. Isolate from damaging chemical interactions.	Add PAT-passed photo corners or hinges. Add PAT-passed interleaving. ²
Pressure-sensitive tape (see also Inclusions—pressure-sensitive adherends)	Mitigate damage, w/o interfering with meaning	Intervene or retain. Consider value of creator's field use and repair vs. prior conservation campaign	Tape removal, if content is not soluble or written on tape. If appropriate to replace content in situ, replace adhesives with reversible conservation-grade adhesives or add hinges.
Smudges, offset media	Reduce loss of meaning	Reduce friction and movement	Consider interleaving with low-friction papers. Create enclosure or box. Stabilize sewing with physical intervention. Consider using variable wavelength imaging for virtual restoration. If media can be differentiated, consider surface cleaning for legibility.

1 Restrictive or damaged opening behavior, due to stab sewing, spring-clamp binder, stiff makeup stubs in bound-with/*Sammelband*, crumpled spiral wire, or secondary oversewing or library binding (Bennett & Lockshin 2018).

2 (Bennett 2017)

Table 1. Best Practices for Preservation of Field Books

OTHER ISSUES

FIELD ADAPTATIONS AS EVIDENCE

Field conditions may result in visual clues that impact the creation of the field book, such as running out of space or materials, which might be commented upon in a close read of the text. For instance, problems with media: *“Still pencil. Well, I've got time and temperature to write. Just sharpened the pencil with a now know [sic]. We are parked smack in the middle of Southampton*

Island, in a bloody wind storm . . . the ink is still frozen solid, in fact everything that I own is frozen solid -- camera etc.” (Smith, n.d.).

For copious writers, running out of material in the field can be an issue. There is both charm and site specificity to be found in material evidence of a quick trip to the local stationer for a suitable blankbook, observable by the close reader from a stamped cover or stationers' ticket printed in the language of that place. However, if re-provisioning is difficult, when needed, it seems that researchers in the field will

perhaps turn to almost anything to scribble a needed note. Purloined hotel letter paper, the backs of envelopes, forms or field labels, or local receipts have all found their way into the sections or between covers of a formerly slim, now yawning book. For those creators who were habitual scrap-hoarders, the overstuffing can lead to problems of retention of notes, overuse of attachments like clips, tape and staples, and stuffed envelopes (Bailey 2012).

CREATORS' QUIRKS

Aside from hoarding and creative reuse of material, another strategy of the thrifty writer that may create media legibility issues is the technique of crosswriting, self-annotating, and/or use of the field book in reverse orientation from back to front, which can cause headaches for the most attentive user in trying to work out a beginning or end (fig. 12).

STAKEHOLDERS' PERSPECTIVE

The conservation team at the outset must consider the impact of treatment on the end user, whomever that may be. Whether professional staff or an outside researcher of any level of

education and experience, physical interventions should make sense to operate or be recognizable so that interpretation is of the original object. In a virtual space, how are interventions perceived? Some might suggest that interventions (such as housing supports) should not be seen at all, but the fact is that, often, digitizing campaigns are staffed and proceed at a pace that outstrips that of the conservation lab. The balance of “low-hanging fruit,” easy-to-scan material that someone assessed as not needing to pass through a conservation queue, may show more items in worse condition with more tears and tape than can be mended, although one wishes the reverse were true.

A hubris of having a supervised reading room is that an assumption is made that the reader will natively understand the workings of a four-flap envelope, the arrangement of a layered storage box, etc., or will ask for assistance. In the virtual space, when persons are focused on clickable content and not perceiving as much dimension and do not have the immediate ability to raise a hand to request assistance (aside from Twitter), misinterpretations can and have happened. For instance, the eponymous snakeskin was described in the Transcription Center as “shed snakeskin taped to page,” when in fact it was a painstaking adaptation of an herbarium mount without any adhesive contact, and certainly not to a page of

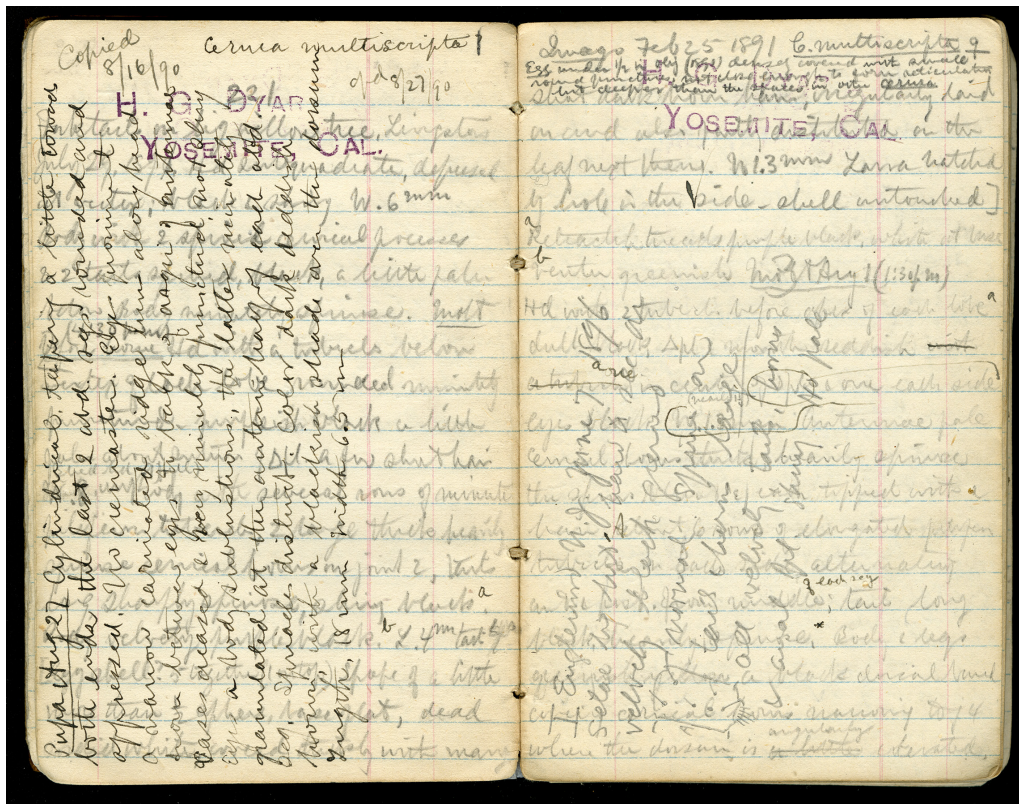


Fig. 12. Harrison Dyar had many quirks, one of which was extreme use of annotation, writing extremely small notes between the lines, cross-writing, and use of stamps. He also was a copious user and stuffer-in of scrap papers. H. G. Dyar bluebook 213–270. Smithsonian Institution Archives. Harrison G. Dyar Notebooks, Department of Entomology, 1882–1925. Box 1 Folder 5. SIA2013-00700.

the field book. This may be a nitpicking blow to a conservator's ego but, more importantly, this instance teaches that not all aspects of standards of care are well communicated to the end user in ongoing mass digitization. There is hidden labor that is ignored, and teaching opportunities are missed. Happily, the virtual space is editable, and now reads "shed snakeskin, mounted to support board, inserted between pages." When they have raised their virtual hands via Twitter, our Volunpeers have meaningful interactions with each other and staff on material matters.¹ Comments on digital humanities topics have included "[t]he paper...could be evidence" and "Didn't know they had hot pink pens in 1888!" resulted in a dialog on the invention of synthetic dyes. Working with the Transcription Center staff going forward, it is hoped that a guide will be developed to encourage transcribers to use the comments field to remark on physical aspects, outside of the textual transcription only.

PRESERVATION OF FIELD BOOKS

The preservation and conservation practices established at SIA are based on values and goals mutually held by the entire project team across the collecting units. Over the course of the project, a local manual with visual guide and condition ranking guidelines was developed to guide catalogers in assessment of potential intervention needs as books passed through their workflow. With training in preventive care, based upon technical capabilities of flatbed and overhead imaging, the preliminary assessment of condition led either to preservation review or was bypassed directly to imaging. Ideally, in this work plan, problems are addressed prior to digitization, but it happens that a cataloger or conservation assessor might miss identification of a potential problem that would be encountered later in the workflow. As a good portion of the funding of this particular project has been through sequential grants, staffing levels, fluidity, and expertise with the established protocols have naturally varied over time. Happily, quality and longevity of a project may be improved with access to new technologies or equipment, or increased attention, interest, and support; however, these factors may increase demands in terms of numbers of objects to put through, based on staffing increases in one area versus another. On any long-term project, at times, the work of cataloging, collection management, conservation preparation, and imaging staff may become out of sync in an envisioned ideal workflow, due to attrition or increased demands. This eventuality should be a consideration in any treatment that causes a significant change to an object that may put safe handling and use at risk for an unknown period.²

For those books that needed preservation review and further conservation intervention, a summary of best practices derived from reviewing the solutions applied in conservation over the years are presented in table 1. This list is not exhaustive

but runs a gamut of options for collection care managers, preservation managers, and conservators. Basic technical skills such as selecting or making enclosures are presumed, while options for intermediate and advanced skill mending, board reattachment, sewing stabilization, and conservation rebinding are presented for those with such resources at hand.

FUTURE OF FIELD BOOKS—GOALS AND NEW FORMATS

Support for ongoing contributions to the Smithsonian Field Book Project blog, archived on BHL, is moving to SIA. As field books continue to be cataloged and added to collections as official accessions, they will be given preservation assessments and prepared for digitization along with the rest of the archives' imaging goals. While grant funding has concluded for the time period, future goals include (starting with this publication) contributions for varied audiences through parallel publications that reach a variety of collections professionals. An informal but terrific resource includes offering pathways to guidelines and best practices through conservation-wiki.com and SPNHC Wiki, both accessible resources online without subscription. The authors invite collaboration and suggestions to improve information on preservation of field books and notes.

CONTEMPORARY FIELD BOOKS

Areas for Research

As the field-note-taking practice has expanded with technologies (from writing and drawing to silver and color photography to tabulating and computing to born-digital documentation and mapping), still the physical field book persists. For a culture heritage worker, it is extraordinary to observe the emergence of debate about the physical act of writing as a memory aid in everything from technical to self-help literature to marketing materials for the newest, most perfect notebook or note-taking system ever invented. There is even now an enormously popular brand of pocket journal called Field Notes (2007–), along with stalwart tools of the trade, Rite in the Rain (1916–), and specifications for USDA field books (National Resources Conservation Service n.d.; Schoeneberger et al. 2012) meant for outdoor, foul weather, or underwater use. Aside from field book characteristics and features previously mentioned, the latter offer options for water-resistant or waterproof substrates. These plastic-coated, infused, or fully plastic "papers" are made with a variety of processes and have qualities of permanence, as proven in use demonstrations and anecdotal testimony of at least one conservator (Wellman 2018)! Materials such as Rite in the Rain's proprietary papers (Rite in the Rain writing paper, DuraCopy, and Weatherjet) do not appear to have been examined in conservation literature and provide a research opportunity.

Technical Performance and Permanence of Marking Media and Proprietary Substrates

Although marketed as durable, and some meet standards of permanence, what are the aging characteristics of such field books and media used in them? A brief interview with Rite in the Rain specialists advises that their use of archival paper, coated with a water-based acrylic resin, meeting NISO Z39 specifications for some parts of the product line, has been in production since 2006, which can offer a timeline cutoff for expectations of aging behavior. Prior to that, a variety of paper stocks were used that were coated or infused with “a solvent borne material” (Kopriva and Mattingly, pers. comm.). Fully synthetic polymer field books made by Field Notes and Rite in the Rain DuraRite (and DuraCopy) use “tree-free” Yupo, an extruded and stretched polypropylene sheet. Elan Publishing Company’s Surveyor Field Books vary between the Indestructible, made of an unspecified polymer and one with “50% cotton content ... especially formulated for maximum archival service, ease of erasure and protected by a water-resistant surface” versions (for those companies not yet interviewed, these descriptions are taken from marketing materials). In author Lockshin’s casual “field tests,” writing when dry or wet using a variety of pens (Fisher Space Pen, Rite in the Rain All-Weather Pen), marketed for use on all of these brands’ substrates, produced varied results for solubility, traction, and precision of mark.

Hybrid Physical and Born Digital Proprietary Formats

Newer to the field of stationery and the physical notebook are the hybrid physical and born-digital proprietary mated formats. Some are preformatted with dot grids or other print encoding to work synchronously with imaging and “smart” devices and systems, such as recording pens that interpolate movement into text capture or graphics for immediate use in e-devices or cloud-based storage (Evernote, Moleskine Smart Writing System). Lastly, other styles of erasable substrate (Elfinbook, Rocketbook) notebooks designed for image capture in pdf or other digital format echo the earliest of recording instruments, the clay or wax tablet and stylus. It is to be wondered if these, in any subject area (field book, notebook, or sketchbook), will become the palimpsest data and imaging challenge of researchers in the future.

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NOTES

1. “Volunpeers” was promoted for use as a Twitter hashtag along with @fieldbookproj by Meghan Ferriter, Smithsonian Transcription Center Project Coordinator, in 2014. She worked in the social space to create “increased opportunities for interactivity and connection over task and content....”Volunpeers’ underscores the values articulated by volunteers describing their activities and personal goals on the TC, including to learn to help and to give back to something bigger.” For Ferriter: “establishing a collaborative space that uses peer review means foregrounding what is being done *together* rather than exclusively highlighting what is being done by particular individuals” (Ferriter 2016).
2. With the benefit of hindsight and an overarching view from the pilot initiative to today, the lead author notes that a beautifully envisioned workflow that serves all teams’ efficiency and goals, and which maximizes benefit to the object, may be disrupted by new stated priorities for a variety of very good reasons. As example: When seeking examples for figures in this article, it was discovered that some books initially prepared for digitization (including pulled sewing from unstable or overtight structures for flatbed imaging, with a recommendation to return for conservation rebinding) were withheld from the imaging queue due to changed priorities for content delivery. Therefore, some entered a sort of limbo of staging, although available for limited reference access on demand, putting the order of unpaginated leaves and content at risk. Another example: Discovering that one out of a set of related field books had been assessed and sent for treatment based on content priorities of the cataloger, where multiples of the same condition problem exist adjacent. In the future, its sibling objects may be pulled to the reading room precisely because they were not digitized, but, as they were not captured in an item-level conservation assessment, remain vulnerable to damage in use. This case shows that non-condition-related selection criteria can disrupt goals to improve the collection holistically, creating significant differences in housing or condition between like objects. Today, the authors are reviewing these prepared, but still awaiting imaging, items to reduce some of these risks, add to the list of collections care established priorities, and provide ample opportunity for further work in this area. For more perspectives on large-scale digitization projects’ influence on conservation project management and outcomes for objects, see also the position paper by conservators Biggs and Khan, 2015.

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