Putting Boyd in His Place

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ABSTRACT

In this paper we provide a bibliometric profile of Boyd Rayward. We begin by describing and categorizing his output over the course of his career. We identify all those whom he has cited in his published works and those who, in turn, have cited him. We also identify those with whom he has collaborated and those whom he has acknowledged in his writings for their intellectual contributions. A picture emerges of an independently minded scholar who favors solo authorship.

SYNOPTIC BOYD

We first encounter Boyd Rayward in the literature of librarianship in 1967. He announced his presence with an article in *Library Quarterly* on "UCD and FID" and also an occasional paper from the University of Illinois on "Systematic bibliography in England." More than four decades later, he is still writing, speaking, and, occasionally, broadcasting or blogging. His diligence is matched by his unebbing enthusiasm for the nested worlds of documentation, bibliography, and library history. Boyd writes as he speaks, lucidly and with engagement. Here is a scholar who marches to the beat of his own drum, aware of, but largely disinterested in, what is merely à la mode. He is sure in himself and sure-footed, enviably capable of stepping back and seeing connections between ideas across time—particularly good illustrations of this skill are "Restructuring and Mobilizing Information in Documents: A Historical Perspective," which effortlessly spans three centuries of thought and innovation (Rayward, 1991), and his long view of the twentieth century in "Visions of Xanadu: Paul Otlet (1868–1944) and hypertext" (Rayward, 1994). Boyd is as comfortable with the *longue durée* as he is with the diabolic details. His five-plus years as dean of the University of Chicago Graduate Library School along with his time as editor of *The Library Quarterly* will no doubt have helped in the latter

regard. Moreover, he is, as we show in this short piece, a soloist at heart, though not averse to selective collaboration. Boyd's *oeuvre* is, well, pretty much Boyd's, and that is decreasingly the case for many scholars these days. For the most part, we do not have to figure out which bits of the great idea were his, which chunks of the deft narrative emanated from his pen, or how kudos should be allocated amongst the various collaborators on a particular project. "Authorial agency" (Swales, 2004, p. 79) is neither complicated nor contested in Boyd's work: as a general rule, what we see is what we get, locally conceived and handcrafted by Rayward, W. B.

Here we build out from the information contained in Boyd's curriculum vitae, which appears in this issue of *Library Trends*. Our intention is to create a basic bibliometric profile of Boyd that includes the following: favored genres of publication over time (article, chapter, book, etc.); authorship status (single or multiple); those whom he cited; those, in turn, who cited his work; and those whom he acknowledged formally for their otherwise invisible contributions (ideas, support, etc.). We are not, however, in the least interested in bibliometric evaluations or rankings, that is, in comparing Boyd's raw (or normalized) publication or citation counts with those of his peers. We want to put Boyd in his place, so to speak, not simply count beans.

Howard White labels this general approach "ego-centered citation analysis" (White, 2000, 2001; see also related work by Cronin and Shaw, 2002). Two key elements of the approach are what White terms citation identity (those whom the focal author cites) and citation image-makers (those authors who cite the works of the focal author). The technique has been employed on several occasions to capture a notable scholar's life-in-the-round. For instance, in her egocentric citation analysis of the computer scientist Michael Rabin, Bar-Ilan (2006) used three major sources of citation data to enrich the analytic possibilities. Cronin and Shaw (2007) incorporated data on acknowledgments in a multidimensional bibliometric profile of their late colleague Rob Kling, along with information on the geographic coordinates of his many collaborators. Sugimoto and Cronin (2012) demonstrated variability in the "shape of scholar's career" (Cronin & Meho, 2007, p. 1948) by analyzing the career histories of six distinguished information scientists; Shaw and Vaughan (2008), for their part, attempted to describe a "typical professor" in information science. Most of these studies have one thing in common; they are trying to situate, to contextualize, the focal individual(s). At the risk of stating the obvious, even the most extreme example of the lone-wolf scholar (think Montaigne or Wittgenstein) is rarely a true isolate, utterly cut off from his fellow man and all forms of cultural and social influence. Rather, every one of us, the dedicated soloist and serial coauthor alike, belongs to a variety of sociocognitive networks, epistemic tribes, and invisible colleges. To no small extent we are defined by our connections.

BIBLIOMETRICIZING BOYD

With a little detective work, we were able trace Boyd's footprints in the literature of the field and also figure out whose work mattered to him and, conversely, who was influenced by his writings. Here, for the record, are the steps involved in our "microscopic" (Bar-Ilan, 2006, p. 1565) analysis.

Boyd's up-to-date curriculum vitae (CV) served as the primary source for this analysis—we took Boyd at his word that the list was comprehensive and used his personal classification system for the analysis. This system provided a separate category for his documentary film, but listed his blog entry as an article; "professional" articles were separated from "articles"; and monographs included compilations of forum papers. We obtained either a physical or digital copy of all 120 items listed in his CV (from electronic databases, from our university library, and via interlibrary loan) and coded them for various elements: (a) names of coauthors; (b) names of those listed in the acknowledgments; and (c) a list of all cited references. Edited books, special issues of journals, selected reports, and the documentary film were excluded from the reference analysis. Acknowledgments were collected only from articles (refereed and invited), conference proceedings, and single-authored monographs. Reprinted articles were noted, but data were collected only on the original article.

To examine Boyd's impact on scholarship, we searched for citations to him using Web of Knowledge's (WoK) Cited Reference Search function. We searched using the most inclusive string (rayward w OR rayward wb OR rayward b) and then removed false positives for a total of 320 works that cited Boyd (note that this does not count each time Boyd is cited; rather, each work in which he is cited at least once). We used WoK's "Analyze Results" function to identify the authors, countries, and subject categories associated with the citing works. We cleaned the results, merging individuals listed under multiple names (e.g., BUCKLAND M and BUCKLAND MK).

Given the predominantly historical nature of Boyd's scholarship, this is likely an underestimate of his true impact on the field as it counts only citations to his work from journal articles indexed by WoK. Much of Boyd's output appears in sources not covered by this database; it is not unlikely that many of those who cite him also publish in sources beyond the (WoK) pale.

BOYD BY THE NUMBERS

Output

At the time of this writing, Boyd had, according to the bibliography provided to us, published/produced a total of 121 items (excluding reprints). These are broken down by category in figure 1. His aggregate output includes 32 refereed journal articles, 25 professional/invited articles, and 19 book chapters (he also featured in a 1998 film documentary, produced
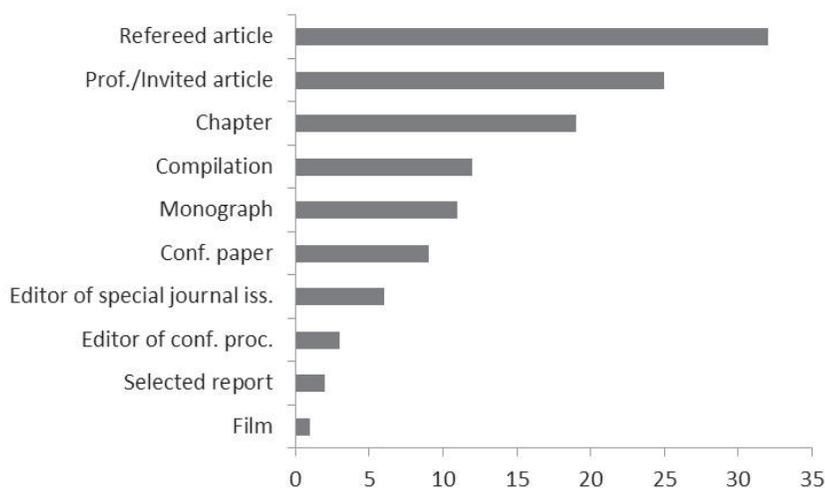
Figure 1. Rayward's output by category.

for Dutch television, *Alle Kennis Van de Wereld* [All the World's Knowledge: The Paper Internet] and was an interviewee in another film documentary, *Google and the World Brain*, in 2012). Table 1 shows his production profile over time and also allows us to see how this varied by genre across the decades. For instance, during the 1990s he published more refereed articles than at any other time of his career, while his most productive periods in terms of raw output were the eighties and nineties. Boyd did not produce just articles or concentrate on writing or editing monographs to the exclusion of all else: his portfolio is really quite mixed. He has placed his work in a range of top-notch journals covering the full librarianship–documentation–information science spectrum, notably, *Library Quarterly* (4), *Library Trends* (3), *Journal of Library History* (4), *Information Processing & Management* (3), and *Journal of the American Society for Information Science* (5) (see table 2). To avoid any impression of ethnocentrism, we should add to this list the *Australian Library Journal* (5), where he has maintained a fitting presence.

Evidence of the quality of his work could be implied by the degree to which his work was reprinted: three of his referred journal articles and one invited article were reprinted in English. His monograph from 1975 has been reprinted in both Russian and Spanish; a compilation of his papers was also reprinted in Spanish, demonstrating the international appeal of his work.

Coauthorship
Altogether Boyd coauthored four refereed articles (two as first author); one proceedings; two special issues of journals; one *ARIST* chapter; four

Table 1. Rayward's output over time

	1960–69	1970–79	1980–89	1990–99	2000–2009	2010–2012	Total
Documentary Film				1		1	2
Selected Reports			1	1			2
Edited Conference Proceedings		1		1	1		3
Editor Special Issues of Journals				2	4		6
Conference Proceedings			1	5	3		9
Books	1	2	2	2	3	1	11
Compilations		1	7	4			12
Chapter		4	6	3	4	2	19
Professional/ Invited Article	1	7	10	3	3	1	25
Refereed Article	4	6	8	9	4	1	32
							121

Table 2. Rayward's publication outlets for articles

Venue	Count
Australian Library Journal	5
Journal of the American Society of Information Science	5
Journal of Library History	4
Library Quarterly	4
American Libraries	3
Information Processing & Management	3
Library Trends	3
Public Libraries	3
Transnational Associations/Associations Transnationales	3
Wilson Library Bulletin	3
Australian Academic & Research Libraries	2
Bulletin of the American Society for Information Science	2
Catholic Library World	2
College and Research Libraries	2
International Forum for Information & Documentation (Russian Edition)	2
Libri	2
Archives and Museum Informatics	1
Bladen voor Documentatie/Cahiers de la Documentation	1
Education for Librarianship in Australia	1
Envisioning a Path to the Future (weblog)	1
IEEE Annals of the History of Computing	1
IFLA Journal	1
International Associations	1
Jamaica Library Association Bulletin	1
Journal of Librarianship	1
Journal of Librarianship and Information Science	1
Library Journal	1
North Carolina Libraries	1
Top of the News	1

professional/invited articles; and two selected reports. Boyd coauthored three times with Christine Jenkins and Charles van den Heuvel (a relatively recent Dutch coauthor); twice with Michael Twidale. In all, he coauthored six times with men and seven times with women: six unique women and five unique men. However, roughly 90 percent of everything he produced, he did so alone. He was, as we intimated at the outset, more of a soloist than a collaborator (or orchestrator). This is not really surprising, given the humanistic nature of much of his scholarship. Although rates of collaboration are increasing across disciplines, they remain low, both absolutely and relatively, in the Arts and Humanities (Cronin, Shaw, & La Barre, 2003).

As has been noted in the literature (e.g., Cronin, 2008; Gieryn, 2002; Sugimoto & Cronin, 2012), place seems to have significant influence on the selection of one's professional collaborators. The ties that bind are often forged locally, and this is very much the case with Boyd. Of his eleven collaborators, at least six had, at one time or another, a connection with the University of Illinois at Urbana-Champaign: Rebecca Graham, Jenkins, Twidale, Caroline Haythornthwaite, Geoffrey Bowker, and Paul Marty. Place was also a function for other collaborators, such as Mary Mc-Call, who served on the Library Board of Western Australia.

Citation Identity
Boyd's citation identity is based on all those whom he referenced in his published works over the entirety of his academic career. Many of those whom he cites (and this holds generally) were cited only once or twice. A relatively small number of individuals were cited multiply. Table 3 lists those authors whom he cited five or more times. It should be remembered that an author is counted but once whether or not that author's work is cited multiply in any given publication. It would be an unusual author who did not cite his or her own works preferentially, and the reasons for this are perfectly understandable: the latest work builds on earlier studies or experimentation, advances the corpus, provides context, etc. Hence, one is not in the least surprised to see that Boyd cites himself (52) more than he does any other, but the difference is, frankly, modest. Not unexpectedly, Paul Otlet (27), the cynosure of so much of his scholarship, is the most highly cited individual. Others of this ilk include Vannevar Bush (6), Herni La Fontaine (11), and H. G. Wells (9). These historical figures and their lives' work are the meat of his research and thus are going to be cited with some frequency: each name could almost be replaced by a key concept (e.g., Memex, World Brain). In addition to these luminaries, there is another population of citees, his coeval peers; these include Michael Buckland (15), Blaise Cronin (10), Elisabeth Davenport (8), and Irene Farkas-Conn (8).

Table 3. Rayward's references

Rayward, W. Boyd	52
Otlet, Paul	27
Buckland, Michael	15
Goldschmidt, Robert	11
La Fontaine, Henri	11
Metcalfe, John Wallace	11
Shera, Jesse H.	11
Cronin, Blaise	10
Wells, H.G.	9
Davenport, E.	8
Farkas-Conn, Irene	8
Webster, Charles	7
ALA	6
Bush, Vannevar	6
Egan, Margaret E.	6
Swanson, Don R.	6
Williamson, Charles Clarence	6
Bearman, D.	5
Bradford, S.C.	5
Masure, Louis	5
Trant, Jennifer	5
UNESCO	5

Citation Image-Makers

Boyd's citation image-makers are all those who cited his work over time. Those citing him most frequently (himself aside) are Michael Buckland (7), Paul Marty (7), Birger Hjørland (5), Herb White (5), and, with four each, Alistair Black, Christine Borgman, Ron Day, Charles van den Heuvel, Wayne Wiegand, and Robert Williams (see table 4). It is a fairly eclectic group, comprising individuals who have written extensively on the history, nature, and theory of documentation, on library history and education, and on museum studies. In addition, there is a long tail of occasional citers (not shown here). Of the top fifteen individuals/institutions referenced most frequently by Boyd, only one also appears on the list of the top-ten most frequent citers of his work: Buckland (see tables 3 & 4).

From table 5 we get a sense of Boyd's geographic citation footprint. Four English-speaking countries (Australia, Canada, UK, USA) account for 72 percent of all citations to his work, followed by Denmark and the Netherlands with a combined 3.8 percent. Once again, we would point out that this is far from the whole story, as WoK's coverage is often held to exhibit an English-language bias (e.g., Leuwen, Moed, Tijssen, Visser, & Raan, 2001). A crude subject categorization of Boyd's oeuvre is given in table 6. We would merely observe that these categories are neither mutually exclusive nor particularly nuanced in nature. Two categories, Information Science & Library Science and Computer Science Information Systems, account for the great bulk of his publications.

Table 4. Authors citing Rayward

Authors	Records
Rayward W.B.	20
Buckland M.K.	7
Marty P.F.	7
Hjorland B.	5
White H.S.	5
Black A.	4
Borgman C.L.	4
Day R.E.	4
Van Den Heuvel C.	4
Wiegand W.A.	4
Williams R.V.	4

Table 5. Rayward's geographic citation footprint

Countries/Territories N=320	Records	%
USA	166	51.875
AUSTRALIA	25	7.813
ENGLAND	23	7.188
CANADA	17	5.313
DENMARK	6	1.875
NETHERLANDS	6	1.875
SPAIN	5	1.563
BRAZIL	4	1.25
FRANCE	4	1.25
SWEDEN	4	1.25

Table 6. Citations to Rayward's work by WoK subject category

Web of Knowledge Categories N=320	Records	%
Information Science Library Science	283	88.438
Computer Science Information Systems	101	31.563
History Philosophy Of Science	23	7.188
Education Educational Research	15	4.688
History	13	4.063
History Of Social Sciences	9	2.813
Computer Science Theory Methods	4	1.25
Humanities Multidisciplinary	3	0.938
Sociology	2	0.625

Acknowledgments

Many scholarly texts include acknowledgments that thank colleagues, peers, funders, and sundry others for their contributions (conceptual, technical, material, financial, etc.) to the work being reported. Some of these contributions are, of course, relatively minor in nature, but others may well have had an important shaping effect. It is worth noting that in certain fields, almost every journal article includes an acknowledgment of

some kind, and these can be both detailed and lengthy in nature. Such below-the-line contributions may not typically warrant coauthorship status, but they certainly matter, as has been demonstrated (e.g., Cronin & Franks, 2007). They also reveal a less immediately obvious social network of which the target author is part—those individuals to whom the author turns at different times for support, advice, or constructive criticism prior to releasing his work to public scrutiny.

Boyd's acknowledgment behavior is as, if not more, selective than his propensity to collaborate. We were able to identify only ten works in which he acknowledged individuals—mentioning seventeen unique individuals/organizations in twenty-three instances of acknowledgment (that is, counting each time a person was named). Those he acknowledged most frequently are also those who appear in his citation image and identity and among the list of collaborators: Michael Buckland was acknowledged four times, Geof Bowker thrice, and Paul Marty twice. This merely reinforces one's sense of Body as a lone, if not lonesome, wolf.

Envoi

In his work—and it is mostly *his* work—Boyd is constantly looking back but is also very much alert to developments in the information sphere. His historical explorations are informed by his knowledge of current trends, allowing him to make connections, spot parallels, and establish equivalences that many of us might so easily miss. He bridges the decades, the centuries, in his scholarship, connecting then with now in a way that reveals overlooked or only dimly perceived intellectual linkages and lineages in the history of documentation and related domains. His research straddles not only the centuries but also the literature of the field; he is as home in the pages of *JASIST* as he is between the covers of *Library Quarterly* or *Journal of Library History.*

Boyd Rayward is an ecumenical spirit, something that is reflected in the fact that his work appears in a variety of outlets and is cited by scholars from several of the congregations that together make up the broad information studies church. He is not, however, an identifiable member of any particular school (or sect). Indeed, there is little bibliometric evidence of his clustering in any substantive or persistent way with his coeval peers. An exception is Michael Buckland, whom he cites and acknowledges, and who, in turn, cites him. We can, therefore, say that Boyd is defined primarily by those whom he studies (Otlet and others) rather than by his contemporaries and their research interests. In short, he is his own man. More to the point, he is a gentleman and a scholar.

Acknowledgment

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