Arcane Magic

Hal Hall and the Creation and Transformation of Science Fiction Indexing

What are the origins of the boom in science fiction bibliography publication, and how has science fiction bibliography endured and been transformed in the Internet age? This article will discuss a progenitor of the boom, notably the creation and development of science fiction indexing. We take as our focus the evolution of two indexes—one of book reviews and another of secondary, critical material—compiled by Halbert (Hal) W. Hall at Texas A&M University. A project that originated in the 1960s, Hall's indexing work marks an early attentiveness to the emerging field of science fiction scholarship, and the inclusiveness of his work offers insight into the shifting boundaries and audiences of the field. In this article, we look at the publication history of Hall's work and mark the evolution of his index of critical material from a hand-typed card file to a continually updated open access electronic database.

Scholarship in Science Fiction Studies has expanded greatly in recent decades. As a field of study, it has been extant in one form or another since the 1940s, with the first peer-reviewed journal, *Extrapolation*, regularly published since 1959. In the past sixty years, several other field-specific journals, including *Science Fiction Studies* and *Foundation: The International Review of Science Fiction*, have also provided a forum for scholarly discourse. Perhaps most importantly, scholarship in the area has begun to appear in a variety of non-field-specific serials, including titles such as The *Journal of Popular Culture* as well as the less intuitively linked *Teaching of Psychology* and *Journal of Marriage and the Family*. For the comprehensive researcher, this variety of sources can prove problematic when accessing traditional databases or reference indexes whose contents are focused on a more general or discipline-specific area of study, such as the humanities or the social sciences. Thus, we see the need for a consistent and reliable resource to assist both librarians and their patrons in locating suitable material.

Launched in 2000, the Science Fiction and Fantasy Research Database (SFFRD) (http://sffrd.library.tamu.edu), available online through Texas A&M's Cushing Memorial Library & Archives, is the only resource of its kind. It is a digital index of critical articles, book reviews, and nonfiction items and resources within the field of Science Fiction Studies. Further, it is an open access project, provided and maintained by Texas A&M University, and thus open to any scholar with an Internet connection and a desire for critical Science Fiction (SF) citations. The

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database has its roots in indexing work begun by Halbert (Hal) W. Hall in 1967, described by one reviewer as "the Early Paleomoskowitz era of SF criticism."[1] This article will discuss the history and ongoing transformation of the database, examining its relationship to open access resources and science fiction scholarship.

THE NEED FOR A RESOURCE

Back in 1967 or thereabouts I was on the reference desk at Sam Houston University and a kid came up to the desk saying he had to read this book by Asimov for a class and he wanted a book review. So we went to the Readers' Guide *and there were no book reviews for Asimov in there! Well, I remembered that I'd read something in an issue of* Analog *so that night I went home and found it for him. And that was why I did a test index.*[2]

The genesis story of the SFFRD centers on a librarian and a student's question. The librarian was Halbert W. Hall; the student's name is unknown. The initial reference question, seemingly simple—"How can I find book reviews on works by Isaac Asimov?"—proved to have a profound afterlife. As Hall found, there were then no distinct reference sources available to either directly provide a citation or to identify further sources to do so. The short-term solution for the question was relatively simple; Hall went home and located a book review from his personal collection of literature. The long-term solution involved more planning and research.

Was there a true desire among patrons and potential researchers for a resource of this type? During the late 1960s, science fiction criticism at the academic scholarly level was still a new area of inquiry. The number of full-length studies and monographs was comparatively small; there were not yet academic publishers with a dedicated line of production devoted to this audience. Further, Science Fiction Studies programs were either just being instituted (James Gunn's programs of study at the University of Kansas began in 1970, with the Center for the Study of Science Fiction formally instituted in 1982) or had not yet been founded (The Eaton Conference at the University of California, Riverside, was launched in 1979). The first cohort of dedicated science fiction scholars was still surfacing. The Science Fiction Research Association, founded in 1970, provided an early means of connection with its publication of an annual membership directory listing scholars with their contact information and areas of interest.

The rise of science fiction as an area befitting academic attention was concurrent with a contemporary interest in recognizing genre literature as worthy of study. Though the birth of science fiction is often stated as the 1818 publication date of Mary Shelley's *Frankenstein*, it wasn't until the popularity of pulp magazines such as *Amazing Stories* in the 1920s that the literature was formally identified as a genre with a particular set of characteristics and noteworthy tropes.[3] The pulp period

(1920s–50s) and the subsequent early years of paperbacks led to a blossoming expansion both of publications and readers—enough so that many bookstores and libraries at least had an identifiable shelf of such material, and people weren't shy about asking for it.

As Marshall Tymn argues, "The acceptance of science fiction as a proper subject for scholarly investigation was preceded by several decades of research activity by dedicated amateurs."[4] He cites the publication of these amateur-created bibliographies in fanzines and as small-run pamphlets, efforts tracked in Robert E. Briney and Edward Wood's *SF Bibliographies: An Annotated Bibliography of Bibliographical Works on Science Fiction and Fantasy Fiction* (1972).[5] Fan historians Harry Warner Jr. and Sam Moskowitz created book-length studies of the genre that initially appeared as fanzines before being republished as professional, even academic, works of historical scholarship.[6] Similarly, literary criticism was initially confined to essays with limited circulation among certain groups. Though some of these works were penned by authors who would one day become "names" either in academic or genre circles, their limited visibility to the reading public, while contributing to ongoing efforts to establish bibliographic control for science fiction, limited their utility to the scholarly community.

THE EVOLUTION, EXPANSION, AND PACKAGING OF THE BOOK REVIEW INDEX

Hall set out to build a prototype index to *Analog* and *Science Fiction Review*, typing entries out on cards before compiling them into the booklet *Science Fiction Book Review Index, Pilot Issue, 1969.*[7] For this initial volume of *The Science Fiction Book Review Index* (*SFBRI*), Hall started slowly, indexing all book review citations he could locate that had been published in 1969. A trial issue of "0" was published with a run of about twenty copies in 1970. He sent *SFBRI* to a small group of influential scholars asking whether it was useful. The response was virtually unanimous: Yes.[8]

The first issue proper of *SFBRI* appeared in 1971 and was twenty-seven pages long.[9] Approximately two-dozen copies were published and distributed to libraries and scholars.[10] *SFBRI* was popular enough for its publication to be continued annually for twenty-one years, concluding with a final annual issue in 1991. In 2008, these annuals were digitized and added to the Texas A&M University institutional repository, where they are openly available to all users.[11]

The Gale Research Group became interested in the *SFBRI* and published three large cumulative collections as *Science Fiction Book Review Index 1923–1973* (1975), *Science Fiction Book Review Index 1974–1979* (1981), and *Science Fiction and Fantasy Book Review Index 1980–1984* (1985). The three volumes indexed 43,400 book reviews.[12]

The first volume (1923–73) included Hall's retrospective indexing of science fiction magazines, offering "a complete record of all books reviewed in the science fiction magazines

from 1923 to 1973, and a record of all science fiction and fantasy books and books of interest to science fiction readers reviewed in the non-science fiction magazines from 1970–1973."[13] The second volume (1974–79), containing 15,600 reviews of 6,220 books, only "slightly exceed[ed]" the numbers from the fifty-year span covered in the first volume; Hall notes this as evidence of the growth in science fiction reviewing in the 1970s.[14] Additionally, it speaks to Hall's more expansive inclusion of non-science fiction materials reviewed in science fiction magazines. The third volume (1980–84) indexed 13,800 book reviews.

Significantly, the 1980–84 volume also included the "Science Fiction and Fantasy Research Index," which indexed five years of "secondary literature, providing nearly 16,000 subject and author access points to articles, essays, and books featuring the history of, or criticism on, science fiction and fantasy literature, television programs, motion pictures, and graphic arts."[15] In compiling the book review volumes, Hall worked to identify sources of reviews, including fanzines, library and general review publications, and fan publications. Hall's method for the "Research Index" extended this source material to include literary criticism journals, science fiction criticism titles, newspaper indexes, and other specialty publications. As Hall describes, his approach was both systematic and voracious, as he sought to "keep a weather-eye out for any item in out-of-the-way places, any hint of an article."[16] He writes, "Bibliographic searching of published indexes, such as *Readers' Guide*, regular examination of almost 200 magazine titles, computer searches, citation analysis, help from fellow scholars, and good fortune were all significant tools in the growth of this index."[17] The parallel—and sometimes perpendicular—development and publication of one index dedicated to book reviews and a second concerned with history and criticism will be discussed in greater depth later in this article.

THE HISTORY OF A COLLECTION

None of the indexes or the SFFRD would have been possible without a substantial collection of material to access and reference. As Hall noted in a 1975 *SFBRI*, as well as in his 1923–73 *Gale Index*: "Whenever possible, bibliographic data is based on the material in the Texas A&M University Library's science fiction collection of over 6,000 titles."[18]

The publication of resource materials for Science Fiction Studies was concurrent to the building of significant research collection of material at academic libraries.[19] Collection development occurred either as universities independently recognized the need to collect these materials and undertook acquisition projects or as significant collections were donated to libraries. Hall identifies Syracuse University as "the early leader in the acquisition of science fiction material." Other strong early collections in the United States were housed at the University of California at Riverside; UCLA; and the University of Maryland, Baltimore.[20]

The Science Fiction Research Collection at Texas A&M University had its beginnings with two purchases of bulk materials: one of early science fiction serials and other early titles from the 1920s to the 1950s, and a second of paperback novels. Two campus departments supported the acquisition of these collections—the English department, as it was a body of literature, and the Engineering department. Donald H. Dyal, then head of Special Collections Division, The Science Fiction Research Collection, Texas A&M University, recounted "as one distinguished engineer remarked, science fiction 'often casts engineers in gallant roles,' something that is not often done. With the engineers behind the science fiction collection, its star was rising."[21]

In 1974, the Science Fiction Research Collection was announced through a formal event at the library, with Professor James Gunn, a science fiction scholar at the University of Kansas who would become the founding director of The Center for the Study of Science Fiction, attending as a guest speaker. A commemorative pamphlet, *Announcing the Future*, was printed and distributed.[22] With the support of a Special Collections Library Directors Don Dyal, Steven E. Smith, and David Chapman, the collection continued to grow. It acquired a stable of authors who donated their papers (and continue to add to their collections), including George R. R. Martin, Lisa Tuttle, Michael Moorcock, Martha Wells, and Elizabeth Moon. In a 1982 article, Dyal described the collection: "With only a couple of possible exceptions, the Special Collections Division of Texas A&M University Library probably has the largest and most diverse university research collection of science fiction and fantasy materials in the United States."[23]

To date, the Collection at Texas A&M includes over 47,000 individual pieces and approximately one hundred archival collections. It remains a growing work in progress, evolving in its collecting sensibilities to encompass fan works and tabletop gaming materials. Most recently a massive event hosted by Cushing and utilizing materials in its collection, *Deeper Than Swords: Celebrating the Work of George R. R. Martin*, brought over six hundred visitors into the Library for an eponymous exhibit opening and over two thousand visitors to campus to hear Mr. Martin speak at a free lecture. The Collection itself is one of the most used by researchers within the Library, with scholars traveling from across the world to College Station, Texas, to access its holdings.

IDENTIFYING AND ADVOCATING FOR A BODY OF KNOWLEDGE

The building and development of a sustained science fiction collection thus supports the academic inquiry into science fiction. Science Fiction Studies proper is an interdisciplinary area of scholarly inquiry whose precise identity has often shifted. Of primary interest to many is the actual definition of science fiction. Scholar Eric S. Rabkin recently (and memorably) defined science fiction as "fiction that the world uses as science fiction."[24]

Advocacy for academic study and more general access was inherent to Hall's indexing effort. Certainly, "access" was a watchword from its inception; the 1971 volume is self-consciously "designed to identify and provide a means of access to science fiction and fantasy book reviews, and to other books of interest to students and readers of that genre of literature."[25] In an attempt to tailor his *Indexes* to include these "other books of interest," Hall generously defined the borders of the science fiction community's research and reading interests, extending its confines to include science fiction in languages other than English, fantasy, children's fantasy, and technical books.

Increasingly, the *SFBRI* addressed a coherent and organized audience. Introductory text included in the annual *SFBRI* documents evolving attempts to reach this community. In 1980, Hall noted that *Science Fiction and Fantasy Book Review*, an all-review science fiction magazine, had surfaced, "the first year in some time that the field" had such a venture. He advocated for the community's galvanizing behind such efforts, writing that "support of such a journal is of vital importance to the growth and quality of SF scholarship," and the Science Fiction Research Association (SFRA) "should undertake at the earliest opportunity" to provide for the "development and continued support of an all-review magazine."[26] Their sponsorship seemed assured by the 1981 *SFBRI*, which reported that the SFRA was publishing the all-review journal, whose "regularity and the uniformly high quality of the reviews made [it] . . . an essential tool for the science fiction and fantasy scholar and an essential purchase for libraries supporting an active science fiction and fantasy clientele."[27]

The *SFBRI*, while meeting a clear need, coincided with a period of proliferation of professional science fiction indexing. As Gary Wolfe quipped in a 1981 review of four bibliographies focused on single authors:

> When I showed these . . . bibliographies to a librarian friend of mine, she expressed some astonishment that still-active SF writers should be receiving the sort of minute bibliographical attention that has not yet caught up with even some classic 19th-century authors of 'mainstream' fiction. Her reaction confirmed my own suspicion that SF, not long ago invisible in all but the most arcane reference works, now is out to be the most indexed, bibliographed, collated, and cross-referenced body of literature since the Pentateuch.[28]

The thorough professional indexing was preceded by and built upon the early efforts of amateur bibliographers, for whom, as Tymn describes, the work was "largely a labor of love, an activity which reflected the particular enthusiasms of the compilers rather than the systematic exploration of the genre."[29] Hall offered a gentle critique in 1973, writing: "the bibliographic efforts of fans fall into the general category of systematic bibliography; that is, the study of books as ideas, rather than analytical bibliography—the study of books as physical objects. Virtually no analytical bibliography exists in the field of science fiction." He saw the lack of analytical bibliographies at the time as "not necessarily [indicative of] a great lack when the relative age of the genre is taken into account."[30] Indexes created by those early bibliographers in the decades preceding science fiction's acceptance as a legitimate area of scholarly study "helped to establish the bibliography as a mainstay in fantasy and science fiction research, and commercial publishers are now receptive to this kind of scholarly endeavor."[31]

As printed indexes became less commercially viable for publishers, however, these careful works experienced very different transitions—or lack thereof—to digital form. Those professionally tended science fiction bibliographies that have endured into the digital age have mostly done so in the form of CD-ROM editions, though some Locus Press items have migrated to online indexes.[32] Indeed, the four bibliographies that prompted Wolfe's critique (examining Clifford D. Simak, Theodore Sturgeon, Jack Williamson, and Andre Norton, all published by G. K. Hall & Co. out of Boston in 1980 and including prefaces and introductions in addition to indexes of primary and secondary material) embody a variety of afterlives: subsequent, updated or revised, printed bibliographies were published for each of the four authors.[33] But, in keeping with science fiction's strong fan tradition, updates to these bibliographies are no longer issued as printed texts but are informally maintained on scattered dedicated websites, hosted by individuals. The collaborative, fan-driven Internet Speculative Fiction Database (www.isfdb.org/cgi-bin/index .cgi) provides direction to these personal websites, as do other sites, including the UK-based Fantastic Fiction (www .fantasticfiction.co.uk) and Wikipedia (www.wikipedia.org). The Internet Speculative Fiction Database first went online in 1995, as a resource of books and authors in science fiction and fantasy; it was hosted at Texas A&M 2003–7, and has since moved to independent hosting.

THE EVOLUTION FROM INDEX TO DATABASE

Just as Hall's work indexing science fiction book reviews was becoming more expansive, he formally took the reins on a project to index criticism and literature secondary to science fiction publications.[34] As Hall explains, the transition was a natural one: "Book review indexing was useful, and the comments and subscriptions kept the project interesting for several years. Increasingly, as I indexed reviews, I found citations to books of criticism or history, and kept a separate card file on those, mostly for my own use."[35]

The catalyst for sharing this budding but largely personal resource came with the 1972 publication of Tom Clareson's bibliography *Science Fiction Criticism; An Annotated Checklist*, described by Hall as "the first book-length bibliography of science fiction secondary literature" and by Tymn as "[the] pioneer guide to critical literature."[36] Tymn notes that the volume included "about 800 annotated entries from both popular and academic sources, excluding fanzines. Entries are

grouped into nine categories, such as general studies, literary studies, book reviews, visual arts, classroom and library."[37] The publication provided an occasion for Hall to compare his card file of secondary resources with Clareson's and, "with Tom's blessing," to "undertake continuous indexing of history and criticism materials."[38]

From its first incarnation as a card file kept by Hall, the bibliography of history and criticism evolved to computer prints to a 1980 computer-output microfiche comprising four-thousand entries, *The Science Fiction Index: Criticism: An Index to English-Language Books and Articles about Science Fiction and Fantasy*. As the microfiche was not commercially successful or sustainable ("I think it generated about 25 sales," Hall notes),[39] 1981 saw the launch of a new format for the publication: the annual *Science Fiction Research Index*. The Index appeared as an annual for ten years. In 1985, a compilation of the first five annual volumes was included in Hall's own *Science Fiction and Fantasy Research Index, 1980–1984* (Gale).[40] The annual was also occasionally included in Charles N. Brown and William G. Contento's *Science Fiction, Fantasy, and Horror*.[41]

In 1987, the first cumulated two-volume set, *Science Fiction and Fantasy Reference Index 1878–1985* (Gale) became available.[42] It was described contemporaneously by one reviewer as "by far the most comprehensive such bibliography," including "more than 19,000 individual books, articles, essays, news reports and audiovisual items . . . indexed by more than 42,000 author and subject citations."[43] Subsequent compilations (*Science Fiction and Fantasy Reference Index, 1985–1991*; *Science Fiction and Fantasy Reference Index, 1992–1995*) were published by Libraries Unlimited in 1993 and 1997, respectively.[44] Dedicated to history and criticism, these volumes did not include book reviews.

Technological advances aided in the creation of the three compilation volumes. As Hall recounts of a computer program developed by Bill Contento:

> Bill's program was a marvel. It took the raw data, performed some arcane magic in the bowels of the computer, and delivered a complete book, camera ready, with running headers, page numbers, and stylistic features. . . . Not only that, but it delivered the book as an author listing and a subject listing, in a clear, readable form.[45]

While the software developed by Contento transitioned Hall's work from the card file and manual typewriter to delimited files in a Q&A database, shifts in scholarly publishing dissipated the market for index volumes, ushering in another transformation. The Q&A database allowed a searching functionality not possible in the format of the printed book, and Hall began performing searches for researchers and mailing them the results of queries done on their behalf.

With the waning of the market for printed indexes, Hall resolved to continue the *Research Index* by developing it for online use. This move to an online, publicly available database was motivated by a desire to make the research index "freely available to the international world of scholars of science fiction and fantasy."[46] Intellectual property claims by the publishers proved not to be an obstacle to making the index open access; Hall easily secured permission to move the data. In June 2000, the first online version launched, using a PHP front-end drawing on a Microsoft Access database.[47] By 2002, the database boasted more than 50,000 entries "cover[ing] all aspects of science fiction, fantasy, horror, supernatural, and weird fiction, including criticism, commentary, reviews, and some fan material."[48] Users can search or browse entries. An updated version was installed on December 31, 2006, with 75,000 recorded entries.[49]

THE SFFRD, DISCOVERY, AND OPEN ACCESS

Efforts by libraries and librarians to connect users with appropriate sources are, of course, neither unique to the SFFRD and science fiction indexing nor new. As has already been noted, indexing and abstracting of science fiction faced particular challenges in venturing beyond previously defined subject areas. Hall recognized the nature of this challenge: "In every era since printing began, men have dreamed of universal bibliographies which would record all books in existence. Likewise, whenever a new subject field has developed, its practitioners soon realize the need for adequate—if not universal—coverage of its literature."[50] In 1979, librarians observed this general breakdown in bibliographic control: "As the literature grows, it becomes increasingly scattered and, consequently, it becomes increasingly hard to find, increasingly hard to keep abreast of, increasingly hard to identify through an indexing or abstracting service in a particular subject field."[51]

Changes in publishing have shifted efforts to connect patrons to appropriate resources. As the literature continues to grow, commercial and technological solutions have been proposed to address the "scattering" noted by librarians. Publishers have developed full-text aggregator databases, which allow users to search across journal content licensed from a variety of publishers. In theory, were aggregators to include all content, this approach would provide subscribers with indexed online content across subject areas. But studies have criticized aggregators' "transient content," "high rate of missing issues or missing full text,"[52] "incomplete subject coverage," "incomplete journal coverage," and "inconsistent content."[53] Google Scholar provides discovery for a wider range of materials, extending beyond journal publications and incorporating open access and subscription/fee materials as well as citations to both print and online resources. One study evaluating the search engine's coverage of a multidisciplinary subject area found that, in comparison with seven databases, Google Scholar "indexes the greatest number of core articles . . . and provides the most uniform publisher and date coverage." But "a substantial proportion of the citations provided by Google Scholar are incomplete . . . or presented without abstracts."[54] Another study noted that "content inclusion in

Google Scholar varies profoundly from database to database and from discipline to discipline."[55]

Abstracts of online content may be openly accessible even as full text remains behind the paywall. Currently, a variety of commercial publishers and aggregators offer open access—either directly or through Google Scholar—to indexes and abstracts of materials in some of their databases, while limiting the full text content of the databases to subscribers. Willinsky classifies this "abstract" approach as "an increasingly popular version of open-access 'lite'" and one of "the nine 'flavours' of open access which have demonstrated their viability."[56] This open access approach, however, has clear underlying incentives: by making the abstracts of content available for purchase openly accessible, content providers better enable the discovery of their material, the full text of which is available for a fee.

How have librarians and libraries contributed to open access discovery, even as select licensed content is accessible from commercial services? As Carole Palmer argues, electronic "access resources"—"the indexes, directories, bibliographies, and databases, also known as reference or tertiary sources"—are deserving of closer study by those examining the research process:

> The access resources used by scholars . . . are of particular interest because they can mediate paths of research. . . . Thus, the shift to digital production of access resources may prove to be more profound than the advent of electronic journal and book publishing. After all, access resources provide the infrastructure that makes primary and secondary publications searchable or able to be gathered as raw materials for research in the first place.[57]

The concept of the mediated path gets at the heart of the importance of access tools, which enable both print and electronic resources to be made discoverable. In working to develop access resources, as well as research guides to help users navigate existing access resources, librarians have produced pathfinders, online subject guides, and virtual libraries, shifting their efforts as other commercial services have emerged.[58] Similarly, librarians have contributed to the building of open tools—and to resources that register or catalog these tools.[59] These library tools include applications such as content management systems, repositories, and bibliographic managers.[60]

Ann Blair observes that, even as reference works "carry with them the legacy of developments from centuries earlier. . . . The shift of reference works to digital platforms has begun to change and will no doubt continue to change how these tools are composed, maintained, and used."[61] Hall attempted to ameliorate the effects of the "scattering" and growth of sources for science fiction scholars by both expanding the scope of his own indexing beyond science-fiction-specific sources and loosening his subject field to include fantasy, utopia, horror, supernatural, weird, and any other stories being published in the sources he consulted. The SFFRD

benefits from Hall's attempts at inclusiveness. In its shift to digital, even as it incorporates a shift from an alphabetized list to search and browse functions, it also retains some affordances—and limitations—of its earlier print format, including truncated entries and the absence of links to full-text resources for most records (entries added after the transition online may link to resources, if available).

THE DATABASE TODAY

The Science Fiction and Fantasy Research Database "is an online, searchable compilation and extension of *Science Fiction and Fantasy Reference Index 1878–1985*, *Science Fiction and Fantasy Reference Index 1985–1991*, and *Science Fiction and Fantasy Reference Index 1992–1995*, including material located since publication of the last printed volume."[62] Entries for substantive or notable book reviews are added to the Database as discovered.[63] The Database also includes links to a variety of web resources as individual citations, including online articles, comprehensive blog posts, and useful websites. The *SFBRI* annuals have not been made available through the database now. They remain part of a backlog that bibliographers hope to one day incorporate retroactively. However, digitized versions of the *SFBRI* annuals have been made accessible online through Texas A&M's Institutional Repository.

Beyond providing greater search functionality, the transition from annual indexes to compilation volumes to an open access database signaled a move away from seriality. No longer is the index updated at discrete, contained moments, with additions clearly signaled. In its database form, the resource is sporadically and continually updated. Incremental changes are documented by a citation number tally on the front page of the interface and an RSS feed of updates. While this, at any moment, provides the research community with a full, cumulative, up-to-date research index, changes and additions are no longer delineated. Nor is there a clear moment, provided for in the form of a serial index with front matter, for appraising or advocating.

In its online incarnation, the SFFRD boasts increased functionality. The website currently employs a Python interface drawing on a MySQL database. Entries are full-text searchable and browsable by title, author, subject, and imprint. Users may download or email bibliographic records. Beyond escaping the static bibliographic constraints of the printed index, the database fulfills its own science fiction of sweeping availability, freeing a resource once almost exclusively owned by large libraries and a select group of dedicated scholars.

While the technology for creating and disseminating the index changed, so, too, did Hall's indexing work and his provision of access points evolve. Hall's *SFBRI* annuals had been divided into two sections: the first provided an alphabetical listing by author, with citations to reviews; the second, a title index of the reviewed books, simply listing titles and authors. In the author section, citations consist of "author; title and

subtitle; publisher; source journal; volume number and issue number, or whole number; pagination of review; date of review; reviewed (if identified)."[64] Fuller bibliographic data was provided for titles in the cumulative book review volumes: the multiyear volumes' citations of reviewed titles include reference to joint authors or editors and pseudonyms, in addition to providing the place of publication and the Library of Congress card number, when available.[65] While cross-references were not available for co-authors by the second volume of book reviews (1974–79), these cross-references emerged in the third volume (1980–84) as an improvement.[66]

The "Science Fiction and Fantasy Research Index" included in the third book review volume differed from the book review indexes in its provision of subject access. Divided into two sections—Author Entries and Subject Index—the "Research Index" relied on "a controlled vocabulary set of over 300 subject headings to provide standard access to the major search terms used in the field."[67] Hall describes modeling his original *Research Index* on the serial *Readers' Guide to Periodical Literature* (Minneapolis: H. W. Wilson, 1901–) and Donald B. Day's *Index to the Science Fiction Magazines, 1926–1950* (Portland: Perri Press, 1952).[68] Revisions to SFFRD circa 2008 enabled the addition of fields to improve the database's functionality, including language, source, and record type.[69] As noted above, users can also browse by title, author, subject, and imprint. As of May 2013, there are more than 21,000 indexed subject headings by which users can browse the database.[70]

Further, efforts to remain in sync with evolving scholarship means that offshoot branches of study are included as well when relevant, such as material in Fan Studies, Gaming Studies, and other emerging disciplines as related to science fiction and fantasy media. Hall, who retired from Texas A&M in the fall of 2010, had maintained that he would conclude his indexing work when the tally of citations in SFFRD reached 100,000—"A nice, even number." But, as of May 2013, Hall's work continues, even as the SFFRD encompasses over 100,300 individual citations.

SFFRD stands as a rare instance of a publicly available, university-maintained source for science fiction criticism and secondary literature. Where other databases provide bibliographic information on fiction, the SFFRD focuses primarily on nonfiction scholarship. Other online resources in science fiction accessible without a subscription include Bill Contento's list of bibliographic resources (www.philsp.com/homeville), last updated in 2007, which include an electronic index of the "Books Received" column from Locus Magazine, circa 1984–2006; Phil Stephensen-Payne's list of author, book, and magazine indexes (www.philsp.com); and Al von Ruff's Internet Speculative Fiction Database (www.isfdb.org/cgi-bin/index.cgi), a "community effort to catalog works of science fiction, fantasy, and horror."[71] Less prevalent are indexes or databases focused on secondary sources and criticism, though the Center for the Study of Science Fiction attempts to link to those research sources.[72]

In a 1973 article, Hall observed "the tremendous amount of bibliographic work [that had been] done in the field of sf" and noted that "the value of many of the works is beyond question." Despite this, "the majority of [bibliographies] have one great fault—they are virtually unobtainable. . . . This flaw is inherent in the method of publication—limited editions, privately distributed, with little circulation to libraries."[73] The SFFRD attempts to escape the flaw of these publications with its publicly available online interface. Further, it serves to provide continued awareness of items that might otherwise disappear from SF scholarship. By making this index of secondary research materials digitally and openly available, Hall has provided "desktop access" to a more complete critical history of SF. As Lisa Yaszek argued in a recent article, "tools like the SFFRD provide scholars with quick access to all the different narratives we use to make sense of our chosen genre and its history."[74] Patrons now have access to much more than citations to book reviews for reports—they have the wide expanse of Science Fiction Studies literature as it currently stands.

References

1. Neil Barron, "Review of Science Fiction and Fantasy Reference Index, 1878–1985, edited by H. W. Hall," in *SF Book Review Annual*, ed. Robert A. Collins and Robert Latham (Westport, CT: Meckler Corporation, 1988), 406.
2. Hal W. Hall, discussion with Catherine Coker and Sarah Potvin, October 5, 2011.
3. Catherine Coker, Hal W. Hall, and Todd Samuelson, *One Hundred Years Hence: Science Fiction and Fantasy at Texas A&M* (College Station, TX: Cushing Memorial Library & Archives, 2010), 22.
4. Marshall B. Tymn, "Bibliographic Control in Fantastic Literature: An Evaluation of Works Published 1941–1981," in "Science/Fiction Collections: Fantasy, Supernatural & Weird Tales," ed. Hal W. Hall, special issue, *Special Collections* 2, no. 1/2 (Fall/Winter 1982): 131–50.
5. Robert E. Briney and Edward Wood, *SF Bibliographies: An Annotated Bibliography of Bibliographical Works on Science Fiction and Fantasy Fiction* (Chicago: Advent, 1972), as cited in Tymn, "Bibliographic Control in Fantastic Literature," 131.
6. Harry Warner, *All our Yesterdays: An Informal History of Science Fiction Fandom in the Forties* (Chicago: Advent, 1969); Harry Warner, *A Wealth of Fable: The History of Science Fiction Fandom in the 1950's* (New York: Fanhistorica, 1976–77); Sam Moskowitz, *The Immortal Storm: A History of Science Fiction Fandom* (Atlanta: Atlanta Science Fiction Organization Press, 1954).
7. H. W. Hall, introduction to *Science Fiction Book Review Index 0*, 1970, accessed April 22, 2013, http://repository.tamu.edu//handle/1969.1/6910.
8. Hal W. Hall, "The Evolution of Science Fiction Indexes: If I Had Known . . . " unpublished essay.
9. H. W. Hall, introduction to *Science Fiction Book Review Index 1*, 1971, accessed April 22, 2013, http://repository.tamu.edu//handle/1969.1/6909.
10. Ibid.
11. Hal W. Hall, ed., *Science Fiction Book Review Index 0–21 (1970–1991)*, accessed April 22, 2013, https://repository.tamu.edu/handle/1969.1/6416.
12. H. W. Hall, introduction to *Science Fiction and Fantasy Book Review Index, 1980–1984*, ed. H. W. Hall (Detroit: Gale Research Group, 1985), ix.
13. Halbert W. Hall, introduction to *Science Fiction and Fantasy Book Review Index, 1923–1973*, ed. Halbert W. Hall (Detroit: Gale

Research Group, 1975), ix.

14. Halbert W. Hall, introduction to *Science Fiction and Fantasy Book Review Index, 1974–1979*, ed. Halbert W. Hall (Detroit: Gale Research Group, 1981), ix.

15. Hal W. Hall, *Science Fiction and Fantasy Book Review Index, 1980–1984*.

16. Hal W. Hall, discussion with Catherine Coker and Sarah Potvin, December 6, 2012.

17. Hal W. Hall, preface to *Science Fiction and Fantasy Reference Index 1992–1995: An International Author and Subject Index to History and Criticism*, ed. Hal W. Hall (Englewood, CO: Libraries Unlimited, 1995), ix.

18. Halbert W. Hall, introduction to *Science Fiction Book Review Index, 1923–1973*, xi.

19. For a strong overview of the history of several collections, see Hal W. Hall, ed., "Science/Fiction Collections: Fantasy, Supernatural & Weird Tales," special issue, *Special Collections* 2, no. 1/2 (Fall/Winter 1982).

20. Hal W. Hall, "Introduction: The State of the Art," ed. Hal W. Hall, special issue, *Special Collections* 2, no. 1/2 (Fall/Winter 1982): 3–8.

21. Donald H. Dyal, "The Science Fiction Research Collection at Texas A&M University," in "Science/Fiction Collections: Fantasy, Supernatural & Weird Tales," ed. Hal W. Hall, special issue, *Special Collections* 2, no. 1/2 (Fall/Winter 1982): 39–48.

22. Halbert W. Hall and Vicki Anders, ed., "Announcing the Future: A Formal Presentation of the Science Fiction Research Collection," exhibition pamphlet (College Station: Texas A&M University Libraries, 1974).

23. Donald H. Dyal, "The Science Fiction Research Collection at Texas A&M University," 39.

24. Eric S. Rabkin, "Defining Science Fiction," in *Reading Science Fiction*, ed. James Gunn, Marleen S. Barr, and Matthew Candelaria (New York: Palgrave MacMillan, 2009), 15–22.

25. H. W. Hall, introduction to *Science Fiction Book Review Index 2 (1972)*, accessed April 22, 2013, https://repository.tamu.edu/handle/1969.1/6907.

26. Hal W. Hall, "Commentary," in *Science Fiction Book Review Index 11 (1981)*, accessed April 22, 2013, https://repository.tamu.edu/handle/1969.1/6898. Hall references Neil Barron, ed., Science Fiction and Fantasy Book Review.

27. Hal W. Hall, "Commentary: 1981," in *Science Fiction Book Review Index 12 (1982)*, 2, accessed April 22, 2013, http://repository.tamu.edu//handle/1969.1/6897.

28. Gary Wolfe, "SF Bibliographies from G.K. Hall," *Science Fiction Studies* 8 (1981): 224–26.

29. Marshall B. Tymn, "Bibliographic Control in Fantastic Literature," 131.

30. H. W. Hall, "The Bibliographic Control of Science Fiction," *Extrapolation* 15, no. 1 (1973): 42–50.

31. Marshall B. Tymn, "Bibliographic Control in Fantastic Literature," 131.

32. See, for example, Stephen T. Miller and William G. Contento, ed., "Science Fiction, Fantasy, & Weird Fiction Magazine Index: 1890–2006; A Checklist of Magazine Titles and Issues Indexed, 2008," accessed April 22, 2013, www.locusmag.com/index/chklst/0chklst.htm; William G. Contento, "The Locus Index to Science Fiction Anthologies and Collections, Combined Edition," 2008, accessed April 22, 2013, www.philsp.com/homeville/ISFAC/0start.htm.

33. Gary Wolfe, "SF Bibliographies from G. K. Hall." Wolfe reviews Muriel R. Becker, *Clifford D. Simak: A Primary and Secondary Bibliography* (Boston: G. K. Hall, 1980); Lahna F. Diskin, *Theodore Sturgeon: A Primary and Secondary Bibliography* (Boston: G. K. Hall, 1980); Robert E. Myers, *Jack Williamson: A Primary and Secondary Bibliography* (Boston: G. K. Hall, 1980); and Roger C. Schlobin, *Andre NortonL A Primary and Secondary Bibliography*

(Boston: G. K. Hall, 1980).

34. Hal W. Hall, introduction to *Science Fiction Book Review Index 3 (1973)*, ii, accessed April 22, 2013, http://hdl.handle.net/1969.1/6906.

35. Hal W. Hall, "The Evolution of Science Fiction Indexes."

36. Thomas D. Clareson, *Science Fiction Criticism: An Annotated Checklist* (Kent State University Press, 1972); Hal W. Hall, preface to *Science Fiction and Fantasy Reference Index 1992–1995*, ix; Tymn, "Bibliographic Control in Fantastic Literature," 139.

37. Marshall B. Tymn, "Bibliographic Control in Fantastic Literature," 139.

38. Hal W. Hall, "The Evolution of Science Fiction Indexes."

39. Ibid., 1980.6 microfiche.

40. Hal W. Hall, *Science Fiction and Fantasy Book Review Index, 1980–1984*.

41. Charles N. Brown and William G. Contento, *Science Fiction, Fantasy, and Horror* (Oakland, CA: Locus, 1989–1991).

42. H. W. Hall, ed., *Science Fiction and Fantasy Reference Index 1878–1985* (Detroit: Gale Research, 1987).

43. Neil Barron, "Review of Science Fiction and Fantasy Reference Index," 406.

44. Hal W. Hall, ed., *Science Fiction and Fantasy Reference Index 1985–1991: An International Author and Subject Index to History and Criticism* (Englewood, CO: Libraries Unlimited, 1993); Hall, *Science Fiction and Fantasy Reference Index 1992–1995*.

45. Hal Hall, introduction to *The Science Fiction and Fantasy Research Database*, accessed January 2, 2013, http://sffrd.library.tamu.edu/about.

46. Ibid.

47. Ibid.

48. Wendi Arant and Hal W. Hall, "Internet Resources: Science Fiction and Fantasy: A Guide to Resources on the Web," *College & Research Libraries News* 63 (2002): 652–55.

49. Stephanie Orphan, "News from the Field," *College & Research Libraries News* 68 (2007): 138–41.

50. Hal W. Hall, "The Bibliographic Control of Science Fiction," 42.

51. F. Wilfrid Lancaster, Laura S. Drasgow, and Ellen B. Marks, "The Role of the Library in an Electronic Society," in *16th Clinic on Library Applications of Data Processing*, ed. F. W. Lancaster (Urbana: Graduate School of Library Science, University of Illinois at Urbana-Champaign, 1979), 164, accessed January 2, 2013, https://www.ideals.illinois.edu/handle/2142/1099.

52. Joel Cummings, "Full-Text Aggregation: An Examination of Metadata Accuracy and Implications for Resource Sharing," *Serials Review* 29, no. 1 (2003): 11–15.

53. Knut Dorn and Katharina Klemperer, "E-Journal Aggregation Systems: Only Part of the Big Picture," *Library Collections, Acquisitions, & Technical Services* 26 (2002): 307–10.

54. William H. Walters, "Google Scholar Coverage of a Multidisciplinary Field," *Information Processing & Management* 43, no. 4 (July 2007): 1121–32.

55. Chris Neuhaus et al., "The Depth and Breadth of Google Scholar: An Empirical Study," *portal: Libraries and the Academy* 6, no. 2 (2006): 127–41.

56. J. Willinsky, "The Nine Flavours of Open Access Scholarly Publishing," *Journal of Postgraduate Medicine* 49 (2003): 263–67.

57. Carole L. Palmer, "Scholarly Work and the Shaping of Digital Access," *Journal of the American Society for Information Science and Technology* 56, no. 11 (2005): 1140–53.

58. In a 2000 article, researchers described INFOMINE as "a collection of close to 20,000 librarian selected and described scholarly and education Internet resources." Making the case for "library-based academic [Virtual Library] type finding tools," they describe efforts by librarians to developed "Internet resource description and organization" to serve their academic patrons. See Julie Mason et al., "INFOMINE: Promising Directions in Virtual Library Development," *First Monday* 5, no. 7 (June 2000), accessed April 19, 2013,

http://firstmonday.org/ojs/index.php/fm/article/view/763/672.

59. Dan Chudnov, ed., "oss4lib: Open Source Systems for Libraries," accessed August 23, 2013, www.oss4lib.org/about.

60. See, for example, Project Bamboo, "Bamboo DiRT," accessed August 23, 2013, http://dirt.projectbamboo.org; George Mason University, Center for History and New Media, "ToolCenter: About," accessed August 23, 2013, http://echo.gmu.edu/toolcenter -wiki/index.php?title=ToolCenter:About.

61. Ann Blair, *Too Much to Know: Managing Scholarly Information before the Modern Age* (New Haven: Yale University Press, 2010), 172.

62. *The Science Fiction and Fantasy Research Database*.

63. SFFRD includes content from Hal W. Hall, *Science Fiction and Fantasy Reference Index 1878–1985*; *Hal W. Hall, Science Fiction and Fantasy Reference Index 1985–1991*; Hal W. Hall, *Science Fiction and Fantasy Reference Index 1992–1995: An International Author and Subject Index to History and Criticism*; Hal W. Hall, ed., *Science Fiction Book Review Index 0–21 (1970–1991)*, accessed January 2, 2013, https://repository.tamu.edu/handle/1969.1/6416.

64. Hal W. Hall, introduction in *Science Fiction Book Review Index 12 (1982)*, 1, accessed April 22, 2013, http://repository.tamu.edu//handle/1969.1/6897.

65. Hal W. Hall, introduction, in *Science Fiction and Fantasy Book Review Index, 1974–1979*, x.

66. Ibid.; Hal W. Hall, introduction to *Science Fiction and Fantasy Book Review Index, 1980–1984*, xi.

67. Ibid., xiii.

68. Hal W. Hall, discussion with Catherine Coker and Sarah Potvin, December 6, 2012.

69. Ibid.

70. *The Science Fiction and Fantasy Research Database*, "Browse records by subject," accessed May 14, 2013, http://sffrd.library.tamu.edu/browse/subject.

71. William G. Contento, "Homeville: Bibliographic Resources," accessed April 22, 2013, www.philsp.com/homeville; Phil Stephensen-Payne, comp., Galactic Central, accessed April 22, 2013, www.philsp.com; Al von Ruff, *Internet Speculative Fiction Database*, accessed April 22, 2013, www.isfdb.org/cgi-bin/index.cgi.

72. The J. Wayne and Elsie M. Gunn Center for the Study of Science Fiction, "SF Teaching and Scholarly Resources," accessed January 2, 2013, www.sfcenter.ku.edu/other.htm#scholarly.

73. Hal W. Hall, "The Bibliographic Control of Science Fiction," 43.

74. Lisa Yaszek, "Narrative, Archive, Database: The Digital Humanities and Science Fiction Scholarship," *Eaton Journal of Archival Research in Science Fiction* 1, no. 1 (April 2013): 8–13.