

# Cataloguing, Knowledge, and Power

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**ABSTRACT:** This paper seeks to unpick the changing perceptions of the concepts contained in its title and investigate some of the relationships between them. It does this by exploring the history of modern cataloguing from the mid 1800s to the present day. It is argued that over the nineteenth and twentieth centuries cataloguing developments took place predominantly in the library world and, understood through the principles of European Enlightenment thought, catalogues were perceived to provide the public with access to external knowledge and thus empower them. It then identifies technological, cultural and ideological developments in the twentieth century, notably the rise of ‘postmodernism’, as challenges to both the primacy of library catalogues and the tradition of Enlightenment thought within which they were conceived. Finally, it argues that corporate digital companies are now at the forefront of cataloguing and explores the way in which the public have become the subject of these catalogues. Drawing upon Foucauldian theory, it is suggested that rather than allowing knowledge and power to flow to the public these catalogues enable corporate and government bodies to hold it over the public and use it to influence their lives in unprecedented ways.

**Keywords:** cataloguing, knowledge, power, Enlightenment, postmodernism, Foucault, surveillance



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## Introduction

Before embarking on an interrogation of the relationship between cataloguing, knowledge and power it is necessary to define the concept of the catalogue as it is deployed within the discussions presented here. The Oxford English Dictionary describes a catalogue as ‘a complete list of items arranged in alphabetical or other systemic order’. This may appear a satisfactory working definition but on interrogation quickly becomes problematic. For instance, when should a catalogue be deemed ‘complete’? If we consider Amazon to operate as a catalogue, then it defies this definition in that it is continually being updated and added to. On the other hand, is a catalogue’s only function to order? A library catalogue does not simply list, in order, the items held; it also describes their material, thematic and relational qualities to allow for decisions about relevance to be made. This seemingly useful definition then, is at once too prescriptive, and simultaneously too loose to adequately describe two common examples of catalogues as they could be encountered today.

This paper treats the catalogue as a systematic arrangement of entities, or representations of entities, that conforms to some kind of internal logic or set of rules in order to describe, order, arrange and provide access to its contents. As a consequence, through this process of selection, ordering and arrangement, the catalogue should be understood as a mode of positioning that constitutes and imposes a regime of knowledge upon the entities that it contains or describes. This definition allows us to perceive a broad array of systems operating as catalogues, and also focuses more explicitly on the functions of describing, arranging and ordering which are crucial to an exposition of the catalogue’s relationship with concepts of knowledge and systems of power.

Catalogues, as understood through this conceptual prism, have occurred at many times and in many different places.<sup>1</sup> This paper does not attempt nor claim to provide a thorough analysis of them all. Rather, it begins with an explicit focus on the library catalogue as conceived in the mid-nineteenth century. This has been chosen as a starting point for two reasons. Firstly, because in the mid-nineteenth century an explicit set of rules were codified that defined what a library catalogue should do and how it should operate. Thus, this code provides a concrete theoretical statement that can be analysed and interrogated. Secondly, this paper is written by a library worker and is primarily aimed at other library workers, and as such a conscious decision has been made to position the library catalogue at its heart.

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1 See for example Bowker, G.C. and Star, S.L. *Sorting things out: Classification and its consequences*. London: MIT Press, 1999 for a discussion of some of the historic uses of classification and cataloguing.

The first two sections of this paper constitute an archaeology of the library catalogue; exploring its theoretical conception, historical deployment, and shifting perceptions of its relationship with knowledge and power. The final section broadens in scope to include other instances of catalogues outside of the library; namely those existing in digital form on the web. These modern sites of cataloguing are examined in order to both explore the interplay between contemporary cataloguing and regimes of power, and simultaneously locate the library within a wider cataloguing landscape. This process is valuable in that it enables us to critically reflect upon the catalogues historic role in the construction and maintenance of systems of power, contextualise recent developments in library cataloguing, better understand the consequences and implications of these, and consider the potential future role of the library within society.

## The birth of modern cataloguing

It is widely accepted that the foundations of the modern cataloguing tradition were laid by Anthony Panizzi in the mid-nineteenth century. Working to organise the collections of the British Museum, in 1836 Panizzi proposed the first author catalogue with a corresponding subject index; thus allowing users to search for material either by their creator or by the predominant subject with which the material dealt. Between the late 1830s and early 1840s Panizzi compiled his now famous 91 rules that offered guidance around recording author names and titles, how to approach anonymous works, how to record different editions and translations of the same work and other issues. Subsequently, these principles were recorded in his 1841 work *Rules for the compilation of the catalogue* and, as William Denton has asserted, it is here that we can locate ‘the wellspring of modern cataloguing’.<sup>2</sup>

If the mid 1800s can be viewed as the period in which the foundations of modern cataloguing were laid, then it was in 1876 that they were built upon. In this year Charles Cutter published a number of now much-repeated axioms in his essay *Rules for a printed dictionary catalogue*.<sup>3</sup>

Cutter insisted that the object of any library catalogue should be:

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2 Denton, W. FRBR and the history of cataloguing. In Taylor, A. (ed) *Understanding FRBR: What it is and how it will affect our retrieval tools*. Westport, CT: Libraries Unlimited, 2007, p.37.

3 Cutter, C.A. *Rules for a printed dictionary catalogue*. Washington DC: Government Printing Office, 1876.

1. To enable a person to find a book of which either:

- (A) The author
  - (B) The title
  - (C) The subject
- } is known

2. To show what a library has:

- (A) By a given author
- (B) On a given subject
- (C) In a given kind of literature

3. To assist in the choice of a book:

- (A) As to its edition (bibliographically)
- (B) As to its character (literary or topical)<sup>4</sup>

Cutter proposed that these ends could be achieved by the inclusion of author, title, and subject entries in one alphabetically ordered catalogue which library users could search. It was here that the dictionary catalogue was born.

These core tenets—relating to description of items, user access and discovery—run like a thread through the history of cataloguing and have provided the theoretical framework around which standardised cataloguing schemes, such as the *Anglo-American Cataloguing Rules* (AACR), have since been built.<sup>567</sup>

Indeed, the eminent librarian S.R. Ranganathan wrote of *Rules for a dictionary catalogue*:

The library profession has been fortunate in the author of this code. He was a genius. This is seen in the ring of certitude and the profoundness of penetration found in the rules and commentaries of *Rdc* [Rules for a dictionary catalogue]. They are like the eternal epigrams of a sage. *Rdc* is indeed a classic. It is immortal. Its influence has been overpowering. It inhibits free re-thinking even to-day.<sup>8</sup>

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4 Ibid, p.12.

5 Denton, W. 2007.

6 Miksa, F. The legacy of the library catalogue for the present. *Library Trends* 2012; 61(1), pp.7–34.

7 Chandel, A.S. and Prasad, R.V. Journey of catalogue from Panizzi's principles to resource description and access. *DESIDOC Journal of Library and Information Technology* 2013; 33(4), pp.314–22.

8 Ranganathan, S.R. 1935, quoted in Denton, p.43.

But what gave these rules, and the cataloguing tradition that sprung from them, this ‘ring of certitude’ and ‘profoundness of penetration’? Partly it was the focus on the user, their needs, and how these could be satisfied. However, more important was the epistemological tradition in which these ideas were conceived. Both Panizzi and Cutter’s rules were conceived within, and understood through, European Enlightenment modes of thought. Throughout the nineteenth and into the twentieth century this was the dominant intellectual tradition and it was from this that modern cataloguing practices drew their strength. As Francis Miksa has pointed out:

During much of the nineteenth century, thinking about subjects was dominated by European Enlightenment thought that was continued in the nineteenth-century classification of the sciences movement. Within this larger intellectual context, subjects in and of themselves were not thought of primarily as attributes of books (or of any document, for that matter), though obviously they could be spoken of as book attributes. Rather they were considered more principally as formal elements of a grand but natural hierarchical classification of all human knowledge ... A book or a document merely *treated* of a subject that otherwise existed in that natural classificatory realm.<sup>9</sup>

Within this episteme, knowledge is firstly an external phenomenon and one that can be defined objectively; within the world there is a network of fundamental and knowable ‘truths’. Thus, when this thinking is applied to documents and books they too possess attributes that are fundamental and knowable. It was these attributes that Panizzi, Cutter and the cataloguing codes that followed them purported to record and thus why they could be seen as providing a ‘ring of certitude’. Furthermore, just as the Enlightenment tradition of thought offered objective and external truths, the cataloguing tradition that sprang from it offered access to books and materials that dealt with these truths. Within this conception libraries and their catalogues operated as guardians of knowledge and offered their users power over it. It was for this reason that libraries became vanguard institutions within the field of cataloguing. As academic and public libraries expanded, power over this body of knowledge was perceived to flow from them to the public as their users.

A rapid growth of library provision in Britain began in the second half of the nineteenth century after the passing of 1850 Public Libraries Act. This allowed town councils to use tax-payers’ money to fund urban library building programmes and publicly-funded libraries

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9 Miksa, F. 2012, p.9.

began to spring up alongside those sustained by philanthropic endowments, subscription libraries, and institutional reading rooms. This national project was expanded by the 1919 Public Libraries Act which allowed rural councils the same privileges as their urban counterparts, and provision for all eventually became a statutory obligation with the 1964 Public Libraries and Museums Act.<sup>10</sup> As the tendrils of this national library network spread so too did the conception of the library as custodian of truth and knowledge.

This is most evident in the public discourse surrounding libraries from the mid-nineteenth century onwards. As Stuart Lawson has argued, central to these narratives was the idea that libraries could provide equity of access to knowledge and in doing so empowered their users to better educate and inform themselves.<sup>11</sup> In this vein William Ewart, MP for Dumfries Burghs and architect of the Public Libraries Act, could argue in the House of Commons of 1850 that the building of public libraries would ‘afford the working classes in our populous towns proper facilities for the cultivation of their minds, and the refinements of their tastes in science and art’.<sup>12</sup> Indeed over half a century later in 1919, when proposing the expansion of the 1850 act to rural areas, Robert Richardson, MP for Houghton-le-Spring, directly echoed Ewart’s sentiment in stating his desire to ‘do the best we can to make the people of this country a thinking people’, give the public ‘a chance of being better equipped than they were in my time’, and ‘by means of the proposals of this Bill [...] build up a better race of people than England has hitherto known.’<sup>13</sup>

Whilst these statements betray an overtly patrician and condescending attitude towards the Victorian, Edwardian and interwar working classes, they are simultaneously undergirded by, and reproduce, the notion that libraries and their catalogues provided access to the corpus of human knowledge, and as such acted as a vehicle for education, enabling the flow of knowledge to the public as library patrons. Through these libraries, which facilitated contact with a grand hierarchy of external truths, people would be empowered to better themselves, improve their life chances, and freed from a perceived position of ignorance and want.

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10 Lawson, S. *The politics of open access: Chapter 2*. PhD thesis draft version 0.1. 2018 <http://stuartlawson.org/phd/> available at <http://stuartlawson.org/wp-content/uploads/2018/02/2018-02-07-Chapter-2.pdf> (Accessed: 28<sup>th</sup> August 2018).

11 Ibid.

12 HC Deb (13 March 1850) vol. 109, col. 838. Available at: <https://hansard.parliament.uk/Commons/1850-03-13/debates/1e5ec6ca-c2dd-4622-9fb6-3d8de2f93810/PublicLibrariesAndMuseumsBills> (Accessed: 3rd October 2018).

13 HC Deb (11 December 1919) vol. 122, col. 1772. Available at: <https://hansard.parliament.uk/Commons/1919-12-11/debates/7cbcd7a4-9193-457a-b286-09ef9dc7e4fa/PublicLibrariesBill> (Accessed: 5th October 2018).

Such publicly expressed condescension towards the working classes would not survive contact with the Second World War and the social change it wrought. Notions of library catalogues as reliable gateways to knowledge and self-improvement, however, remained intact. In 1964 for example, James Idwal Jones, member of parliament for Wrexham, recounting to the House of Commons his time at college, could recollect:

One of my tutors there asking me, “What is an educated man?” The answer that he offered was “An educated man is he who knows what he knows, who knows what he does not know, and *who knows where to find the information for what he does not know.*” *That is the function of the library* [author’s italics].<sup>14</sup>

Thus, this conception of catalogues and the libraries in which they were traditionally housed, conceived in the mid 1800s and modified for the twentieth century, proved robust. However, cultural and technological change combined with a slowly unfolding epistemological shift would eventually undermine libraries’ certainties over the materials they held whilst simultaneously transforming perceptions of the relationship between catalogues, their users, knowledge and power.

## **An age of uncertainties**

As we have seen, Enlightenment thought was constructed around the idea of an external network of neutral facts and information. Consequently, within this episteme, the library, as the steward of this network, was constructed within Western European and North American culture as a neutral institution that provided unbiased access to knowledge.

And yet, if we widen our gaze to take in the way that libraries were utilised and operated in the rest of the world, a space opens up for an alternative reading. Specifically, within Western imperial projects libraries were explicitly deployed as vehicles for the projection of Western values onto colonised peoples. As Stuart Lawson has noted, the Dutch colonial administration in Indonesia created 2500 public libraries to cement its authority and promote its ideology there whilst the British employed a similar technique in African and Asian colonies.<sup>15</sup>

This demonstrates the way that public libraries didn’t necessarily empower their users, as

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14 HC Deb (28 January 1964) vol. 688, col. 313. Available at: [https://hansard.parliament.uk/Commons/1964-01-28/debates/5e00d692-e192-4011-b806-8664bdfd92eb/TrainingColleges\(Libraries\)](https://hansard.parliament.uk/Commons/1964-01-28/debates/5e00d692-e192-4011-b806-8664bdfd92eb/TrainingColleges(Libraries)) (Accessed: 9<sup>th</sup> November 2018).

15 Lawson, S. *Public Libraries and Knowledge Politics*, [Preprint] 2018 Available at: <http://eprints.rclis.org/32361/> (Accessed: 15<sup>th</sup> November 2018)

Enlightenment narratives had suggested, but rather operated as a tool of indoctrination, propaganda and as sites of cultural violence. Their supposedly 'neutral' catalogues could in fact be pressed into service in order to promote and privilege a certain world view, experience, and set of interests over others.

Since the second half of the twentieth century, a critical body of scholarship has developed that has positioned libraries and their catalogues as 'gatekeepers' of knowledge in the sense that they have been used to *control* the flow of information and *dictate* what can or cannot be found or known. In an imperial context, they were seen to support the power structures and value systems of colonisers at the expense of the colonised. Specifically, they constituted a hegemonic production of knowledge, powerfully advanced under the banner of Enlightenment neutrality, which excluded and erased non-male, non-white, non-western peoples, histories and perspectives. As Michelle Gohr has written:

Libraries, their cultures, and their policies are defined and shaped by the historical and contemporary roots of the settler state to which they belong (which is informed through a global political system steeped in indigenous genocide, exploitation of the global south, orientalism, and more). Not only that, but this deeply rooted system of structural inequality necessitates conformity to the hegemonic worldview of the nation-state, which is that of the dominant ruling class (white heteropatriarchy).<sup>16</sup>

This reading of libraries, as tools of political authority, has also been explored by nina de jesus who has exposed the way that public libraries in the U.S. have operated, and continue to operate, as sites of violence and oppression against the indigenous population by privileging the world view of the white settler. She argues that public libraries were not designed for everyone, but rather were created for 'citizens' (where 'citizens' operates as an exclusionary term) in order to make 'better citizens' (through ideological education).<sup>17</sup>

Similarly, libraries can also be viewed as tools of class, as well as colonial, violence. Stuart Lawson has explored the way that the public library system in Britain has often operated as a vehicle for the deployment of middle-class values and ideals.<sup>18</sup> Indeed, if we revisit the comments of the British MPs explored earlier in this paper, we can clearly see in them a

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16 Gohr, M. Ethnic and racial diversity in libraries: how white allies can support arguments for decolonization, *Journal of Radical Librarianship*; 2017 vol. 3, p.43. Available at: <https://journal.radicalibrarianship.org/index.php/journal/article/view/5/33> (Accessed: 15<sup>th</sup> November 2018).

17 de jesus, n. Locating the library in institutional oppression. *In the Library with the lead Pipe*, 2014 Available at: <http://www.inthelibrarywiththeleadpipe.org/2014/locating-the-library-in-institutional-oppression/> (Accessed: 5<sup>th</sup> November 2018).

18 Lawson, S. *The politics of open access: Chapter 2*.



celebration of the library's potential for shaping and conditioning the British working classes into something more closely resembling the model, educated, middle-class citizen.

As early as 1971, Sanford Berman, in a critical analysis of the Library of Congress Subject Headings, argued that:

In the realm of headings that deal with people and cultures—in short, with humanity—the LC (Library of Congress) list can only “satisfy” parochial, jingoistic Europeans and north Americans, white-hued, at least nominally Christian (and preferably Protestant) in faith, comfortably situated in the middle- and higher-income brackets, largely domiciled in suburbia, fundamentally loyal to the Established Order, and heavily imbued with the transcendent, incomparable glory of Western Civilization.<sup>19</sup>

Within these radical readings, library catalogues can no longer be viewed as neutral tools empowering their users. These critiques lay bare the disconnect between the *theoretical* construction of libraries as neutral and their *practical application* as sites of social and cultural coercion. As a result, libraries can now be positioned as part of a knowledge regime that privileges and justifies dominant (i.e., white, middle-class, heterosexual, male and Western) values at the expense of all others. These catalogues are not benign and unbiased. Rather, as Hope A. Olson has argued, ‘the problem of bias in classification (a key component of library cataloguing) can be linked to the nature of classification as a social construct. It reflects the same biases as the culture that creates it.’<sup>20</sup>

These criticisms of the neutrality of the library catalogue can be viewed as part of a wider disruptive epistemological shift that unfolded during the twentieth century, and which fundamentally altered the conceptual landscape in which libraries were situated; a shift which centred upon the premise that notions of ‘truth’ and ‘neutrality’ must be questioned and interrogated. This may broadly be described as the rise of postmodern thought.

Frank Webster has asserted that postmodernism exists both as an intellectual movement, and something which each of us encounters through everyday life when watching television, scrolling through Twitter, deciding what clothes to wear, or what music to listen to. ‘What brings together the different dimensions [of postmodernism] is a rejection of modernist ways of seeing. This enormous claim announces that postmodernism is a break with ways of

19 Berman, S. *Prejudices and antipathies: a tract on the LC subject heads concerning people*. Metuchen, NJ: Scarecrow, 1971. p.15.

20 Olson, H.A. Mapping beyond Dewey's boundaries: constructing classificatory space for marginalized knowledge domains. *Library Trends* 1998; 47(2). p.233–34.

thinking and acting which have arguably been supreme for several centuries'.<sup>21</sup>

It is within this expansive definition, as something that challenges Enlightenment claims around 'truths', that postmodernism is located in this paper. As Webster further explains:

Seen as an intellectual phenomenon, postmodern scholarship's major characteristic is its opposition to what we may call the Enlightenment tradition of thought, which searches to identify the *rationalities* underlying social development or personal behaviour ... This dissent is generally voiced in terms of a hostility towards what postmodernists call *totalizing* explanations or, to adopt the language of Jean-Francois Lyotard, 'grand narratives' ... It follows from this that postmodern thought is characteristically suspicious of claims, from whatever quarter, to be able to identify 'truth'.<sup>22</sup>

In terms of library and information studies, this approach began to permeate the work of a number of key twentieth century thinkers, and, in adopting it, they began to unpick the presumptions surrounding 'knowledge' and 'truth' that were integral to the work of Panizzi, Cutter and the cataloguing codes that were based on their work.

Here we could point to Paul Otlet's arguments around interpretations of texts and perceived usefulness of documents, Gianni Vattimo's insistence on the growth of media as heralding multiple experiences and versions of reality, Jean Baudrillard's interrogation of information, communication and contemporary culture as interrelations between signs and simulations, and Jean-Francois Lyotard's explorations of the contingency, commodification and commercialisation of 'truths'.<sup>23</sup> Whilst writing at different times, from different perspectives, and not all strictly 'postmodernists', these thinkers' challenges to concepts of truth and objectivity can be seen as falling under postmodernism's broad theoretical umbrella.

In the face of this intellectual interrogation, the Enlightenment ideal of an external, objective, grand hierarchy of knowledge begins to crumble. Indeed, postmodernism allows us to realise the chasm that exists between this ideal and subjective experienced realities. Simultaneously, the library catalogue's claim to provide neutral access to this hierarchy and

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21 Webster, F. *Theories of the information society*. 4<sup>th</sup> ed. London: Routledge, 2014, p.307.

22 Ibid, pp.309–11.

23 Otlet, P. (ed) *International organisation and dissemination of knowledge: selected essays of Paul Otlet*. Translated by Rayward, W.B. New York: Elsevier, 1990 <https://archive.org/details/internationalorg00otle> (Accessed: 16th October 2017); Vattimo, G. *The transparent society*. Translated by Webb, D. Cambridge: Polity, 1992; Poster, M. (ed) *Jean Baudrillard: selected writings*. 2<sup>nd</sup> ed. Cambridge: Polity, 2001; Lyotard, J. *The postmodern condition: a report on knowledge*. Translated by Bennington, G. and Massumi, B. Manchester: Manchester University Press, 1979.

its truths, or to be able to identify objective ‘subjects’ within works in any meaningful way, are also cast into doubt. Thus, the primacy, neutrality, altruism, and effectiveness of the library catalogue has been thrown into question by a combination of cultural and intellectual developments.

As well as a questioning of its intellectual foundations, the late twentieth century also posed technological challenges to the traditional conception of the library catalogue. In his *Rules* Cutter approaches the material held by libraries explicitly as taking the form of books. This is unsurprising; in Cutter’s time monographs and printed serials were by far the most voluminous items found within libraries, and traditional cataloguing methods work extremely well when applied to these mediums. However, the technological advances of the twentieth century brought new forms of information carriers that libraries had to integrate into their collections. From vinyl records, to cassette tapes, to microfilm, DVDs, and latterly digital documents and datasets, librarians have had to update their cataloguing methods to incorporate these new formats.

AACR, first compiled in 1967 and updated in 1978, 1988 and 2002, comprised a valiant effort to adapt to these changes. Whilst collections remained physical in form, AACR (and the updated AACR2) kept pace with advances in the realm of information container technology. However, the development of the World Wide Web in the 1990s ensured that documentation was now available in seemingly infinite quantity and myriad forms at the click of a button.

The rules laid down by Cutter, and the cataloguing codes built around them, were not sufficient to either describe the properties of, or expose the relationships within, this ocean of information and librarians were suddenly faced with the task of deciding which elements of this vast web of knowledge to incorporate into their catalogues and which to omit. Moreover, the innately changeable and fluid nature of the web could not easily be captured using cataloguing techniques developed to describe stable material objects.<sup>24</sup>

As a response to these shifts, librarians worked to develop the *Functional Requirements of Bibliographical Records* (FRBR) used for describing books and other bibliographic resources, *Functional Requirements for Authority Data* (FRAD) used for describing name authority data, and *Functional Requirements for Subject Authority Data* (FRSAD) used for describing subject authority data. From these standards new cataloguing codes have been

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24 Chapman, A. RDA: A new international standard. *Ariadne*, 30<sup>th</sup> October 2006 <http://www.ariadne.ac.uk/issue49/chapman> (Accessed 14th November 2018).

created known as *Resource Description and Access* (RDA) and the *Library Reference Model* (LRM), which focus more upon the relationships between and within works and incorporate rules for description of digital resources. The logic of these newer cataloguing codes (based as they are around guidelines as opposed to rules, and the idea that applications are expected to vary based on the resources within a collection and varying user needs) work well in an age where subjectivity is recognised as inherent in human activity, experience and understanding. Moreover, their tracing of relationships between and within works provides a valuable tool for information mapping and discovery.<sup>25</sup> RDA, LRM, FRBR, FRAD and FRSAD do not claim to provide the access to objective information and ‘truth’ that library catalogues were once perceived to offer. As such, the library catalogue is no longer exclusively imagined as a tool which provides a direct and objective route to external knowledge and is not necessarily presumed to empower its users in the way it once was. On the contrary, as we have seen, depending on the context in which any particular library catalogue has been conceived and constructed it could be recognised as foregrounding certain truths, value systems, knowledge regimes, and power structures at the expense of others.

Libraries are increasingly seen as *one* site of knowledge and access to information among many, a conception of the institution which in many ways is arguably more useful, inclusive, and less ideologically aggressive than the Enlightenment vision that preceded it. Furthermore, with the rise of the Open Access movement, enabled by digital technologies, libraries are slowly widening their role to include advocacy for, promotion of, and signposting to other open information sources rather than acting as the primary site of access to such materials. In this new epistemological terrain, the library has had to find other functions outside of its traditional role as a repository of physical information sources and neutral mediator of knowledge.

## **The rise of the web, big data, and the user as subject**

If libraries are no longer the primary source of information within contemporary society, where do we look to locate catalogues today? In recent years the internet has become the tool which most people now turn to, at least in the first instance, for information. Increasingly it is through search engines, news websites, and social media platforms that our information needs are mediated and fulfilled. As Ronald Day has argued, in allowing us to simultaneously access and absorb seemingly limitless ‘fragments’ of information, engage in

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25 Rafferty, P. FRBR, information, and intertextuality. *Library Trends* 2015; 63(3), pp.487–511.

communication instantaneously regardless of physical geographies, consume and create information on an unprecedented scale, and construct and maintain our identities through these mediated information pathways, these catalogues of information are more responsive to, and reflective of, the post-modern, neo-liberal, globalised landscape which we now inhabit. However, these catalogues are not just *providing* us with information, they are also treating *us* as such.<sup>26</sup>

The idea of humans as the subject of catalogues is not new. Michel Foucault, in his 1977 work *Discipline and punish*, identifies the first instances of largescale human cataloguing in the plague-stricken towns of seventeenth century Europe. He goes on to excavate, through an analysis of the development of state punishment, the way prisons developed as institutions for cataloguing people whilst simultaneously ordering and normalising their behaviour. He explains:

Procedures were being elaborated for distributing individuals, fixing them in space, classifying them, extracting from them the maximum in time and forces, training their bodies, coding their continuous behaviour, maintaining them in perfect visibility, forming around them an apparatus of observation, registering and recording, constituting on them a body of knowledge that is accumulated and centralized.<sup>27</sup>

For Foucault, this is the process through which knowledge and power was accumulated by the state and other bodies, via a societal ‘panopticon’, through prisons, schools and hospitals, over their subjects and it can be traced forwards to the state surveillance techniques of the twentieth century.<sup>28</sup> Here we could point to the huge information gathering exercises of national censuses, the omni-viewing eye of CCTV, the annual gathering of financial information through tax returns, or the geographic mapping of individuals through travel cards which gather both time and location data about their users. These types of information can be combined with unique identification points such as fingerprint records, National Insurance numbers, photographic ID, DNA databanks, computer IP addresses, and credit card records to render a detailed picture of a population and its activities. Finally, in contemporary terms, these human cataloguing processes can also be seen in the digital realm with the advent of ‘big data’ and the widespread collection of information about users of the

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26 Day, R. *Indexing it all: the subject in the age of documentation, information, and data*. London: MIT Press, 2014.

27 Foucault, M. *Discipline and punish: the birth of the prison*. London: Penguin, 1991, p.231.

28 Ball, K., Haggerty, K. and Lyon, D. (eds) *Routledge handbook of surveillance studies*. London: Routledge, 2012.

internet and internet connected devices.<sup>29</sup> It has been estimated that 114 billion emails, 24 billion text messages and 12 billion phone calls are made globally each day. In 2012 Google was recording 3 billion search queries every 24 hours, and in the same year Walmart was generating more than 2.5 petabytes of data connected to over 1 million transactions every sixty minutes. In 2013 an estimated 10 billion devices constituted the internet of things, all recording and generating data; a figure that is predicted to grow to 50 billion by 2020.<sup>30</sup> These numbers provide a sense of the scale of data production, harvesting and processing taking place in the modern world.

Whilst there is often an instinctive suspicion of digital surveillance, it must be said that this burgeoning body of information is often utilised with the aim of improving the experiences of the people that the data describes. In the realms of healthcare, public transport, utilities, urban planning, and the delivery of commercial services, data gathering is often used to improve services and thus add to the quality of people's lives. Exploring the idea of data surveillance, Rob Kitchin has argued that digital information gathering activities do not lead to a God's eye view, or constitute a societal panopticon as Foucault may have envisioned, due to the fact that this data is not being collected or analysed by a single entity or to a single end. Rather, he argues that what we are actually confronted with is many partial and competing constructions and perspectives that offer multiple windows into *aspects* of our online behaviour, and in fact equate to what Kitchin terms oligopticons—'limited views from partial vantage points'—rather than an all-seeing eye.<sup>31</sup> From this perspective, it is tempting to argue that these activities are largely benign and should in fact be tolerated for the benefits that they bring to individuals and the societies in which they live.

And yet, even if they are not all-seeing, some digital platforms and actors wield more influence and hold more power than others. Facebook, one of the most popular social media platforms, allows individuals to digitally interact with one another through profiles, group spaces, and personalised newsfeeds whilst also operating as a news aggregator and, more recently, an online marketplace. Whilst the site allows its users to access and search information related to their network of 'friends' and the wider world, it is also collecting and cataloguing huge quantities of data about those users, their interests, connections, and searching habits.

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29 Lupton, D. *Digital sociology*. London: Routledge, 2015; Kitchin, R. *The data revolution: big data, open data, data infrastructures & their consequences*. London: Sage, 2014; Pasquale, F. *The black box society: the secret algorithms that control money and information*. London: Harvard University Press, 2015.

30 Kitchin, R. 2014, p.71.

31 Ibid, p.167.

This information, gathered by Facebook, is fed back into the website's algorithms to influence what appears in any one user's newsfeed. As Franklin Foer has written:

With even the gentlest caress of the metaphorical dial, Facebook changes what its users see and read. It can make our friends' photos more or less ubiquitous; it can punish posts filled with self-congratulatory musings and banish what it deems to be hoaxes; it can promote video rather than text; it can favour articles from the likes of the New York Times or BuzzFeed, if it so desires. Or if we want to be melodramatic about it, we could say that Facebook is constantly tinkering with how its users view the world—always tinkering with the quality of news and opinion that it allows to break through the din, adjusting the quality of political and cultural discourse in order to hold the attention of users for a few more beats.<sup>32</sup>

Thus, with these contemporary technological advances, we can perceive a shift in the nature, subject and perception of the catalogue. Whereas once the catalogue was seen to offer users access to an external body of human knowledge, the user has now been folded into the catalogue in a way previously unimaginable; they are as much the subject as they are the user, and rather than being empowered, their behaviour can be recorded and even conditioned through these mechanisms.

Furthermore, we are on some level forced to construct our identities, interpret the world, and make decisions within the limits prescribed by these forces.<sup>33</sup> We see what is suggested and presented to us, our choices are therefore regulated, and our experiences limited as a result of digital profiling by external forces. Moreover, through the creation of online profiles our complex material existence is obliterated, and we are reconstructed as data and digital representations of ourselves. Within these systems we exist in terms of the information and documentation we offer up and that which is collected about us, which in turn informs what information we are then presented with; be it in the form of search results, marketing, potential social connections, or news stories. When so much of our lives are lived online, this unavoidably colours our experiences, world view, decision making, and actions. Thus, in a truly Foucauldian sense, this knowledge about us can be used to influence, regulate, and shape our behaviours, interests, interactions, and identities.

If we step back from Facebook and take in the wider digital landscape, these vast and rich

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32 Foer, F. Facebook's war on free will: how technology is making our minds redundant. *The Guardian*, 19<sup>th</sup> September 2017 <https://www.theguardian.com/technology/2017/sep/19/facebooks-war-on-free-will> (accessed 20th September 2017).

33 Day, R. 2014. pp.123–44.

bodies of information can be sold on to other corporate and governmental organisations to supplement existing catalogues. Twitter, for example, offers various levels of analytical access to its data; the most extensive of which, named the ‘firehose’ package, allows access to all tweets<sup>34</sup> and is only available to purchase by corporations.<sup>35</sup> The datasets produced from combining this kind of information with existing catalogues can be used for anything from providing services, to surveillance, or, as is most often the case, for highly targeted, subject specific advertising. Here, in the world of integrated data, we find ourselves closer to Foucault’s panopticon than we may be comfortable with. Samuel Moore has argued that one driver of the Open Access movement is the desire to make all information business friendly, open for exploitation, and market-oriented; the same argument could be levelled in relation to the gathering of information about people. It opens them up and renders them ‘knowable’ in order to exploit them for profit or other ends.<sup>36</sup> One needs only to look at the 2016 Brexit vote and U.S. Presidential elections, where huge voter databases and sophisticated predictive behavioural modelling techniques were combined with targeted advertising through social media, to see the power this process can yield.<sup>37 38</sup>

Increasingly then we can see catalogues as bestowing power *over* their users rather than offering it *to* them by facilitating the construction of increasingly detailed representations of

34 Twitter also offers a ‘garden hose’ package (c.10% of all public tweets) and a ‘spritzer’ package (c.1% of all public tweets) for academic studies, whilst webcrawling and webscraping services can be purchased to deliver customised datasets to paying clients.

35 Kitchin, R. 2014, p.152.

36 Moore, S. A genealogy of open access: negotiations between openness and access to research. *Revue Française en sciences de l’information et de la communication* 2017; 11(2). Available at: [https://kclpure.kcl.ac.uk/portal/files/78582575/rfsic\\_3220.pdf](https://kclpure.kcl.ac.uk/portal/files/78582575/rfsic_3220.pdf) (accessed 20th November 2018).

37 Doward, J. and Gibbs, A. Did Cambridge Analytica influence the Brexit vote and the US election? *The Guardian*, 4<sup>th</sup> March 2017 <https://www.theguardian.com/politics/2017/mar/04/nigel-oakes-cambridge-analytica-what-role-brexit-trump> (accessed 27th October 2017); Winston, J. How the Trump campaign built an identity database and used Facebook ads to win the election, 2016 <https://medium.com/startup-grind/how-the-trump-campaign-built-an-identity-database-and-used-facebook-ads-to-win-the-election-4ff7d24269ac> (accessed 27th October 2017); Cadwalladr, C. The great British Brexit robbery: how our democracy was hijacked. *The Guardian*, 7<sup>th</sup> May 2017 <https://www.theguardian.com/technology/2017/may/07/the-great-british-brexit-robbery-hijacked-democracy> (accessed 5th May 2018); Cadwalladr, C. and Graham-Harrison, E. Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach. *The Guardian*, 17<sup>th</sup> March 2018 <https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election> (accessed 20th August 2018); Lewis, P. and Hilder P. Leaked: Cambridge Analytica’s blueprint for Trump victory. *The Guardian*, 23 March 2018 <https://www.theguardian.com/uk-news/2018/mar/23/leaked-cambridge-analyticas-blueprint-for-trump-victory> (accessed 20th August 2018).

38 This is not to say that these elections were won *solely* as a consequence of these techniques. Rather they facilitated a level of knowledge about the electorate, enabled the prediction and influencing of behaviours, and supported the dissemination of narratives and messages to targeted audiences in a fundamentally closed, unscrutinised and undemocratic way.



the public. Furthermore, whilst people are increasingly becoming the subject of catalogues, it must also be pointed out that cataloguing does not just occur at the ultra-granular level of the individual. People, as well as having *individual* identities, are also understood—and understand themselves—through myriad *collective* identities and attributes such as race, nationality, gender, religion and sexuality alongside many others. These collective identities are also being catalogued, represented, ordered and relationally positioned in the digital domain by entities such as search engines, and this ordering and positioning has profound effects on the way that these groups are both understood and experience the world.

In her 2018 work *Algorithms of Oppression*, Safiya Noble has powerfully demonstrated the negative effects this process can have on communities of people. She shows, through an analysis of Google searches carried out over the course of 2011, the way that this mediating platform ‘allowed the porn industry to take precedence in the representations of Black women and girls over other possibilities among at least eleven and a half billion documents that could have been indexed’.<sup>39</sup> Through exploring the ways in which the historic and contemporary inequalities and prejudices impacting upon black women are reinforced digitally by Google’s search algorithms, Noble argues that this process does not constitute a glitch ‘but, rather, is fundamental to the operating system of the web. It has direct impact on users and on our lives beyond using internet applications ... algorithms are serving up deleterious information about people, creating and normalizing structural and systemic isolation, [and] practising digital redlining, all of which reinforce oppressive social and economic relations’.<sup>40</sup>

These processes are the product of two key factors. First, search engines incorporate past searching habits into their algorithms in order to ‘improve’ the relevance of future searches.<sup>41</sup> Through this practice they reflect, reinforce, re-attach and re-inscribe existing prejudices through the results that they return. For example, regular instances of queries containing sexist or racist assumptions may be reflected in future suggested searches and will influence other users by normalising these associations.<sup>42</sup>

Second, companies such as Google are advertising platforms as much as they are information retrieval portals. They are there to leverage profit and they do so through

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39 Noble, S.U. *Algorithms of oppression: how search engines reinforce racism*. New York: New York University Press, 2018, p.49.

40 Ibid, p.10.

41 Where Google automatically populates unfinished search queries with suggested phrases or suggests related searches based on an original query.

42 For examples of this see *ibid*, pp.19–21, p.45.

marketing products and services to their users. Through this process they unavoidably privilege the perspectives, desires and needs of those who already hold economic and social capital whilst side-lining minority or fringe cultures and communities. As Noble says, 'despite the widespread beliefs in the Internet as a democratic space where people have the power to dynamically participate as equals, the Internet is in fact organized to the benefit of power elites, including corporations that can afford to purchase and redirect searches to their sites'.<sup>43</sup>

This cataloguing of communities and social groups is important in terms of understanding the ways in which contemporary cataloguing techniques deliver power to certain groups of people over, and at the expense of, others. Thus, taking all of the above into account, we see how cataloguing has developed. The practice has moved beyond libraries and into the digital sphere whilst, at the same time, what is being catalogued and who catalogues are perceived to be empowering has also undergone a shift. There now exists a much more complex relationship of power between catalogues and their users in which a multi-directional transfer of knowledge takes place; both from catalogue to user and from user to catalogue. Contemporary catalogues provide information to their users in a number of ways, but also gather information about them, influence their behaviour, and often regulate (or even dictate) their interactions with the world and each other.

Understanding the way that contemporary cataloguing operates is important in itself, but it also allows us to position the library within this wider landscape and reflect upon the extent to which wider contemporary trends are reflected in library cataloguing practices today. As Day has argued, older practices have been 'gathered up in new techniques and technologies'<sup>44</sup> and we can see the way that the issues raised by Google, Facebook and other digital cataloguing venues are reflected in contemporary library cataloguing.

Here we might point to the work of Kelly Thompson who has argued that, through the implementation of FRAD, librarians have been encouraged to move from identifying persons by name to 'contextualising' the person as a whole.<sup>45</sup> With reference to the way that self-identifying trans authors have been represented in the 375 field for 'gender' and other related fields within name authority records, Thompson shows that these authors have often been unnecessarily overexposed, othered, and represented in ways that remove agency and

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43 Ibid, p.48.

44 Day, C., p.35.

45 Thompson, K.J. More Than a Name: A Content Analysis of Name Authority Records for Authors Who Self-Identify as Trans. *Library Resources and Technical Services* 2016; 60(3), p.142. Available at <http://dx.doi.org/10.5860/lrts.60n3.140> [Accessed 25 March 2019].

control over self-identification of gender. Furthermore, as Thompson highlights, records often privilege binary conceptions of gender, prescribe a reading of it in which a person can only exist at, or travel between, point A or point B, and in doing so silence the experiences of people who don't identify with these traditional delineations.

In a similar analytical vein, Sara Howard and Steven Knowlton have demonstrated the way that Library of Congress Classification and Subject Headings operate in ways that obscure literature covering African American and LGBTQIA studies, other the peoples and topics populating this literature, and often force those looking for information on these subjects to search in myriad locations within any one library.<sup>46</sup> Thus, through these examples, we can see a mirroring of Google's tendency to reinforce the world view of certain hegemonic groups at the expense of minority communities, whilst also locating an 'othering' of groups and individuals that fall outside of idealised norms. In this way the library, like Google, continues to operate as a site of cultural violence and oppression.

In tracing modern cataloguing developments through into contemporary librarianship, we might also consider the practice of scholarly citation indexing; the process of attaching value to scholars and their work through acts of documentation and indexing. As Day notes, 'with scholarly citation indexing and analysis and its extension into web-metrics and other altmetric analyses we see a political economy of socio-technically mediated value creation for documents and persons'.<sup>47</sup> These indexes, by measuring an author's outputs and activities, claim to be able to represent (and even predict) scholarly social behaviours whilst simultaneously positing themselves as indicators of a document or author's scholarly worth.<sup>48</sup> These often opaque metrics influence career opportunities, contribute to how authors are perceived, can define the likely future exposure and opportunities for work, and in them we can detect the echoes of Facebook; namely the creeping practice of attempting to quantify, predict and influence the behaviour and perception of individuals. Once folded into these scholarly citation catalogues, authors, their identities, and their futures, are inextricably influenced and shaped by them.

Through these examples we touch upon the ways in which contemporary developments in cataloguing are reflected in current library practice. By viewing library cataloguing within

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46 Howard, S.A. and Knowlton, S.A. Browsing Through Bias: The Library of Congress Classification and Subject Headings for African American Studies and LGBTQIA Studies. *Library Trends* 2018; 67(1), pp.74–88. Available at <https://doi.org/10.1353/lib.2018.0026> [Accessed 25 March 2019].

47 Day, C., p.48.

48 This is the aim of platforms and tools such as Elsevier's SciVal and Google's H Index amongst myriad others.

this context we are able to position our practice as part of a wider phenomenon, which in turn provides a new perspective through which we can critically interrogate the consequences of what we do. Hope Olson's work, mentioned earlier in this paper, is important to reconsider in this light, in that it asks vital questions around how communities and subjects are dealt with and positioned with respect to each other within library classification systems. In a precursor to Safiya Noble's work on Google, Olson highlighted the negative impact that cataloguing and classification processes can have on minority communities and emphasised the importance of questioning how groups are represented and positioned within such systems. In taking the work of Noble, Olson and others together we see a powerful critique of modern cataloguing techniques emerge, both within the context of libraries and the *wider* cataloguing landscape within which libraries exist today. It is crucial that we continue to build upon this foundation and engage in a continuous process of critical reflection that will enable us to challenge the biases and power inequalities that our catalogues reflect and reproduce.

Libraries should not be attempting to ape, or catch up to, commercial digital platforms such as those explored here. In terms of resources this is not a realistic prospect, but more importantly, as we have shown, there are serious ethical implications and trade-offs attached to such an endeavour. Rather, as engaged, skilled, critical communities of practice, libraries and their practitioners are in fact in a unique position to be able to reflect on the effects of contemporary cataloguing, offer resistance to oppressive applications, and develop and implement alternative methods that are responsibly and ethically deployed, sensitive to users' needs for privacy, and responsive to the necessity for continuous re-evaluation and change. This is both an opportunity and a challenge for libraries at the beginning of the twenty-first century, but it is one that we should embrace as it ultimately offers the chance to fulfil an important, and much needed, role within contemporary society.

## Conclusions

This paper has attempted to sketch the history of modern cataloguing from the mid-nineteenth century to the present, outlining the key developments within the practice and charting the shifting perception of its relationship with the concepts of knowledge and power. It has shown that by the beginning of the twentieth century libraries were positioned at the vanguard of this field and, as a result of occupying this space, were constructed as institutions that empowered the public through their cataloguing practices. It has also shown that this positioning of libraries was thrown into question by an epistemological shift which

occurred alongside developments in information storage and communication technologies. Here, a questioning of the foundations of Enlightenment thought about the ‘knowable universe’ by what can loosely be termed ‘postmodernism’ has undermined libraries’ certainties over the materials they hold and simultaneously exposed a contradiction between the ideal of libraries as neutral institutions and their practical application as sites of cultural violence and oppression. Finally, this paper has suggested that it is web-based search engines, social media platforms and data companies that are now at the forefront of cataloguing practices and, through the prism of Foucauldian theories of power, has explored the ways in which users of information are increasingly becoming the subject of these catalogues, whilst also touching upon some of the ways that this is echoed in library cataloguing practices today.

The underlying argument is that a slow but significant shift in who is perceived to be empowered by catalogues and cataloguing techniques has taken place. Traditionally libraries, archives and repositories—through their catalogues—were perceived to grant the public power over the information that they held within their walls. Due to the developments traced in this paper, however, this understanding of the relationship is no longer sustainable. Increasingly cataloguing now provides corporate and government entities with information and power about and over the public in the realms of advertising, surveillance and even in political contests. These relations of power between catalogues, their subjects, and their users, need to be further interrogated and questioned because of the potential consequences they have in relation to democracy, freedom and choice.

Cataloguing can never be a benign or neutral process devoid of consequences. It is a way of constructing the world around us, and simultaneously of gaining power over that which is catalogued. It is important that we understand both this fact and the historical uses that these practices have been put to. As the catalogue’s eye is increasingly turned on human behaviour in the twenty-first century, it is critical we are aware of the ethical implications and consequences this has in relation to the construction and maintenance of regimes of power.

This paper does not seek to act as a rallying cry against the existence of catalogues. Rather it is a call to recognise, interrogate, and to some extent rediscover, the potential and power contained within them. If catalogues are to be increasingly folded into human experience and existence, and, as a consequence, construct, inform and mediate it in ever more subtle and diverse ways, then they will have the potential to be either a positive or destructive force depending on how they are pressed into service. If we understand the power contained

within catalogues and cataloguing practices, we can direct that power to liberating, constructive and emancipatory endeavours whilst challenging intrusive, oppressive and coercive uses. Consequently we bear a responsibility to ask questions of those who control and administer the catalogues that construct our worlds; we should interrogate their motives, analyse who they are empowering and who they are silencing, have searching and meaningful conversations about what checks should be applied to their activities and ask whether, ultimately, they are the appropriate custodians of these powerful tools. They, like Enlightenment notions of old, are due a reckoning and it is possible, and desirable, for libraries to play a crucial part in this process.

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