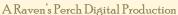# THE GRAND CANON

A Worldwide Bibliography
of the
Grand Canyon *and* Lower Colorado River Regions in the United States and Mexico

16th to 21st Centuries

Volume 1, Part A:
Introduction, Statistics, Surveys and Commentaries
FIFTH EDITION

Earle E. Spamer

THE GRAND CANON : A WORLDWIDE BIBLIOGRAPHY OF THE GRAND CANYON AND LOWER COLORADO RIVER REGIONS IN THE UNITED STATES AND MEXICO, 16th TO 21st CENTURIES

Volume 1, Part A: Introduction, Statistics, Surveys and Commentaries

Fifth Edition

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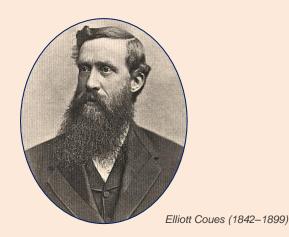
COMMENTARY

Elliott Coues (1842–1899)

"A necessary nuisance"—
The Traditional Bibliography in a Digital Age

by Earle E. Spamer

WHEN ELLIOTT COUES died it was the closing time of an era of scholarship when some practitioners seemed to know everything. Coues (pronounced *cows*) was one of these scholars whose experiences and capabilities crossed into a number of widely different subject areas. He is best known for his prodigious works on American ornithology, but his studies went much further, including original research in natural history and medicine, editing critical editions of Western American exploration, and compiling bibliographies; even essays on spiritualism. Among his indefatigable labors that have been lost is a three thousand-page manuscript on the birds of Arizona, which he temperamentally tossed purposely into the fire.[1] Much of his professional career as a physician with the U.S. Army found him stationed far away from the best (or sometimes any) libraries. To have accomplished so much by himself, even though he was constantly in touch with many correspondents wherever he was, is astonishing. His bibliographical work is of such

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[1] For a complete biography on Coues, see Paul Russell Cutright and Michael J. Brodhead, *Elliott Coues : Naturalist and Frontier Historian* (University of Illinois Press, 1981), 509 pp.

Engraving of Elliott Coues from D.G. Elliott, "In Memoriam: Elliott Coues", *The Auk*, New Series, Vol. 18, no. 1 (January 1901), Plate I.

volume that it alone could have been a lifetime's work; and this was conducted, one must remember, without the benefit of modern digital resources either as sources or for preparing manuscripts.

The art of bibliography has been viewed, particularly in the later part of the 20th century and on to today, as an indulgence of those with special interests and for limited audiences, perhaps even a pastime of puzzling or suspect worth. Used by few, most publishers today see bibliographies as uneconomical. And indeed, why bother with jotting down the authors, titles, and publishers of things that may already be awaiting online? Why bother preparing a publication that will be out of date even before the printed pages are bound? It is a dramatic shift of opinion from a century earlier, when bibliographies were reference tools expected to be found—and used. Substantial tomes, some of them as multiple volumes, were issued by publishers worldwide; awaited for, purchased, cataloged, and worn out by librarians and researchers.

Yet even in Coues' day the process of bibliography bore the stigma that it is not scholarship, at least not in the sense that it contributes new insights to a given field of study. Perhaps; because a bibliography is not usually a product that provides new interpretations or criticism of historical works and scientific hypotheses. Only the truly comprehensive bibliography of a broadly recognized field of scholarship (Americana, for example), when it contains authoritatively critical commentary on the items it cites, may provide contextual contributions toward understanding in its field. The various editions of Henry R. Wagner and Charles L. Camp's *The Plains and the Rockies* are a fine example, to single out but one title.[2]

Few users "read" a bibliography; it is a reference work, used piecemeal like a dictionary or like a thematic concordance.[3] Sometimes it is a biographical aid about a certain author, or it is a bookseller's or collector's key to an author's works. These are its immediate uses; yet, what often is unrecognized in a ponderous list of published works is that it can harbor much of utilitarian value.

At its usual and most basic, a bibliography embraces a chronological and literary history, a guide to tangible objects that are stored somewhere and, there, they are available for use. Each item can be a point for source material, or many items may be a foundation for evaluation, annotation, and enhancement by researchers. If one takes the time to read through portions of a comprehensive bibliography, it brings attention to what has already been done (as expected) but it can also reveal to those who are knowledgeable in the

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[2]   The last edition is Henry R. Wagner and Charles L. Camp, *The Plains and the Rockies : A Critical Bibliography of Exploration, Adventure and Travel in the American West, 1800-1865*, revised and enlarged by Robert H. Becker (John Howell—Books, San Francisco, 4th ed., 1982), 745 pp.

[3]   But see also my remarks in the *Preamble* for this volume.

subject problems and areas of neglected work. A thorough reading is also surely bound to draw one's attention to many surprising, peculiar, even important items that may otherwise go unnoticed even by diligently precise researchers. And, as a caveat that bears repetition, one which is empirically proved, the work on a bibliography is never done, even when one thinks little more can be done. A bibliography, updated, emended and corrected, always bears fruit.

Indeed, how *does* one "read" a bibliography? Not so much as one would read a story, accumulating the thoughts of paragraph after paragraph. Instead, it is read as paragraphs (citations) by themselves, each to be dismissed or acknowledged as useful or interesting, yet as with conventional reading with some anticipation for what may come. All the while, one does begin to grasp the idea that there is a lot of information that is beyond the simple list of authors, dates, and publishers.

I argue that specialized and truly comprehensive research perspectives can be gained, and administrative needs met, by using bibliographies that are, or claim to be, comprehensive. These are the works that have been assembled by thoughtful evaluation, essentially by hand; they are not shopped out from queries run in existing databases whose construction and content may not be fully suited to the work being done. There are, sadly, many examples of computer-generated reference lists from the third and fourth quarters of the 20th century; often they were unaesthetically reproduced in facsimile, having been generated by what were called line printers.

One may suppose, correctly, that in earlier times the frequent users of bibliographies understood how such works could be mined for information beyond the simple listing of things that had been published. I, however, infer from having worked with newer scholars that this kind of resource is becoming forgotten knowledge; some of these researchers were unaware of the diversity (even the presence) of extensively detailed bibliographies and how such works record the progress of and access to scholarship in the pre-digital world. This is unkind as a generalization; there are many researchers who do not fall into it, but it is an empirical observation I have made of others.

If more of the traditionally published (paper) bibliographies from years past were digitized, perhaps the awareness of such tools would be less overlooked today, perhaps even less shunned as research tools. However, many of these bibliographies have escaped the major efforts of digitization, likely because of their obscurity or, for some, that they remain under copyright. It's probable, too, that some of them are not digitized because it does not seem worth the effort; there is a perception of their limited, antique kind of usefulness, not to mention dated content. A kind of emphasis against bibliographies may be imposed as well by modern publishers, who see in bibliographies only whispers of market share. But in the end, it is a user-dominant perception of bibliographies that occludes them;

they provide low returns to scholastic or administrative needs. Hand-conducted searches such as those that would be done with conventional bibliographies takes time when the resource is dauntingly large, a prospect that is not always in the immediate best interest of hurried researchers and, in particular, administrators who work with deadlines in fiduciary straits. Still, these resources exist; and they *can* be used to greater effect than for which they are given credit.

The power that can drive re-recognition of bibliographies can come from the very medium that threatens them to begin with: developments in (what today is called) artificial intelligence. There is coming a time, which already has begun to appear, when computers will have the ability to analyze what the user *expects* to find for application to the work at hand. The major advance in this area will be when they do not err with obvious mistakes or by finding glaringly unrelated items; a demanding expectation from our viewpoint today. *And* a digital resource's own responses (in some fashion we can only wish for today) will have to be able to *contextually* retrieve or flag material that the user may not have known will be useful. We are not yet there, despite the promises and implementations of interpretive software such as that utilized by commercial developers like Google (to use one example[4]). Yet who even a generation ago could have anticipated the things we use today? The abilities I envision are likely to come, and they could well toll the death bell for bibliographies. In the meantime (and for quite a while yet), we have a world filled with available resources, paper and digital alike, and to overlook the power of one over the other is an unfortunate tendency. Encouraging them to work together will improve the utility of future resources for researchers.

Notwithstanding its potential as the foundation of future ambitious projects, the comprehensive bibliography is—and should be promoted as—the documentation for everything that has been published (and thus available) within the constraints of its scope and content. It is further an administrative account, documenting activities as revealed through publications produced in the execution of official duties, and documenting the conduct of those who carried out that work.

But—this is important—students new to a field of work should see that a pertinent bibliography is a guide to previous research, opinion, criticism and commentary; a body of literature that expresses the development of themes that pertain to the subject; and a chronology of changing research focuses over time. The astute student may also seize from

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[4]   Jean-Baptiste Michel, Yuan Kui Shen, Aviva Presser Aiden, Adrian Veres, Matthew K. Gray, The Google Books Team, Joseph P. Pickett, Dale Hoiberg, Dan Clancy, Peter Norvig, Jon Orwant, Steven Pinker, Martin A. Nowak, and Erez Lieberman Aiden, "Quantitative Analysis of Culture Using Millions of Digitized Books", *Science*, Vol. 331 (January 14, 2011), pp. 176-182 + Supporting Online Material available at www.science.mag.org/cgi/content/full/science.1199644/DC1, 88 pp. [accessed 10 February 2011]. [Updated link to this paper (28 September 2018): http://science.sciencemag.org/content/331/6014/176; accessed again 15 November 2024.]

a bibliography ideas of things that are problematical and discern things that seem not to have been done or have not been adequately explored—prime focuses for theses, dissertations, and future professional research for them and for their students in turn.

MOST RESEARCH MATERIALS today still are produced in paper formats and, pragmatically, will remain so for a long time to come. Digital materials now add to the volume of available research material, but despite some that have widespread use and attention they pale against the total that is not digital. The digital forms may someday, probably, dominate libraries; but will they represent the greater part of the whole of all available literature?

The present-day Google Books effort, for example, is both laudable and becoming indispensable, especially for materials that are now in the public domain. There are other such projects, each with specific focus, but the Google project is encouragingly broad in scope and incredibly productive. Many obscure titles and source materials come to light because of its search functions; this much is obvious. It is a very powerful tool for analyzing cultural trends, even thought it is restricted to the relatively "few" millions of items already digitized. Yet, Google Books is not without its recognized flaws; for example, misaligned pages lacking parts of their content, pages warped, miscentered and unreadable due to the operator's mishandling, pages obscured by the operator's hand, the procedural omission of fold-out pages and other things that deviate from the single-page format, and discordant, even useless, publication titles miscited in the Google Books metadata. Utilitarian goals have superseded craftsmanship. Furthermore, anything that fails to replicate the original publication may force one to search for an original copy of the work anyway, which is counterintuitive to the conservational intentions of digitization.

One may envision a day when book scanning is accomplished in the same fashion as, for example, non-invasive three-dimensional investigations inside the human body, like Magnetic Resonance Imaging. The idea is every bit as preposterous as the idea of MRIs would have been to our grandparents when they were young adults, or for that matter, X-rays to our generations of greater-grandparents. The medium is different, and thus the methods will differ from imaging organic bodies, but suppose the technology can be invented, just as were X-ray and MRI machines. These inventions would view the three dimensions of pages, compensating for thickness, warping and crenulations; the layers of formed lines of ink also in three dimensions, in one direction on one side of a page and vice versa, detecting the differences between impressed print blocks and effectively flat-surfaced offset printing; and detecting the chemical qualities of colors of those inks, while distinguishing drawings from half-tone illustrations and lithographs——and so on! The brute processing power, too, may have to await the next generations of what we still quaintly refer to as "computing" technology; for example, the foretelling promises of

"quantum computing". Taken a step further from the printed page, we may envision scanning the most fragile of scrolls, never unrolled, imaged and digitally (mathematically) "flattened". But these are accomplishments for the future. Right now we work in a research and reference world partly digital and, a page at a time, still mostly paper. The guides and aids are ever-increasingly digital, and all the processes and materials will move more toward it.

By and large, in major research libraries digital formats are not *replacing* that which is already available in paper. Resources published in inkprint remain a principal research tool, copies of which are usually obtainable in several or many locations. In judiciously maintained collections, the originals of those items that have been digitized will be kept in addition to the accessible digital copy. Regretfully, some libraries must respond to the limitations of finance and physical storage space by retreating from the conveniences of shelf access, banishing "less used" holdings to remote storage locations or disposing(!) them. The general philosophy is that such material is a burden to maintain and is also "available elsewhere". That presumption holds that *other* institutions *will* gladly carry the burden. It is a fatalistic approach that raises roadblocks along researchers' paths. How non- or inconvenienced-access affects the research routines of scholars is so far as I know not well studied; and whereas the determined researcher will one way or another find what is needed, how many will not have the financial, temporal or temperamental resources to pursue some items, then proceed without them? Productivity and scholarship thus suffer.

For the time being, there *is* a good chance that everything that is cited in a bibliography of published materials will be accessible somewhere. One may correctly surmise that digitization is improving access to some materials, even from the comforts of one's home or office. But what of material that is uniquely digital, like the nebula of web-posted materials? The web material may be instantaneously accessible now, but there lingers uncertainty whether, citations or not, web-based resources will be accessible at *any* time in the future. If, say, a citation for a publication printed in 1900 is discovered in 2150, there is a reasonable expectation that a copy of that work will be found somewhere; not so with web-based products, which may be gone tomorrow, in five years, or any time, at the blink of an eye. So-called "archives" of past websites are useful but they are limited by non-comprehensive selection, inoperative hyperlinks to material that is no longer attached, and the technological liabilities of the very medium they strive to archive. Moreover, web archives are endangered by the very fact that they themselves also remain—ephemerally— in the web environment.

Web resources can absolutely disappear—every "copy" as it were—at the whims of website compilers who take away posted documents; website managers and tinkerers who change the electronic location of documents, moving, adding, revising, and disposing at

will; and website hosts who may move to new internet locations, rename themselves, or close down. In every case the loss of replicable access points, or the outright loss of material, is an electrifying travesty; so much so that many people probably cannot fathom the ramifications should major portions (or the whole of!) the web collapse. Paper, for the long foreseeable future, will continue to serve as a hedge against loss of information.

A web-link citation with no actual linked material relocatable, accessible, *or* surviving is pointless; like the call-number of a library book irretrievable or with no copies extant. We might be fortunate, in such instances, to discover that this kind of "light gray literature" had been captured here and there, digitally or as hardcopy printouts in other locations and collections.[5] But discovering these uncharted islands in the vast archipelago of personal and institutional collections may be only serendipitous; certainly not assured. And further, such survivors may represent only a fraction of the original set of documents or web pages.

The dramatic drive toward routine computerization that took place in the later part of the 20th century limned a constellation of large digital bibliographical databases. Researchers now may find in a digital search individual items that meet certain selected parameters. The selection of parameters is partly that of the inquirer in structuring the query, but it also relies on the catalogers who, as they always have even in the days of card files, have made selective and professional assumptions as to the pertinent subject and content of a work—this to allow researchers to locate "all" works applicable to their present tasks even though the method does not anticipate those researchers who have specialized or unusual focuses.

The digital databases are only as good as they are designed, of course, but there are many good and well-used ones in fields of study from medicine to ecology to sociology, and so on. There are, too, the master files of library holdings like OCLC and WorldCat, or the profound but still-limited Google Books content-searchable digitization effort, although all are restricted to those institutions and organizations who participate. Then, too, there are the online catalogues for individual libraries. Or, we may turn to numerous commercial content-indexing services, some of which have been adopted by academic libraries, like JSTOR or EBSCO MegaFILE. We are thus subservient to the whims of catalogers, whose professionally directed assumptions establish the subject content of an item and thus the retrievable citations from an individual subject query. Likewise, one is also at the mercy of authors and editors, who may not craft informative titles and subtitles. One may wonder after a digital query has been made, what has been missed in the returns?

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5   Earle E. Spamer, "What a Woven Web: Archives, Websites, and the Coming Legacy of "Light Gray Literature", *Provenance*, Vol. 20 (2002) [2004], pp. 59-71 (https://digitalcommons.kennesaw.edu/provenance/vol20/iss1/8/; last accessed 15 November 2024).

Fortunately, the whole-volume digitization efforts now available online are a marvelous means of finding key words or "strings" of words within publications, right to the page. This steps by the functional purpose of a bibliography, yet at the same time it does not allow for the grouping of works such as that provided by bibliographies. Right-to-the-page searches are a different sort of tool; they do not replace bibliographies. But the full-volume digital products have their own issues, not the least of which is faulty optical-character indexing, which is a technological issue that can be improved.

One of the perplexing problems of regular digital querying is receiving spurious citations that have nothing to do with what is expected, even though the structured query does correctly hit upon homonymical words or strings. As cases in point, a search for "Grand Cañon"—hence also "Grand Canon", a common typographical permutation used in the late 19th and early 20th centuries—will yield citations about:

1) ecclesiastical commentary (as in grand canons of scripture that include lists of authoritative works, which one may see simplistically as "rules" of faith or conduct)

2) clerical grand canons (canons being a body of clerics who live according to rules and are self-ruled amongst themselves)

3) canonical affairs generally (as in references to something being *a* "grand canon" or [again] "rule" for some aspect of human conduct; for example, the "grand canon of writing" or a "grand canon of law")

4) the history of artillery (*grand canon*, "large cannon" in French[6])

5) music ("grand canon" being a definitive set of musical pieces)

6) mathematics (a "grand canonical ensemble" is a representation of thermodynamic states in statistical mechanics)

7) typography ("grand canon" being a style of large point size, one not precisely defined, also known as "double canon"; examples have been noted at 44 and 48 points)[7]

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[6] When in French literature the term is capitalized "Grand Canon", in pertinent contexts it is a direct translation of "Big Cañon" in English, a former name for the Grand Canyon of the Colorado River. It is thus most usually in reference to published reports from the J. C. Ives expedition of 1858, which described and portrayed "Big Cañon". There is, too, published account of the Place au Grand Canon in Ghent, Belgium, the location of an "enormous cannon" named *De dulle Griete*, or Mad Margery, manufactured in 1452 (John Murray, *A Handbook for Travellers in Holland and Belgium*, John Murray, London, 19th ed., 1876 , p. 135).

One can be misled, too. For example, the round-the-world memoir by Le Comte de Beauvoir (Ludovic Hébert, the marquis de Beauvoir), *Pékin, Yeddo[,] San Francisco : voyage autour du monde* (Henri Plon, Paris, 1872 and numerous reprintings and editions), makes reference to "le canon du *Colorado*" followed by several passages replete with exclamation marks (pp. 265-266). One could mistake this, without reading (or under-standing) the whole, for a visit to Grand Canyon, which of course it cannot be since it is in a passage dated from May 19, 1867. The reference is actually to the firing of the cannon of the ship *Colorado* upon leaving port in Japan. Thus, blind searches do not necessarily lead to proper references to Grand Canyon as "Grand Canon".

[7] See also for example, *Linotype Sabon Next. Part 1. Roots and Design Processes* (Linotype Library GmbH, Bad

8) references to "Le Grand Canon", misspelling of the Civil War memoirist, Le Grand Cannon [Le Grand Bouton Cannon] or the 20th century novelist Le Grand Cannon (and possibly others with this name)[8]

9) references to physiographic features named "Grand Cañon" that are not the familiar "Grand Canyon" [9]

10) generic terms of a physiographic feature as "a grand cañon" or "a grand canon".

Discerning which among all these finds is pertinent to a task at hand is up to the user; no software can do that for them without some direction from the user.

Still, the preponderant usefulness—and precision—in these master databases is a wonderful resource. They would be missed if they did not exist. Yet they did not exist a couple of generations ago. All that were available then were printed, eye-searchable bibliographies, only occasionally indexed or annotated, and, of course, ubiquitous card catalogs—each a Version 1.0 of its digital descendants.

IF ANYTHING (within reason) can be discovered quickly in a lightning storm of digitally cataloged publications, why in the world should anyone fall back on a broadly focused bibliography that laboriously and slowly plots decades or centuries of publications in a serialized, print-like format, one plodding, discrete item at a time?

The use of conventional, inkprint bibliographies is contrary to the instant matters-at-hand ethos that has assimilated an "online", "wireless" generation. The big picture may be superfluous, and from such a view a bibliography may invoke ideas of wearying overex-tension, or at its cuttingest, quaint irrelevance. Yet the reason a comprehensive bibliog-raphy can still stand firm in spite of its asynchrony with sped-up modern research methods is that its compilation authoritatively audits observations and work produced within the subject it embraces. It is the evidentiary record, visible as a whole, of the work of individuals, agencies, and organizations. It is responsive, even if slowly, to unique lines of inquiry or to administrative needs that cannot rely on presupposed, standardized cate-gories of indexing nor solely upon structured queries (the rigor of and results from which may and do vary).

It is the *content* of a bibliography that brings its attention to users, less so the composition of its citations. While many bibliographies are compilations of books only,

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Homberg, 2002), p. 11.

[8]   Note must be made also of one Le Grand Canon Griswold, a member of the Class of 1903 at Princeton University. (*Directory of Living Alumni of Princeton University*, Princeton, 1911, p. 137.)

[9]   See also Volume 3 of THE GRAND CANON, *Grand Canyon, Colossal Mirror* (access through https://ravensperch.org.)

others may compile magazine articles (perhaps just from the 19th century, for example). The permutations are numerous, each utilitarian within its scope and intended audience. Rarer are those bibliographies that canvas multiple source types (books, magazines, pamphlets, etc.) or multiple media types (printed, audio, audio-visual, etc.) or are temporally comprehensive, spanning centuries. The modern digital databases are similarly focused; they have selective content depending upon their intended coverage and audience. The most attractive aspect of the digital forms is that they are broadly accessible and take up no shelf space, though they are susceptible to digital decay and non-migration to revised software and updated hardware. But most weakly, the digital *databases*, unlike traditional bibliographies, do not lend themselves to browsing.

Traditional print bibliographies can be concisely packaged or cumbersome, even unwieldy in multiple volumes. They can be complex in ways that some questions asked of them can be answered only by flipping back and forth in the volume, or between volumes, fingers, papers, or scribbled notes holding places. While some users find this kind of basic research fascinating and productive, others find it arduously counterproductive, thus they rely more on searchable digitized bibliographies or databases. But it depends upon how fine a focus the user has on the project that is in progress, and how deeply into time that project delves. Many older bibliographies are not digitized, and the large electronic databases may be selective in the time range they cover. Many good and surprisingly useful resources just are not yet available digitally; and perhaps they never will be.

The kinds of pertinent information sources—citations, in the parlance of bibliographies—that catch a researcher's attention cannot be assembled (yet) by a computer program that responds to a structured query. The broad palate of raw data is understood only by the researcher; it is not delivered in an individual citation or structured group of queries. With the raw data the researcher is informed of sources that will deductively contribute to, argue against, or ratify hypotheses and opinions, or occasionally will even alter long-standing axioms in a field of study. The broad palate contributes toward the construction of arguments and helps draw up the support used for critical commentaries and unique conclusions.

To use digital databases to compile sets of data for supporting arguments, or for making meaningful evaluations of scholarly questions, requires a prodigious amount of data-gathering. For example, Stephen J. Pyne in *How the Canyon Became Grand*[10] used the 1990 print edition of Earle Spamer's *Bibliography of the Grand Canyon and the Lower Colorado River*[11] to collate statistics about the kinds of publications that had been

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[10]   Stephen J. Pyne, *How the Canyon Became Grand : A Short History*, (Viking, New York, 1998), 199 pp.

[11]   Earle E. Spamer, Bibliography of the Grand Canyon and the Lower Colorado River : From 1540, *Grand Canyon Natural History Association Monograph 8* (1990), and supplement, 1993. This is the last print edition of this bibliography.

produced during the previous century and a half. Lacking a database format at that time, the bibliographical information Pyne sought was tallied by eye and hand, somehow an appropriately traditional use of the bibliography in a time which even then was rapidly embracing digital formats.

This brings up an important point, one which takes the step beyond usual bounds of academic curiosity, stepping toward pragmatic inquiry. Perhaps those who demand the most information, but in discrete packets, are administrators, of whom one may never predict what will be needed or how a question will be framed. In the case of a national park, for example, a resource manager there might at one time need to account for every bit of publicly reported entomological research conducted in the park and the adjacent federal forest lands, but only since the creation of the national park. At another time, a query may be had about published discussions of the park's sewerage facilities and water recycling. Polling library and special-serials databases might provide some answers quickly, but there are many catalogued citations that will overlook a component contained in a larger, unrelated work because it is not a cataloger's duty to relate the detailed content of a work.

Two further points are that some works never have been catalogued into the modern databases, and no bibliography is a "master index" to *everything* contained in the publications it cites. A comprehensive bibliography can, however, pay its dues in a far-reaching administrative sense by revealing more than may be available anywhere else. True, it may not be the administrator who does the work, but the data delivered will be used to administrative effect. And in the objective sense of administration, the worst thing for any administrator is to be not informed.

If a researcher will wile the time to peruse a large bibliography just once, they will find works that would have been overlooked by a database query. There also are adjunct references that may not be directly related to the inquiry but which will have some ancillary application to research then underway—and, if not to the research then in progress, then serendipitously to another task the inquirer is working on or contemplating, perhaps even to inspire a whole new project. These are things that will not be delivered by querying databases. Only a *user* has the knowledge to recognize the things that do not fit a predetermined, pre-analyzed set of criteria. And by critically reviewing an entire bibliography, assuming it is reliable within its stated scope, a researcher will have the comfortable assurance that a substantial portion of the work previously done will have come to his or her attention.[12]

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[12]To illustrate how a database search compares to a reading of the same page in a monographic format, consider the kinds of returns one would get from a query about the short story, "El Gran Cañon", by the Dutch writer F. C. Terborgh (a pseudonym of Reijnier Flaes), which pertains to a Spanish expedition to the Grand Canyon in

It is similar in scientific or historical research. Only the researcher has the expertise to recognize the things that are useful for the study at hand. Running a database query will return far different results than a more laborious, time-consuming "read" of a bibliography. This is nowhere more important than to the student who is new to a field; there is no other place that will provide, in one source, a view of all that which has been already done—and I do not refer to a "selective" view of the "most important" things even though such overviews are themselves important and useful. I am quite at a loss as how to advertise the benefits of a comprehensive survey in lieu of the snap-of-the-digital-fingers return of an answer that, outwardly, seems to be comprehensively satisfying by itself. From resources that claim to include "everything", a user will gain a better perspective of the range of what Benjamin Franklin called the "useful" and the "ornamental"[13]; or more pointedly, the

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"1527". The story is unmistakably, loosely based upon Francisco Vazquez de Coronado's *entrada* in search of the Seven Cities of Cíbola and Pedro de Castañeda's account of the visit to Grand Canyon in 1540. If one's citation in hand referred to the English translation that appeared in the 1945 compendium of Dutch writing, *Harvest of the Lowlands*, one would retrieve from a database only:

Terborgh, F. C. [*pseudonym*] [Flaes, Reijnier]

1945   7.994   El Gran Cañon. (Jo Mayo, translator.) *In:* Greshoff, Jan (compiler, ed.), *Harvest of the Lowlands : an anthology in English translation of creative writing in the Dutch language with a historical survey of the literary development.* New York: Querido, Inc., pp. 478-489. [Translated from Terborgh; source text not identified. This is an imaginative retelling of some events of the Coronado *entrada*, although much smaller, starting in 1527, and never heard from again. The encounter with Grand Canyon is on pp. 487-489, which includes a party's descent into the canyon in order to follow the river to the sea.]

But if one turns to the same citation in the monograph, the following very informative set of five citations are seen in juxtaposition, any or all of which may be useful or lead to further inquiry:

Terborgh, F. C. [*pseudonym*] [Flaes, Reijnier]

1940   7.992   *De condottiere.* Peking: Bij de Paters Lazaristen, 133 pp. [100 copies.] [See "El Gran Cañon".] [See also remarks with the 1945 translation.] [In Dutch.]

1941   7.993   El Gran Cañon. *De Fakkel* (Koninklijke Drukkerij De Unie, Batavia), (March):. [In Dutch.]

1945   7.994   El Gran Cañon. (Jo Mayo, translator.) *In:* Greshoff, Jan (compiler, ed.), *Harvest of the Lowlands : an anthology in English translation of creative writing in the Dutch language with a historical survey of the literary development.* New York: Querido, Inc., pp. 478-489. [Translated from Terborgh; source text not identified. This is an imaginative retelling of some events of the Coronado *entrada*, although much smaller, starting in 1527, and never heard from again. The encounter with Grand Canyon is on pp. 487-489, which includes a party's descent into the canyon in order to follow the river to the sea.]

1960   7.995   *De condottiere : en andere verhalen gevolgd door Le petit chateau.* 's Gravenhage: L. J. C. Boucher, 126 pp. [See "El Gran Cañon", pp. 88-107. This is an imaginative retelling of some events of the Coronado *entrada*, although much smaller, starting in 1527, and never heard from again. The encounter with Grand Canyon is on pp. 104-107, which includes a descent into the canyon in order to follow the river to the sea.] [In Dutch.]

Terborgh, F. C. [*pseudonym*] [Flaes, Reijnier]**, AND Dalenoord, Jenny**

1965   7.996   *El Gran Cañon.* Utrecht: De Roos, 29 pp. (Stichting "De Roos", 69.) [175 copies.] [Originally published in *De Condottiere* (Terborgh, 1940, ITEM NO. 7.992). New ed., with lithographs by Jenny Dalenoord.] [In Dutch.]

[13] "You are now in that time of Life which is the properest to store your Mind with such Knowledge as is hereafter to be ornamental and useful to you." —*Benjamin Franklin to his grandson William Temple Franklin, 13 June 1775. (American Philosophical Society.)* Franklin used the two words in juxtaposition in other writings as well (http://www.franklinpapers.org).

"treasures and trash" as librarian Louise Hinchliffe more judiciously viewed the coverage in a comprehensive bibliography.[14]

WHICH BRINGS US BACK to Elliott Coues. His bibliographical work is all the more remarkable when we realize that he reached this level of achievement at a time when things were done by hand. I am now in my fifth decade of bibliographical work, compiling, editing, and formatting editions both printed and digital. I understand the time it takes to do these things even with the help of computers now; and looking at Coues' productions I am impressed. Even in 1886 he was intending to compile a "universal bibliography" for ornithology—"from Aristotle" no less![15]—and although he accomplished a master North American ornithological bibliography of tens of thousands of items,[16] and embarked on one for other world locales, he quit, finally, when confronted by the realities of the volume of material and the limitations and distractions of life. Imagine his perspective of things were he to forecast the literary tsunami of the 20th century.

Collating and arranging references is mundane work, certainly, sometimes augmented by interpretive commentary that provides more exercise for the mind. Only one who is intrigued by the printed word, by the rewards of reassembling information, and delving deeply for treasures in existing resources finds it interesting. But none of it is done mechanically; it still does take a person to make evaluations of material to be added, skipped, elaborated, revised, reverified, corrected or otherwise corroborated or emended for the bibliography. A single citation that appears in a bibliography is not always a simple recitation, quickly assembled before moving to the next "find"; each reflects its part in a cycle of acquisition and evaluation. Sometimes batches of citations are discovered at once, conveniently herded together and ready for classification; and other times specific in-depth searches will yield but few items (or one, or none!) in a long trawl.

Coues, in 1897, admitted for himself, and probably for all bibliographers, that "It takes a sort of an inspired idiot to make a good bibliographer . . . ." [17] He called bibliography "a necessary nuisance, and a horrible drudgery that no mere drudge [can] perform". He likened the drive to do it to "the appetite of a gambler or dipsomaniac". I agree, but I add, for myself and for Coues, that there is a separate, eager force that comes with "infatuation",

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[14] Louise M. Hinchliffe, Foreword *in* Earle E. Spamer (compiler), Bibliography of the Grand Canyon and the Lower Colorado River : From 1540, *Grand Canyon Natural History Association, Monograph 8* (1990), pp. v-vi.

[15] Elliott Coues, [Correspondence], *Forest and Stream*, Vol. 6, no. 3 (February 24, 1886), p. 36.

[16] Elliott Coues, "Birds of the Colorado Valley; a Repository of Scientific and Popular Information Concerning North American Ornithology. Part First, Passeres to Laniidae, Bibliographical Appendix", *U.S. Geological Survey of the Territories, Miscellaneous Publications, No. 11* (1878), 807 pp. [The appendix to this work is Coues' first installment in his American Ornithological Bibliography.]

[17] Elliott Coues, "Dr. Coues' Column", *The Osprey*, Vol. 2, no. 3 (November 1897), pp. 39-40.

which ameliorates drudgery and tedium. Perhaps infatuation is a kindlier form of inspired idiocy.

Years earlier, in 1874, Coues had already discerned the modern purpose for bibliography, one that sees scholarship challenged by utility.[18] He explained, "The labor of such compilation does not appear on the surface, [which I mention only] in the sincere hope that, once accomplished, the weary drudgery of future workers in the same vein may be materially lightened." In this statement, too, may be read that the reward in bibliography is usefulness to persons and in times not known to the compiler. On the other hand, the statement flies in the face of a remark made a generation earlier by the preeminent cataloger (and in fact a bibliography can be seen as a catalog), Charles A. Cutter, who said that "The cataloguer should not expect to be satisfied with his work" [19], meaning that continued revisions may not lighten the work of others as surely as Coues supposed it could.

Elliott Coues would certainly have embraced the computer as a savior to a bibliographer's work of collation and editing. In Coues' day the routine work of compilation led predictably to drawers full and stacks of index cards and papers, to lengthy pages of drudged, uniform citations not meant for fireside reading; which when done up in printed form became rather a nuisance to use. At least in printed form they were readily accessible nuisances. Today, the routine work of identification, evaluation, and compilation still has to be done even for the digital databases. But now, the ways in which value-added products can be derived from the main body of bibliographical data significantly amplify the usefulness of digital forums, although often at the expense of limiting or wholly occluding the ability to perceive and browse the whole.

When my compilation of the *Bibliography of the Grand Canyon and the Lower Colorado River* was first published in 1981[20], I never gave a computerized version a thought. In fact, various draft and final lists well into the 1980s all were rolled through typewriters. I was, incidentally, about to embark at that time into a part of my career where I wrote (on typewriters) technical reports about computers. Computers then were mostly batch-oriented mainframes, impractical to load up with millions of bytes of data just to sit and wait; most data were typed first onto punch cards or paper tape and read as needed

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[18] Elliott Coues, "Birds of the Northwest: A Hand-book of the Ornithology of the Region Drained by the Missouri River and its Tributaries", *U.S. Geological Survey of the Territories, Miscellaneous Publications*, no. 3 (1874), 791 pp.

[19] Charles A. Cutter, "The New Catalogue of Harvard College Library", *North American Review*, Vol. 108, no. 222 (January 1869), pp. 96-129.

[20] Earle E. Spamer, Bibliography of the Grand Canyon and the Lower Colorado River : 1540-1980, *Grand Canyon Natural History Association Monograph 2* (1981), 119 pp. Superseded by a 2nd ed., 1990 (*Monograph 8*) and supplement, 1993; in turn superseded by an online edition, 2000-date (updated 2000-2015); and superseded by THE GRAND CANON since 2012. [See also the Appendix to Part 1 in Volume 1/Part B.]

into the computer's memory to be processed by programs loaded into it just for the job. Interactive terminals, which were yet new, were pokey contraptions with awful keyboards that had stiff, rackety keys; across murky, usually green-phosphor "CRT" (cathode-ray tube) screens data returned from the "core" of the computer, noticeably character by character, with dot-matrix resolution that one could easily see on the screen. No one had one of these things at home. And what became the internet was embryonic, the limited domain of military consortia and hard-wired academics shuttling bytes and words, not graphics; it was still unknown to the world at large. Besides, computers of the day were meant for "data processing", which effectively meant "number-crunching" or delimited-field arrangements of text. Relatively crude compilations of bibliographical data could be, and were being, compiled through the assembly of boxes of punch cards or reels of digitally formatted tape, but these in the end resulted in more pages of paper documentation, awkwardly printed on aesthetically unpleasing computer printouts. And simply unheard of were digitally composed pages—except those like that of Quadex, a proprietary computerized system, inside the large, floor-sitting boxes of which individual characters on fiche-like cards were strobe-flashed perfectly, in synchronized computer-instructed arrangements, through lenses (determing type size) onto rolls of photographic paper, which, after chemical development and physically cutting and pasting them into page layouts, were used as camera-ready copy for offset printing.[21]

I admit that it is difficult for me to rely on something other than five centuries of book production technology and the distinctly diverse ways in which books have been distributed and used. The ephemeral nature of the internet can be scary to a paper-dependent person, despite unspecific promises of a world of data—notably not "the world's data"—at one's fingertips. An online or otherwise digital bibliography can further allow for a continuously updated format, unencumbered by the methodological "edition" of traditional publication with its physical constraints, expense, and distributional needs of printing, warehousing, and shipping. In that fashion, looking ahead such a bibliography can be reused and improved in ways we probably cannot imagine now. It may well turn out, too, that bibliographies *in general* are only an indulgence of research methods that will no longer apply in the 21st century and after. And bibliographies succumb to human limitations. Coues himself abandoned the work of bibliography, "forcibly divorced", he said, from a mania with which he could no longer keep pace.[22] But he gave up because of the volume of material, not because the technology had changed. I, however, have experienced a forced divorce due to technology: the digital database edition of the Grand Canyon–Lower

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[21]   Quadex has long since been absorbed and reabsorbed in corporate sales and mergers. I used this phenomenally innovative system, now a clumsy antique, in the early '80s while employed by a commercial publisher of computer technology reports.

[22]   Elliott Coues, "Dr. Coues' Column", *The Osprey*, Vol. 2, no. 3 (November 1897), pp. 39-40.

Colorado River bibliography, posted online in January 2000, was by 2015 unable to continue its updates, and it was finally removed from the web in October 2021.

I wonder how infrequently are Elliott Coues' bibliographies referred to today, whether in paper format or through one or another of the massive digitization projects online. His bibliographies are outdated by the passage of time, but I think a more accurate term is "outpaced", as Coues himself admitted had happened. Regardless, they still are reliable for the time periods they embrace, and they are accessible to those who need them.

Even though every good intention may be held to make a bibliography comprehensive (if that is its intention), pragmatically it is not. The very nature of bibliography lends itself to incompleteness; there is always more to be found, even within the most conscientious of scholarly and avocational fields where it may be vainly believed that "every work" has been found. The fact that multiple editions of a bibliography are published, each of which include many citations that should have been found for earlier editions (and not just newer works acquired since the last edition), testifies that the obscurity of references is due both to the diverse and broadly scattered material that must be found, often serendipitously, and to the growth of and improvements to the bibliographer's methods and resources. The passage of time naturally adds new works as well as allowing a compiler to rediscover old works previously overlooked. And it allows new technologies (like the internet) to overtake the compiler, which reveals all the more. Those who are the users of bibliographies are, in turn, beneficiaries of this work.

In 1878, Elliott Coues had already confirmed observations that I have made on my own more than a century later. In his ongoing master bibliography of North American ornithology he wrote, "Bibliography is never finished, and always more or less defective, even on ground long gone over . . . ."[23] And, speaking of himself, but which the prospective bibliographer can heed, too, he concluded in the third-person, "The writer would [like to] be accurate; yet he feels the weight of Stevens's satire: 'If you are troubled with a pride of accuracy, and would have it taken out of you, print a catalogue.'" It is more broadly a recurring predicament of scholarly publishing, even if hardly ever admitted. Malacologist Henry Pilsbry conceded in 1949, "If you want to learn how much you can overlook or forget, just write a book."[24]

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[23] Elliott Coues, "Birds of the Colorado Valley : a Repository of Scientific and Popular Information Concerning North American Ornithology. Part First, Passeres to Laniidae, Bibliographical Appendix", *U.S. Geological Survey of the Territories, Miscellaneous Publications*, no. 11 (1878), 807 pp. [The appendix to this work is Coues' first installment in his American Ornithological Bibliography.]

[24] Henry A. Pilsbry, "Two Overlooked Synonyms", *The Nautilus*, Vol. 63, no. 1 (July 1949), p. 36.

THE TRADITIONAL BIBLIOGRAPHY *is* still essential in the digital age. By "traditional" I mean comprehensively monographic—all in one place, not parsed into fields to be grabbed piecemeal and never truly comprehending its entirety. Thus grasped, traditional bibliographies offer perspectives that databases do not because the marvelous electronic guides do not offer a view of the whole to the user. Neither do the electronic guides anticipate all perspectives of a researcher's task in the ways that the researcher may have in mind. This may change—so we hope from the work and talk of artificial-intelligence developers—but for now a person's most productive searches are realized in two ways: one from filtered digital responses, the other from the scrutiny of pages with one's own experience, anticipation and capacity in charge.

Services provided by a database are unambiguously focused; its selections depend upon the way in which the user has queried it. It depends, too, upon how the database's creators have fashioned its data fields and the methods by which the data are parsed in response to the user's query. One depends upon the skill of the other to uncover what is useful.

The traditional bibliography, on the other hand, depends foremost upon the skill of its compilers: for its stated subject, is it accurate and useful? In practice, it first reveals at a glance the whole volume of its subject, then it affords its user numerous points of entry that are invisible from a query screen in a digitized database. By identifying sections of the bibliography in which to browse, an indulgent and patient researcher so disposed can uncover qualitatively and subjectively more by paging through it.

With databases we are, regretfully, subservient to the limits of technology. With traditional bibliographies we are obeisant to the physiological and temperamental limitations of the human body and mind; most of all boredom, tedium, and oversight. To be sure, while databases and pages are procedurally at odds, they are for now both indispensable. The dichotomy challenges researchers; administrators, too, who need timely and concise information; and librarians, who provide access and direction to useful resources. Using a digital database gets "a" job done. A slowly used monographic bibliography provides the finer resolution of a subject.

Users who must be time-conscious may view a detailed bibliography as a regretful nuisance, one not useful to the task whether by its sheer volume or by the greater number of "inconsequential" references in it that make it difficult to isolate those that are deemed "important" or "significant". And yet, another user whose very mission is to uncover myriad minor resources—or perhaps an elusive clue—is likely to retrieve them from a careful browsing. The contextual positions that specific or minor items hold can be discerned only by a subjective analysis by the user. Someday, ever more complex search needs will be matched by the resources and techniques of a vastly more precise ("intelligent") digital

world. Likewise, researchers' subjectively unique queries may be far more satisfactorily (even serendipitously) answered. In the meantime, we have our usefully, sometimes fumbly, mixed world of bytes, pixels and paper.

Despite concomitant arguments that admonish either conventional or digital resources, the traditional bibliography, whether it is on paper or presented in digital format like PDF, still provides one of the greatest resources available to new students in a field. While it may be deemed to be an awkward, if not antique, kind of resource, at its best it records much which has been published on the subject it embraces. With it one may see how that body of previous work applies to the fields it covers. As a student advances, the traditional bibliographies they may encounter will be seen with broader familiarity and with greater insights gained from the student's growing command of the field. Bibliographies also record contributions and false leads; they may even reexpose and reinvigorate perspectives and arguments that have been forgotten in a historical eddy along the main stream of a field's advancements. In reading the bibliography the student may also discern insufficiencies that draw attention to areas needing more or renewed work.

A bibliography serves all researchers as a documentary and evidentiary tool—this is the principal service that bibliographies have always provided. But further, it may serve as a foundation upon which to build more detailed, modernized, and reliably useful new guides—*including* new digital databases. No longer perceived as interminable lists of static citations, traditional bibliographies, even those produced years ago, can even serve as platforms on which digitally accessible copies of the cited items may be acquired. This will not just depend upon random, user-structured queries or search strings (such as how users can work with Google Books today, for example), but the bibliography–platform will serve as an authoritative, pre-analyzed, perhaps annotated, list that can deliver copies of the very material cited there, rather than just the citation and the information conveyed by it.

One most essential fact remains even in the digital age: within a traditional bibliography the work of proving sources is already done. It frees its readers to extract from it what is most immediately useful. It allows researchers and information providers to devise and refine value-added products. It affirms for administrators a body of available documentation and prior work. And it may in some cases set benchmarks in the evaluation of specific resources or identify new items of historical significance. Thus a bibliography never will be again a dreary documentation of what-has-been-done, but is the proof for points of historical and administrative interest and a meticulous, mercurial contributor to what can be done next.

References

Coues, Elliott. 1874. Birds of the Northwest : a hand-book of the ornithology of the region drained by the Missouri River and its tributaries. *U.S. Geological Survey of the Territories, Miscellaneous Publications*, no. 3, 791 pp.

Coues, Elliott. 1876. [Correspondence.] *Forest and Stream*, 6(3) (February 24): 36.

Coues, Elliott. 1878. Birds of the Colorado Valley : a repository of scientific and popular information concerning North American ornithology. Part first, Passeres to Laniidae, bibliographical appendix. *U.S. Geological Survey of the Territories, Miscellaneous Publications*, no. 11, 807 pp. [The appendix to this work is Coues' first installment in his American Ornithological Bibliography.]

Coues, Elliott. 1897. Dr. Coues' column. *The Osprey*, 2(3) (November): 39-40.

Cutright, Paul Russell, and Michael J. Brodhead. 1981. *Elliott Coues : naturalist and frontier historian.* Urbana: University of Illinois Press, 509 pp.

Hinchliffe, Louise M. 1990. Foreword. *In:* Spamer, Earle E. (compiler), Bibliography of the Grand Canyon and the lower Colorado River, from 1540. *Grand Canyon Natural History Association, Monograph 8*, pp. v-vi.

Michel, Jean-Baptiste, Yuan Kui Shen, Aviva Presser Aiden, Adrian Veres, Matthew K. Gray, The Google Books Team, Joseph P. Pickett, Dale Hoiberg, Dan Clancy, Peter Norvig, Jon Orwant, Steven Pinker, Martin A. Nowak, and Erez Lieberman Aiden. 2011. Quantitative analysis of culture using millions of digitized books, *Science*, 331 (January 14): 176-182, and Supporting Online Material available at:
www.science.mag.org/cgi/content/full/science.1199644/DC1 (88 pp.) [accessed 10 February 2011].

Pilsbry, Henry A. 1949. Two overlooked synonyms. *The Nautilus*, 63(1) (July): 36.

Pyne, Stephen J. 1998. *How the Canyon became grand : a short history.* New York: Viking, 199 pp.

Spamer, Earle E. 1981. Bibliography of the Grand Canyon and the lower Colorado River, 1540-1980. *Grand Canyon Natural History Association Monograph 2*, 119 pp. Superseded by a 2nd ed., 1990, and supplement, 1993; in turn superseded by an online Interned Edition, 2000 and continually updated. Supplemented by *The Grand Canon*, 1st ed. 2012, 2nd 2015, 3rd 2019.

Spamer, Earle E. 2004. What a woven web: archives, websites, and the coming legacy of "light gray literature." *Provenance*, 20 (2002): 59-71.

Wagner, Henry R., and Charles L. Camp. 1982. *The Plains and the Rockies : a critical bibliography of exploration, adventure and travel in the American West, 1800-1865* (revised, enlarged, ed. Robert H. Becker). San Francisco: John Howell—Books, 4th ed., 745 pp.