"Arsenals of scientific and technical information": Public Technical Libraries in Britain during and Immediately after World War I

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Abstract

Although from its inception in 1850 the public library in Britain displayed an economic dimension, attempting to respond in relatively general ways to technical, scientific, industrial, and commercial needs, it was not until the First World War that the institution's "materialist" role achieved anything like the standing of its traditional sociocultural function. The war generated a series of economic, social, political, and technological problems and proposed solutions. There was considerable anxiety concerning the anticipated escalation in postwar international competition arising from the loss of foreign markets. The war brought into sharp relief Britain's relatively poor scientific and technological infrastructure. Total conflict engendered extensive social and political disaffection and an accompanying fear of impending radical change. In addressing these problems and tensions, the government initiated a policy of reconstruction in the second half of the war. One element of this policy was a planned extension of public library services, including an upgrading of technical and commercial information provision through the establishment of new "dedicated" departments. In the closing years of the war and in its immediate aftermath, public technical and commercial libraries (generically termed "technical libraries" in this article) emerged in some of Britain's large cities. An analysis of plans and statements from librarians, the business world, and political elites in support of these new "workshop" libraries throws light on contemporary discourses concerning the future of the economy and sociopolitical ideas. However, outside the grand issues of economic policy and social and political stability, discussion surrounding the intended

purpose and practices of technical and commercial libraries reflected debates and tensions in the library and information world concerning the nature, status, and identity of librarianship, its relevance to information work and documentation, and the future of the public library in the postwar world.

INTRODUCTION

What makes the public library such a fascinating subject of sociological study, both historically and now, is the multiplicity of dichotomies, or contradictions, that one can observe in its professed purpose and in its everyday functioning. This is true of the public library in Britain, and it is no doubt also true of public library development elsewhere. In Britain, certainly, the public library has throughout its history been both liberating *and* controlling in its outlook and practices. It has provided access to knowledge for both economic gain *and* cultural enrichment. It has catered to both high *and* popular culture. It might be suggested, therefore, that the public library has been a very *clever* institution, with a capacity to accommodate and negotiate various and sometimes divergent values and beliefs.

One manifestation of this *cleverness* has been the public library's ability to reconfigure itself in the light of social change and social crisis. It has proved itself to be a highly adaptable institution, or, in modern information management–speak, a successful "learning organisation" (Marquardt & Reynolds, 1994; Senge, 1990). The term *learning organization* is used here not in the sense of the public library's role as a disseminator of knowledge to society (although the public library has of course been at the forefront of this) but specifically in terms of the ways in which the institution's professional staff and political managers have displayed competence in observing social change and reacting to it, through adjustments made to policy and to services. The public library has often demonstrated that it can be a "reactive" force, responsive to external stimuli and sensitive to society's shifting demands. At the same time, intriguingly, it has frequently displayed a distinct political and social conservatism, a capacity to be reactionary in the face of "liberal" ideology and culture.

THE WARTIME PUBLIC LIBRARY AS A "REACTIVE" AND "REACTIONARY" FORCE

The public library's capacity to *react,* yet also be socially and politically *reactionary,* was clearly evident in both world wars. In World War II public libraries heroically satisfied a sudden increase in demand for reading and developed a radical agenda——through the blueprint that was the Mc-Colvin Report——for postwar progress based on larger library authorities and greater state control (Black, 2004). However, some librarians clung to a conservative, parochial conception of a national library structure based

on the retention of small and inefficient local government authorities free
from state control. Similarly, the Library Association revealed its conserva-
tive credentials when it advised that books provided for military personnel,
in their camps, dug-outs, tanks, and troop ships, should be high-brow rather
than popular, whereas the generals advised that the troops were better off
reading *Punch* rather than Plato (Hung, 1999).

Earlier, in World War I, in an equally conservative fashion, public li-
braries were sometimes mobilized as propaganda machines, peddling a
jingoistic message. For example, the library committee in Leamington Spa
congratulated itself for providing "suitable works exposing and denouncing
German aims and methods, and stimulating British ideals and patriotism."[1]
Articles appeared in local newspapers proudly advertising the acquisition
of new titles like *The Germans in Africa,* which was said to trace the efforts
of Germany to secure an African empire through intrigue and trickery.[2]
Newspapers critical of the war's prosecution were occasionally withdrawn,
as in Bermondsey in south London in 1915.[3] Attacks on Lord Kitchener,
the head of the army, in the *Times* and the *Daily Mail* led the Bradford
Public Library Committee to consider withdrawing the papers.[4] Overtly
propagandist material was purveyed at the government's behest. Bolton
Public Library, for example, distributed government pamphlets entitled *The
Great War and How It Began* (300 copies) and *If the Kaiser Governed England*
(4,000 copies) (Ellis, 1975, p. 127). In some places literary propaganda and
censorship was backed by lectures of an anti-German nature. For example,
in an Oldham Public Library lecture in October 1914, entitled "The Great
War," it was argued that the war was being fought in honor of the British
Empire, an institution that was said to be both synonymous with civilization
and opposed to the enslavement of smaller nations by militarism, the latter
being described as a feature of German imperialism.[5]

On the other hand, in contrast to these examples of negative, propagan-
dist activity, the public library became part of the spirit of reconstruction
that arose in the second half of the war, contributing in its small way to
the vision and planning of a better postwar world. The Ministry of Recon-
struction, established in 1916, brought public libraries, along with other
educational and social institutions, into its remit.[6] The need at the time for
libraries to be progressive and reactive was detected by the librarian W. E.
Doubleday, who in 1917 predicted change, as a result of the war, in the re-
lationship between social classes, in political conditions, and in educational
systems. Public libraries, he advised, ought first to be "awake to this re-adjust-
ment," and second, "should occupy a much more prominent position in the
future than they have done in the past."[7] On both counts the public library
achieved a certain success during the war. The war served as a watershed
in terms of the formulation of new legislation demanded by librarians and
accepted by government. An act of 1919, the groundwork for which was laid
during the war, removed the restriction on the amount that could be spent

on a library service. It also allowed counties to become library authorities, thereby enfranchising in library terms millions of people in rural areas. Thus, as Doubleday and the library community wanted, the public library re-adjusted its financial and organizational base and, as a result, became a more prominent aspect of British social and cultural life.

The Public Library's Economic Heritage and the Emergence of Technical Libraries

Due to the war, the public library also became more prominent economically. One aspect of this was the appearance of "dedicated" commercial and technical departments or libraries. The appearance of these libraries in some of Britain's industrial towns was in one respect a radical departure from previous provision of services; in other ways it built on a long utilitarian tradition—a heritage of public library service in the name of material progress.

The Report of the Select Committee on Public Libraries (1849), which paved the way for the inaugural legislation the following year, recommended the establishment, in large provincial towns, of collections of books on local industries and agriculture and on political economy (Kelly, 1977, p. 77). Some towns did exactly this. Collections in some large provincial public libraries contained materials relevant to local economic activity, for example, literature on mining in Wigan, on textile manufacturing in Manchester, on woollen manufacturing in Rochdale, and on watch-making in Clerkenwell, London. Also in London, the Guildhall Library provided a rich collection of materials relevant to commercial activities in the City from the 1870s, (Lamb, 1955, p. 21).

One of the backdrops to the escalation in public library foundations in the late nineteenth century was the slowing of British innovation and economic performance relative to emergent giant economies like Germany and the Unites States. For example, when a public library was being considered for Lewisham in 1896, those promoting the idea pointed out that "In our ceaseless competition with foreign nations, it is our duty, if we do not wish to fall behind in the race, to provide the very best opportunities for all classes in the matter of self education, and for the acquisition of useful information."[8] In Manchester in 1907 local business leaders, under the auspices of the Chamber of Commerce, formed a deputation to the Manchester Public Library to secure improved provision of scientific and technical literature. This occurred against the specifically identified threat of German trade competition. Comparisons were made between the excellent provision in science and technology made by the New York Public Library and the rather limited provision made by the public library in Manchester.[9] Some pre-1914 public libraries became agencies for the Board of Trade's Commercial Intelligence Department, which ran an economic information service for inquirers outside of the civil service; and some

became agencies for government information on emigration, which, at a time of anxieties over international competition and the degeneration of the race, had a very real economic dimension.[10]

Thus, despite the fact that in 1917 Walter Powell, librarian of Birmingham, was correct in stating that the provision of technical literature in libraries had always been "to some extent haphazard and limited by want of means,"[11] from its inception in 1850 the public library had displayed a visible economic face, attempting to respond in a general way to technical, scientific, industrial, and commercial needs. Arguably, however, it was not until 1914 that the institution's economic function attained anything approaching its obvious sociocultural function. In response to the war, the public library's economic role was extended, not just by being charged to help build a more educated and, hence, productive workforce, but also because it took on a responsibility to improve scientific, technical, and commercial knowledge. The most vivid manifestation of an extended economic role was the establishment of "dedicated" technical and commercial libraries.

Several technical and commercial libraries appeared during the war; in Birmingham in 1915; in Glasgow, Northampton, and Richmond-on-Thames in 1916; in Lincoln, Coventry, and Liverpool in 1917; and in Bradford, Leeds, and Darlington in 1918. Another group of such libraries was founded shortly after the war, many having been planned during it: in Dundee, Wolverhampton, Manchester, Sheffield, Bristol, and Wigan (Lamb, 1955, pp. 51–52). The quest for improved efficiency in production gave rise to concentrated collections of technical material. These needed to be matched by improved efficiency in marketing, giving rise to collections of commercial material. The technical library, remarked Stanley Jast (1917a, p. 119), was for the "man who *makes*"; whereas the commercial library was for the "distributor," "the man who *places*." Whether in practice these type of libraries were variously termed "technical libraries," "commercial libraries," or "technical and commercial libraries," for the sake of brevity they will mostly be referred to here simply as "technical libraries."

Even before 1914 interest was shown by leading librarians in the idea of public business libraries (Jast, 1903; Savage, 1909). The war merely propelled the idea forward with much greater force. Plans for technical libraries were enthusiastically promoted by the Library Association. In 1916 the association appointed a special committee to oversee the strengthening of scientific and technical departments in public libraries. It reported the following year.[12] Librarians began to detect a strengthening of demand for information from business (Pitt, 1917; Savage, 1918; Shaw, 1917). This contrasted starkly with demand before the war, when James Duff Brown offered the opinion that "the average business man" was "singularly short-sighted in regard to the aid which literature can, and does, lend to business." "In most factories," he also noted, "very little in the way of technical books will

be found, save a few volumes of patterns or trade catalogues; and it must be confessed that from libraries in hotels and shops to those in lighthouses and battleships, fully-stocked and up-to-date technical collections of books, capable of being used in aid of the special trades or professions, are very seldom in evidence" (Brown, 1907, p. 47). Librarians hoped that technical libraries would grow into extensive collections and become the first port of call for businesses of all sizes, including large corporations (Jast, 1917b, p. 8). They also believed technical libraries would improve the status and appeal of public libraries and act as a lever in obtaining legislation to remove the rate restriction on public library expenditure.[13] Government too lent its support. However, fearful of continuing for too long after the war with the high taxes that had necessarily been levied during it, the government placed greater faith in the idea of networks of libraries attached to proposed industrial research associations organized on an industry-by-industry basis, as well as in the development of in-house collections of technical and commercial information by business itself (Addison, 1917, p. 433).

Businesses, often through local chambers of commerce and at the behest of leading scientific societies and professional and industrial associations, also supported technical library initiatives.[14] During and immediately after the war the business community in towns like Leeds, Bradford, and Manchester were active, often in association with the local chamber of commerce, in promoting the creation of business information bureaus in public libraries. But these efforts seemed to be aimed largely at helping to satisfy the informational needs of small- and medium-sized companies, as opposed to those of the large corporations, which had the means, and increasingly the will, to set up their own services tailored to their specific needs.

Proposals for technical libraries were reinforced by the knowledge that such institutions were flourishing in the United States where, from around the turn of the twentieth century, in addition to self-organized libraries, business was served by a fairly strong public provision of technical and commercial information (Kruzas, 1965). When George T. Shaw proposed a commercial library in Liverpool in 1917, he acknowledged that the idea of placing libraries at the special service of those engaged in commerce was not new: "It had been carried out with much success . . . in the United States."[15] A public "Industrial Library" was established in Providence in 1900, and this was followed by the emergence of "Useful Arts" departments in public libraries in Cincinnati, Detroit, and Cleveland. A business branch library was founded in Newark in 1904 (Mutchler, 1969, p. 5).[16] American librarians promoted public business libraries with gusto, to fellow librarians and to industry and commerce alike (Hasse, 1917).

To summarize the argument thus far, suggestions made during the war for improved technical library provision had solid foundations on which to build. For over half a century the public library movement in Britain had displayed an identifiable economic role. Potential support was available

from government, business, and librarians. There was also the example of the setting up of technical libraries in the United States. But what precisely were the factors that explain the emergence of technical libraries during the war? Three are proposed here: the need for organized science and economic planning to fight the war and prepare for the postwar world; the perception of a revolutionary threat and the need to contain it; and the emergence of an information role for libraries.

Science, Technical Information, and Economic Regeneration

The war represented a rigorous audit of British technological capabilities, one that highlighted the country's poor record in the field of organized science (Barnett, 1999). In 1915 E. B. Poulton (pp. 44–45), a prominent scientist, informed an audience at Oxford University of the "national neglect of science" and the "want of a scientific spirit" in government, in Parliament, and in the army. The labored progress of British forces in the war led to accusations that science had been neglected (Sherrington, 1981, p. 53). The requirements of technological, "total" war placed a premium on a systematic and scientific approach to the development of technology. Yet, despite the momentous industrial advances of the previous century, it would be fair to say that before 1914 the planned application of science in British industry was the exception rather than the rule. The importance of research was recognized relatively late (certainly compared to Germany) by British companies. The employment of scientists in industry in a research capacity was rare. Industrial innovation had rarely resulted from the formal application of science; most innovations had been the product of the work of brilliant artisans or inspired amateurs. The value of book knowledge was widely questioned in industry; practical experience was often valued more highly than theoretical knowledge; and skilled workers often looked with suspicion on those who studied the "manufacturing arts" (Crouzet, 1982, p. 420; Mathias, 1983, pp. 124–25). Given this antiscience tradition, the growing awareness that the war was, as the *Library Association Record* correctly observed, an "engineer's war," increased anxieties concerning the country's ability to fight the war effectively.[17]

A crisis materialized early in the war when it was found that Britain was almost entirely dependent on imports from Germany of such goods as dynamos for motor vehicle engines and dyestuffs for fabrics, including military uniforms. "Machine-tools, ball-bearings, magnetos, internal combustion engines, drugs—it is hard to name a basic necessity of advanced technology in which Britain was self-sufficient in 1915" (Barnett, 1999, p. 108). The technology-industrial crisis deepened in the spring of 1915 when there occurred a serious shortage of high-explosive artillery shells. The ensuing "shell scandal" fatally damaged the Liberal government (in power since 1906), which was replaced by a coalition government in May.

The political shake-up also led to a root and branch reform of industrial organization. A Ministry of Munitions, under the future prime minister, Lloyd George, was created in May 1915, which resulted in the establishment of hundreds of modern state-run factories. And, reflecting an increased emphasis on technology and on research and development, a Department of Scientific and Industrial Research was set up in 1916.

The war brought about a recognition of the importance of investment in new industries. The creation of technical libraries was closely linked to the development of new sectors in the economy. In the nineteenth century the British economy had become dependent on the "old staple" industries of coal, shipbuilding, textiles, mechanical engineering, iron and steel, and the railways. In the early twentieth century, as these traditional sectors of production began to decay, a range of new, science-based industries began to emerge: chemicals, synthetic dyestuffs, artificial silk (or rayon), precision instruments, oil, aluminium, rubber, plastics, aircraft, motor vehicles, canned foodstuffs, electrical engineering, generation and supply, electrical and radio equipment, and a wide variety of household, confectionery, and consumer goods (Glynn & Oxborrow, 1976, pp. 86–115). It was these new industries, where scientific knowledge and research and development were at a premium, that gave an impetus to technical library provision, although the importance of such provision to traditional industries was also recognized. Interest in technical libraries also reflected the growing complexity and sophistication of commerce generally.

The loss of foreign markets in World War I led to anxieties concerning the future ability of British commerce and industry to compete on a world stage. Faced with stiff postwar international competition, both business and government increasingly came to appreciate the contribution that scientific knowledge and commercial and technical intelligence could make to economic activity. It was the opinion of Christopher Addison, minister of reconstruction, that the war had been "handicapped to a tragical degree by the absence of the necessary scientific and industrial information of a serviceable kind" (1917, p. 43). Librarians also adopted a worldview of Britain's position. A recurrent theme in the discussions on technical and commercial libraries at the annual meeting of the Library Association in 1917 was the recognition that Britain could no longer rely on its traditional reputation for supremacy in world markets.[18]

In 1955 J. P. Lamb, who as Sheffield's librarian constructed a business information service that was second to none, remarked that World War I had jolted the "complacency of British commercial and industrial life" (1955, p. 29). If this was true, it was also the case that the war invigorated those librarians who had an aptitude for the provision of useful knowledge and business services. During the war many librarians adopted enthusiastically the language of the proposed scientific renaissance and economic reconstruction, promoting libraries as laboratories and workshops of tech-

nological and material advance. The *Library Association Record* declared that "Arsenals of scientific and technical information will become, nay have become, as necessary as arsenals of war-like materials, and if steps are not taken promptly we shall be as little prepared for peace as we were for war."[19] W. E. Doubleday wrote that

> Currently with this commercial expansion, one may look for progress in home manufactures; new ideas, new inventions will be brought forward and it will require an alert and mentally well-fed people to take advantage of these fleeting opportunities. What better than a public library can facilitate this work, and feed commercial and general institutes?[20]

Ernest Savage wrote that "The needs of the war have brought home to technical men the desirability of obtaining information rapidly" (1918, p. 219). This was not least the case in regard to information on new sources of raw materials and industrial components to replace sources cut off by the war. Echoing this message, Stanley Jast explained that the war had "caused us to institute a general and critical survey of the whole field of our industry and commerce" (1932, pp. 35–36) and added, as a spur to action, that the Americans and the Germans were far ahead in the organization of printed technical information. Germany may not have developed a system of public technical and commercial libraries of the kind seen in the United States, but they did boast an impressive array of technical libraries in scientific societies, technical associations, and larger industrial concerns.[21]

Soon after the war the technical librarian Vincent Garrett declared that "the rule-of-thumb era has run its course . . . The effective operation of business undertakings is becoming increasingly dependent upon organised science" (Garrett, 1924, p. 40).[22] Also after the war the Library Association's president, Henry Guppy, reminded his fellow librarians that "The war [had] revealed to us many problems with which it was our duty to deal, and it became evident that it was necessary to mobilize our industrial and intellectual forces in the same way and with the same energy that we mobilized our forces to fight, for science has proved herself to be the dominating mistress" (1926, p. 205). During the war, science moved to "center stage," and public technical libraries became one of the main beneficiaries of its new role.

At a lower level, enthusiasm for technical libraries fed off a planned growth in adult and technical education. Interest in technical education was given fresh impetus by the war. Plans were laid for improved non-vocational education for young adults (between the ages of fourteen and eighteen) and for better provision for vocational training in technical schools.[23] Technical libraries were seen as a complement to this expansion.[24] They were promoted as places where the artisan and the clerk would rub shoulders with the businessman and the manager and where people could obtain the literature and information essential to their jobs.[25]

CONTAINMENT OF THE REVOLUTIONARY THREAT

Serious disaffection confronted the state in the second half of the war and in its immediate aftermath (Cronin, 1982). Its causes were varied: rising prices (the inflation rate jumped from 2 percent to 25 percent in the first two years of the war); poor housing; restrictions on trade union practices and on labor mobility; narrowing of differentials between the skilled and unskilled; strict licensing laws; industrial fatigue; monotonous work processes; inequality of sacrifice in the war; lack of faith in government to keep pledges and in the parliamentary process; uncertainty as to the industrial future; and anger at the handling of the military effort, summed up in the belief that "lions were being led by donkeys."[26] These grievances, combined with strikes, trade union militancy, growing support for the Labour Party and its socialistic program, and the "red scare" generated by the Bolshevik Revolution of 1917 and the German Revolution of November 1918, produced a fear of social and political upheaval among the governing classes, anxieties encapsulated in J. A. Hobson's remark at the time that "Property is seriously afraid" (White, 1975, p. 3).

In response to the perceived threat, and to improve the morale of soldiers and citizens alike, the government embarked on a policy of reconstruction, whereby promises and plans for social renewal—for example, better housing[27]—were laid before the people to undercut the revolutionary alternative. A Ministry of Reconstruction was set up in July 1917 to satisfy "the increasingly felt need to attend to working-class morale and compete with the radical Left" (Orde, 1990, pp. 5–6). As Lloyd George pleaded: "We want neither reaction nor revolution, but a sane, well-advised steadiness of bold reconstruction."[28]

One aspect of that bold, but politically steady, reconstruction was improved educational provision. Apart from promising to improve people's lives, better education offered a political dimension. Education was viewed by H. A. L. Fisher, president of the Board of Education, as crucial to a reinforcement of the civic consciousness that helped safeguard existing social arrangements. It would make individuals more "reasoned," and therefore more "reasonable," in their attitudes toward the state and employers, thereby enabling otherwise alienated individuals to become true citizens of a participatory, pluralistic, capitalist society. Education, said Fisher, had the power to affect, for better or worse, whether a child would be "imprudent or profligate, cultured or ignorant, brutal or refined, social or anti-social, a citizen or an anarchist" (1918, p. ix).

Librarians quickly realized that they could exploit opportunities created by the spirit of reconstruction. "Re-construction is the magic word of the moment," remarked the librarian W. B. Thorne, "and the basic principles of the public library service need to be *reconstructed*."[29] The rationale of the public technical library, especially through the years 1918 and 1919, emphasized trade and harmony over disunity and industrial conflict. It also

served as a weapon for indoctrination in conventional political economy and was seen as an effective agency for countering the "false" politics and economics of socialists. In 1918 Ernest Savage stated that in support of manufacturing, any decent technical library should have material on what he called "collateral subjects"—such as industrial organization, advertising, wage systems, the labor question, and scientific management. He suggested that the resources of libraries be used for studying the ideas and aspirations of the labor movement so that companies would not be taken by surprise by workers' demands.[30] At the opening of Manchester's commercial library, Admiral Frederick Sturdee was reported to have said that "The British people did not know enough about economics which, after all, were fairly simple. He thought if the people were told in a simple form the principles of finance they would back the country up in every possible way."[31] A similar line was taken by Arthur Steel-Maitland, parliamentary secretary at the Department of Overseas Trade, at the opening of Wolverhampton's commercial library, when he called for a greater understanding of trade and commercial matters, both national and international:

> Here we had friction of one kind and another in the industrial world—friction which, during the enthusiasm for war, we did not think would occur. This occurred . . . through the two parties in industry not understanding the other man's point of view. In the next place there was no real understanding of the real economic conditions which ruled the situation. Owing to the war we had practically to give up our foreign trade, and now we had not only to recover it but to get more of it.[32]

The Growth of an Information Role for Libraries

The public library's investment in technical libraries demanded a reorientation of professional practice. As much as it was a new opportunity for librarianship, the technical library was also a vehicle for documentation and information work (Pearce, 1918).[33] One of the most outspoken "librarian" advocates of a heightened information role for librarians was Stanley Jast who, before the war, had opened an information bureau in Croydon to complement the traditional reference service (Krauss, 1910).[34] Regarding technical libraries, Jast recommended that librarians "think not in terms of books, but rather in terms of printed matter, whether the form be that of the bound volume, the newspaper, or magazine, the pamphlet, the circular, the leaflet, or the clipping"; and he emphasised the importance of "properly constructed catalogues, indexes, and other keys" to the technical collection (1932, p. 30).

Some types of printed matter, such as trade catalogs, required extremely careful classification and organisational techniques.[35] After the war W. E. Doubleday spelled out the content and functions of the technical library. "Apart from treatise on science and technology, directories and other ref-

erence works, manufacturers' catalogues, periodicals and so on," wrote Doubleday, technical libraries needed to

> construct and maintain files of information, comprising articles excised from journals, mounted newspaper cuttings, perhaps some trade lists and other small items . . . sorted into folders according to kind . . . and deposited in vertical files which are duly labelled and always available to the public . . . the file itself is always under revision, for it is as important to remove old articles as to insert new ones, and this involves educated discrimination and perpetual care such as method only can secure. Subject to obviously special considerations, the routine is largely as in ordinary reference libraries. (1933, p. 180)

However, the "special considerations" to which Doubleday was referring were in reality *not* as familiar or, to use his description, as "routine" as he thought. A new culture of "information" was emerging, as Louise B. Krause noted in regard to business libraries in the United States:

> The business library is not limited to a collection of books, but contains information in any form, namely, periodicals, pamphlets, trade catalogs, photographs, lantern slides, and also manuscript notes which are accumulated in connection with the specific work of an organization. The business library even goes so far in its service as to supply information which is obtained by "word of mouth" in advance of its appearance in the printed page. (1919, p. 307)

The desire to offer a speedy information service was encouraged by an awareness of the opportunities afforded by the telephone, which was seen as particularly useful in the technical library.[36]

Thus, early technical libraries were conceived as much as information, or intelligence, departments as book departments, many inquiries being for the speedy delivery of fragments of information rather than for specialist books.[37] Technical libraries were less libraries than information bureaus, dealing with information in a variety of formats and with material extracted from whole items. Moreover, unlike traditional libraries they were imbued with a philosophy of close anticipation of user demand, requiring ultimately detailed abstracting and depth indexing and the preparation of bulletins advertising new material. Some librarians appeared comfortable with such functions. Others wished to hold true to librarianship's traditional images and practices. Either way, the horse had bolted and there was no way of getting it back in its box.

Conclusion

Arthur Marwick has observed about the effects of war on society that at one extreme it has a tendency to promote authoritarianism. This is the liberal perspective on the social impact of war. At the other extreme, war can act as a reforming influence, or, as he put it, "the great auditor of in-

stitutions" (1974, p. 6); a perspective that encapsulates conservative fears concerning the corrosive, liberalizing effects of war. This dichotomy can help us to make sense of the story of public technical libraries in Britain in World War I.

The debate on technical libraries between 1916 and 1918 (and even into 1919 and 1920) lends itself to both interpretations. On the one hand, technical libraries were proposed as a progressive force, contributing to a more efficient, scientific prosecution of the war and to the economic reconstruction required for survival in a highly competitive postwar world. They was a small but not insignificant element in the "remarkable technological revolution [which] began in Britain in 1915 and [which] was consummated by 1918" (Barnett, 1999, p. 108).[38] Also, reflecting the contemporary demand—arising from the recognition of the severe sacrifices made during the war—to distribute power and opportunity more widely, as seen in the extension of the suffrage in 1918 to women aged thirty and over, technical libraries were envisaged as popular institutions, not just for business people but also for workers in pursuit of technical education.

On the other hand, the discourse surrounding technical libraries reflected the political anxieties and ideological tensions of the day. Technical libraries were viewed as agencies that could confront the irrational economics of Bolshevism by endorsing market economics—not only by providing books on political economy but also by means of their fundamental rationale, as motors of capitalism. As such, technical libraries complemented other government initiatives aimed, at one level, at nullifying the revolutionary threat and, at another level, simply at preventing the materialization of a much less radical threat in the form of government by socialists (the Labour Party), albeit within the existing framework of a parliamentary democracy. These two ways of viewing the purpose of technical libraries in the war were summarized by E. W. Hulme, librarian of the Patents Office, when he told the 1917 annual conference of the Library Association that its program of technical library provision "forms part and parcel of a series of measures which are essential to the security of the state in time of war, and to its prosperity as an industrial nation in those of peace."[39]

But beyond the wider, global issues that dominated the theatres of ideological struggle and international relations, the wartime technical library can be seen as a signifier of a conflict being played out on a much smaller stage: that of librarianship and its functions and identity. Technical librarianship demanded a new style of librarianship, one that embraced information and documentation work. The conflict that this was to create was not as grand or important as the ideological struggle between Left and Right, or the struggle for future economic prosperity; but like these struggles it has not gone away and can be seen today in the continuing tension between the worlds of information science and information management, on the one hand, and library science and library management, on the other.

NOTES

1. *Leamington [Spa] Courier,* September 24, 1915.
2. *Borough of Woolwich Pioneer,* July 23, 1915.
3. Library News Cuttings, July 1915, Local Studies Department, Southwark Public Libraries.
4. Public Library Committee Notes 1913–1946, May 31, 1915, Local Studies Department, Bradford Public Libraries.
5. *Oldham Chronicle,* October 19, 1914.
6. The Ministry of Reconstruction Adult Education Committee produced the following: *First Interim Report on Industrial and Social Conditions in Relation to Adult Education,* Command Paper 9107 (1918); *Second Interim Report on Education in the Army,* Command Paper 9229 (1918); *Third Interim Report on Libraries and Museums,* Command Paper 9237 (1919); *Final Report,* Command Paper 321 (1919). The Adult Education Committee was one of several subcommittees formed by the Ministry of Reconstruction in March 1917. Other subcommittees covered agricultural policy, demobilization of the army, women's employment, and local government. For a description of the ministry's brief, see Ministry of Reconstruction, *Report on the Work of the Ministry for the Period Ending 31 Dec. 1918,* Command Paper 9231 (1919).
7. Symposium on Public Libraries after the War, *Library Association Record* (1917), p. 113
8. Vote for Free Libraries: Circular from Committee in Favour of Free Public Libraries, June 24, 1896, Local Studies Department, Lewisham Public Libraries.
9. *Manchester Chamber of Commerce Monthly Record* 18 (1907), pp. 138, 288, 342. See also the *Library Association Record* (1918), p. 107, which highlights the report made by the Manchester Chamber of Commerce in 1907.
10. For a fuller account of these activities, see Black (1996, pp. 134–35, 107).
11. Birmingham and District Library Association, *Library Association Record* (1917), p. 154.
12. A grant from the Carnegie United Kingdom Trust helped fund a Library Association questionnaire to public libraries and the subsequent production of a report, entitled *Interim Report of the [Library Association] Council on the Provision of Commercial and Technical Libraries* (Aberdeen: Library Association, 1917), deposited in Scottish National Archives, file GD 281/13/41. Virtually a whole day of the Library Association's annual meeting in 1917 was devoted to the issue of commercial and technical libraries; see *Library Association Record* (1917), pp. 467–505.
13. Glasgow——Public Libraries, *Library Association Record* (1917), p. 81.
14. Technical Libraries: Support by Influential Societies, *Library Association Record* (1918), pp. 105–111.
15. Liverpool Commercial Library, *Library Association Record* (1917), p. 35.
16. Newark's New Business Branch Library, *Library Journal* (1927), pp. 651–52.
17. Editorial: The Present Position, *Library Association Record* (1918), p. 2.
18. *Library Association Record* (1917), pp. 467–505.
19. *Library Association Record* (1918), p. 110.
20. Symposium on Public Libraries after the War, p. 115.
21. Technical and Commercial Libraries Committee [of the Library Association], *Library Association Record* (1917), pp. 152–53.
22. Similarly, in 1920, also in relation to the promotion of business information, the *Manchester Guardian* (November 18, 1920) asserted that "Gone are the old rule-of-thumb systems with their risky characteristics."
23. Sanderson (1994, pp. 33–35) explains that H. A. L. Fisher, president of the Board of Education, found considerable support for this, but strangely not from many working-class leaders who, first, feared technical education would increase the number of skilled workers and hence reduce wages, and, second, believed that workers should avoid as much as possible the stigma attached to technical education and should emulate the middle-class liking for a liberal education that was not directly vocational in its outcome.
24. However, J. H. Reynolds was eager to distinguish between the technical library for education and the technical library for information; see his contribution to a debate on technical libraries, *Library Association Record* (1917), p. 495.
25. Technical and Commercial Libraries Committee [of the Library Association], *Library Association Record* (1917), pp. 152–53.

26. *Commission of Enquiry into Industrial Unrest,* Summary of the Reports of the Commission, Command Paper 8696 (1918).
27. The "Homes Fit for Heroes" housing initiative envisaged the construction of millions of affordable, high-standard council dwellings after the war, and to this end a new Housing Act, incorporating generous subsidies for local authorities, was passed in 1919; see Swenarton (1981).
28. Speaking on September 12, 1918, quoted in Rowland (1975, p. 451).
29. Symposium on Public Libraries after the War, p. 161.
30. Earnest A. Savage, *The Utilisation of the Data of the Automobile Industry through Bureaux of Information* (1918). Deposited in Scottish National Archives, file GD/281/13/4.
31. *Manchester Evening Chronicle,* October 23, 1919.
32. *Wolverhampton Express and Star,* June 28, 1919.
33. Technical Libraries: Bureaux of Industrial Information, *Library Association Record* (1918), pp. 77–82.
34. It was significant that as a public librarian, Jast also attended the first meeting of ASLIB (Association of Library and Information Bureaux) in 1924.
35. Report on Trade Catalogues, *Library Association Record* (1917), pp. 163–67.
36. Birmingham and District Library Association, p. 155.
37. The concept of fragments of information had been addressed, amongst others, by Stanley Jast before the war; see Jast (1910).
38. Barnett (1999) discusses a number of advances of a technological and organizational nature: in aeronautics; electrical engineering and generation; the appearance of research and development programs in companies; the growth of applied research in universities; the building and operation of state-of-the-art armaments factories; and the establishment of a government ministry to encourage technological progress in manufacturing, the Department of Scientific and Industrial Research.
39. *Library Association Record* (1917), p. 487, speaking in a debate on technical libraries

References

Addison, C. (1917). Address by the Minister of Reconstruction. *Library Association Record,* 430–35.
Barnett, C. (1999). The audit of the Great War on British technology. In J. Dormois and M. Dintenfass (Eds.), *The British industrial decline* (pp. 103–113). London and New York: Routledge.
Black, A. (1996). *A new history of the English public library: Social and intellectual contexts 1850–1914.* London: Leicester University Press.
Black, A. (2004). National planning for public library service: The work and ideas of Lionel McColvin. *Library Trends, 52*(4), 902–923.
Brown, J. D. (1907). *The small library: The collection and care of books.* London: George Routledge.
Cronin, J. E. (1982). Coping with labour, 1918–1926. In J. E. Cronin and J. Schneer (Eds.), *Social conflict and the political order in modern Britain* (pp. 113–45). London: Croom Helm.
Crouzet, F. (1982). *The Victorian economy.* London: Methuen.
Doubleday, W. E. (1933). *A manual of library routine.* London: Library Association.
Ellis, A. (1975). *Public libraries during the First World War.* Upton: Ffynnon Press.
Fisher, H. A. L. (1918). *Educational reform: Speeches.* Oxford: Clarendon Press.
Garrett, H. V. (1924). The technical library at Rowntree and Company's Cocoa Works. In Association of Special Libraries and Information Bureaux, *Report of the proceedings of the first conference* (pp. 38–41). London: ASLIB.
Glynn, S., & Oxborrow, J. (1976). *Interwar Britain: A social and economic history.* London: George Allen and Unwin.
Guppy, H. (1926). Seventy-five years: Presidential address by Henry Guppy. *Library Association Record,* 193–213.
Hasse, A. R. (1917). Public libraries and business men. *Special Libraries, 8*(3), 41–44.
Hung, M. (1999). *Change and resistance: Public libraries in the Second World War.* Unpublished master's dissertation, Thames Valley University, UK.
Jast, L. S. (1903). *Technical libraries.* Aberdeen: Library Association.

Jast, L. S. (1910). Book production and the loose-leaf principle. *Library Association Record,* 500–505.

Jast, L. S. (1917a). The commercial library. *Library Association Record,* 118–24.

Jast, L. S. (1917b). *The organisation of British trade.* Manchester: North Central Library Association.

Jast, L. S. (1932). *Libraries and living.* London: Grafton and Co.

Kelly, T. (1977). *A history of public libraries in Great Britain 1945–1975.* London: Library Association.

Krause, L. B. (1919). The business library. *Journal of Electricity, 42*(7), 307–308.

Krauss, H. (1910). Information bureaus in libraries. *Library Association Record,* 14–22.

Kruzas, A. T. (1965). *Business and industrial libraries in the United States, 1820–1940.* New York: Special Libraries Association.

Lamb, J. P. (1955). *Commercial and technical libraries.* London: George Allen and Unwin.

Marquardt, M., & Reynolds, A. (1994). *The global learning organisation.* Burr Ridge, IL: Irwin Professional Publishing.

Marwick, A. (1974). *War and social change in the twentieth century.* Basingstoke: Macmillan.

Mathias, P. (1983). *The first industrial nation: An economic history of Britain 1700–1914.* 2nd ed. London: Methuen.

Mutchler, P. K. (1969). *Public library co-operation with business and industry.* Unpublished master's dissertation, School of Librarianship, University College, University of London.

Orde, A. (1990). *British policy and European reconstruction after the First World War.* Cambridge: Cambridge University Press.

Pearce, J. G. (1918). The future of documentation. *Library Association Record,* 162–166.

Pitt, S. A. (1917). Memorandum on commercial libraries. *Library Association Record,* 175–8.

Poulton, E. B. (1915). *Science and the Great War.* Oxford: Clarendon Press.

Rowland, P. (1975). *Lloyd George.* London: Barrie and Jenkins.

Sanderson, M. (1994). *The missing stratum: Technical schools in England 1900–1990s.* London and Atlantic Highlands, NJ: Athlone Press.

Savage, E. A. (1909). The representation of science and technology in public libraries. *Library World, 12*(1–4), 46–48.

Savage, E. A. (1918). Memorandum on the future work of the [Library Association's] Technical and Commercial Libraries Committee. *Library Association Record,* 219–22.

Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organisation.* New York: Doubleday Currency.

Shaw, G. T. (1917). The Liverpool Commercial Library. *Library Association Record,* 313–315.

Sherrington, G. (1981). *English education, social change and war 1911–1920.* Manchester: Manchester University Press.

Swenarton, M. (1981). *Homes fit for heroes: The politics and architecture of early state housing in Britain.* London: Heinemann Educational.

White, S. (1975). Ideological hegemony and political control: The sociology of anti-Bolshevism in Britain 1918–1920. *Scottish Labour History Society Journal, 9,* 3–20.

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