

# MI5, 1909–1945: an information management perspective

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## Abstract.

The late-Victorian and Edwardian revolution in information management offers a meaningful lens through which to observe the activities of MI5, Britain's leading counter-intelligence agency. Established in 1909, MI5 was immediately faced with the huge task of organising the mass of disparate information which its investigations generated. In response to problems thrown up by both the period of international tension which preceded the First World War and the war itself, MI5 developed a relatively efficient, labour-intensive information management infrastructure. The cashing in of the peace dividend after 1918, despite ongoing issues of security arising from the Communist 'threat', resulted in a deterioration of information management in MI5 in the inter-war years and the virtual collapse of the organisation's information system at the start of the Second World War. This presented opportunities for renewal along more mechanised lines, as well as by means of a tightening of existing manual methods. By 1945, MI5's information management efficiency had been largely restored. The history of information systems in MI5 between 1909 and 1945, as revealed in recently declassified documents in the Public Record Office, adds to the evidence that the formal recognition of the value of information management in organisations occurred well before the onset of the computer age. However, the efficiency of the systems which evolved in MI5's formative years, although impressive in many respects, was undermined in the long term, it is suggested, by an inward-looking culture which manifested itself in a reluctance, especially between the wars, to look outside the organisation to contemporary practice in business and in library science.

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## Introduction

The surveillance activities of Britain's intelligence services are legendary. The power of agencies like MI5 [55] to infiltrate organisations and public forums, monitor the lives of individuals and spread disinformation is popularly acknowledged. Notwithstanding some well-publicised revelations and rumours in recent years concerning the failure to detect spies 'within' and the misguided tracking of seemingly innocent individuals, the intelligence services retain a reputation for being not just omnipresent but also omniscient. Whatever their shortcomings, the intelligence-gathering agencies have been presumed to be technically proficient, most obviously in terms of the gadgetry and technologies of surveillance but also in the techniques and systems required to manage vast amounts of disparate information. In 1953, for example, such was the recognition in the popular mind of the capacity of the intelligence services for processing information that the busy reference department of one large public library was described as having become the town's 'MI5 clearing house' [1]. However, as this study shows, expertise in information management has not in the past been a constant feature of intelligence service operations. An examination of the mysterious world of one intelligence agency, MI5, from the standpoint of information management in the pre-computer age reveals a record of relative competency in the development of manual information management systems, but one which is blotted at times by lost opportunities and poor planning for information innovation.

## War, national security and the information society

The growing importance of intelligence in warfare and in the pursuit of State security has placed an increasing premium on the development of sophisticated information systems which gather appropriate data and organise and process them for effective information retrieval.

The existence of such systems lends weight to the argument that developed nations have entered a new age, often referred to as the information society. The rapid progress in microelectronics and information technology, and in the information industries generally, has been a huge factor in providing for national defence and State surveillance [2, pp. 26–30; 3, pp. 27–29]. This, in turn, has helped to stimulate applications in the civil sphere, inflating the perception of a society which is information-led [4]. However, the notion of an information society, fundamentally different from the industrial capitalist society of the past two centuries, has not gone unchallenged [5]. Critics view the claims of information society enthusiasts as shallow, unrealistic and premature. They do not deny the importance of information and communication technologies in recent history, but stress that their influences do not constitute a social revolution. Rather, they are part of an evolutionary process in which information has been a major, ongoing factor in the changing complexion of modernity [6, 7].

Adopting an evolutionary perspective in respect of the interaction of information with society admits a conceptualisation of past, or historic, information societies or at least societies in which information systems and sources – from libraries and books to conscription registers and marketing and production data in firms – have played an identifiable and important role in human affairs [8, 9]. This perspective has been subscribed to by at least one commentator on the emergent information professions, who states that: ‘In reality, information management is at least two thousand years old, and has been masquerading under the name “military intelligence”’ [10, p. 21]. Indeed, it has long been known that timely and accurate intelligence can act as an important ‘force multiplier’ [11, p. 32]. Similarly, but adopting a more recent timeframe, the intelligence historian Richard Aldrich [12, p. 1] argues that the ‘Information Revolution’, like the ‘Industrial Revolution’ before it, has impacted profoundly on both the security of States and the conduct of war; enhanced intelligence being at a premium in the context of countering the 20th-century phenomenon of the devastating surprise attack facilitated by the increased mobility and manoeuvrability of armed forces. Aldrich does not specify at what stage in the 20th century the information revolution supposedly occurred. Rather, in observing advances in methods of intelligence gathering, his inference is that the information revolution proceeded gradually as the century progressed.

## The origins of information management

Although sympathising with this view, we would go further. Our assessment is that the revolution in information techniques and technologies occurred before the 20th century and certainly much earlier than the application of computer technologies since the Second World War. Similarly, we would argue that whereas information management – the rational organisation of information within organisations – as a discipline is relatively new, it has a long history as an activity occurring within modern organisations [13]. The systematic collection, processing and dissemination of information in organisations is a central characteristic of modernity.

However, despite its pervasive nature as an activity within modern bureaucracy, especially since the middle of the nineteenth century, the history of information management has rarely been regarded as a subject worthy of sustained investigation. Yet a considerable amount of evidence points to a significant development of manual information technologies in the century or so before the age of the computer, whether this was in the context of the State [14], the large-scale business enterprise [15] or cultural agencies such as libraries [16, pp. 220–224], including their cataloguing systems [17]. Although the existence of information systems can be traced back to antiquity, in a sophisticated form, information systems are commensurate with the development of the *modern* organisation, especially after about 1850, when the scale of organisations and units of operation, including a State agency like MI5, became so large as to warrant the introduction of systematic, planned information management [18]. Relatively complex, dedicated information systems emerged in the context of the revolution in State administration and the rise of the large-scale business enterprise. Information was especially important to the emergence of the large corporation at the end of the nineteenth century. Internal information flow was hastened by a new ideology of administrative ‘system’ [19]. As industrial capitalism matured, the ‘invisible hand’ of market forces was gradually replaced by the ‘visible hand’ of corporate planning, including the information management systems required to support it [20]. Stimulated to a large degree by the emergence of the large firm, late-Victorian and Edwardian advances in information processing were characterised by the transformation of internal communication from ‘word of mouth’ to the ‘papered office’. This manifested itself in the appearance of a series of new *technologies*, such as typewriters, stencil duplicators, vertical files and

telephones. The revolution also entailed the use of new *techniques* designed to enhance communication: standardised forms, reports, staff manuals, memos, management meetings, display graphs and staff magazines.

### MI5: the early years and founding principles

The late-Victorian and Edwardian revolution in manual information technologies and systems offers an interesting lens through which to spy the early history of MI5, Britain's 'premier counter-intelligence organisation' [21, p. 11]. The centrality of information management to military intelligence was as true in the era of manual records as it is now, in the age of the computer. Evidence to support this claim is now available. An extensive collection of recently declassified records in the Public Record Office relating to the early history of MI5, between 1909 and 1945, offers historians of national security, international relations and radical political movements intriguing and valuable new material. The collection also provides evidence for historians of administrative and information systems.

Although historians have disclosed isolated aspects of informational activity in the course of addressing wider issues in secret service history, the history of information management in the secret service – the way records have been organised according to rational, planned systems of registration, filing and indexing (the terms 'index' and 'file' are frequently used imprecisely and interchangeably in the archival sources we have consulted) – has not been analysed as a subject in its own right. Yet this particular dimension of organisational management has been central to the operation of the 20th-century secret service. In the context of military affairs and State security, intelligence is an activity which has to perform three functions: 'Information has to be acquired; it has to be analysed and interpreted; and it has to be put into the hands of those who can use it' [22, p. 3]. Intelligence may be defined as 'up-to-date information about the enemy that has been processed and distilled by experts from the mass of raw data received' [11, p. 1]. It is to be observed, therefore, that any intelligence operation is dependent on the management of information (an activity similar to 'data processing', a term which was not to feature visibly, however, in the vocabulary of MI5's organisational arrangements until after the Second World War) [23, p. x]. For much of its history, MI5 undertook information management not with the assistance of computers but by means of manual information technology (as late as the mid-1970s, card indexes were still being used to

record data from surveillance in Northern Ireland [24, pp. 292–293]). MI5's own information revolution began decades before the advent of the computer. This is the story of that revolution and the problems that accompanied it.

The roots of MI5 are located in the late nineteenth century, but the organisation was not formally constituted as a discrete department, under the leadership of Captain Vernon Kell and within the jurisdiction of the War Office, until 1909 (between 1909 and 1916, it was known as MO5). Considering the tasks it was asked to perform – namely, counter-espionage, -sabotage and -subversion, across the Empire and at home – MI5's original staff establishment was woefully inadequate. On the outbreak of war in August 1914, the Bureau's HQ staff comprised twelve officers and civilian officials, four clerks (all women) and three police officers. The war naturally brought a rapid expansion in numbers, so that by the Armistice some 84 officers and civilian officials, 306 clerks (just fifteen of them men), 23 police officers and 77 'subordinate' staff were employed [25, p. 66]. However, despite this substantial increase, MI5 remained understaffed relative to its responsibilities, thereby emphasising the importance of constructing efficient information management systems to deal with the flood of data which at times threatened to overwhelm the Bureau.

The administrative heart of MI5 was what came to be known early in the war as the Bureau's 'H' Branch, created in October 1913 in the shape of an officer given the specific job of supervising the custody and filing of documents. The key element in MI5's information structure was not the methods used by branches to gather data but the role played by 'H' Branch to render them useable. The nerve centre of 'H' Branch was its Registry – 'the main weapon in MI5's arsenal' [21, p. 140] – to which all MI5's branches and personnel referred for information and documents. Data held by the Registry grew at an astonishing rate, even before hostilities commenced in August 1914. By October 1912, for example, regular reports on alien 'arrivals' and 'departures' sent by Police Chief Constables had generated information on 391 individuals, but, by July 1913, over 29,000 aliens had been documented (around 11,000 of these being Austrian or German) [26]. Clearly, storage, organisation and analysis of documentation on this scale called for serious consideration of information management techniques and principles. An internal MI5 report explained that the general principle underpinning all intelligence work, 'and indeed every sort of office work', was that 'whenever practicable, action should be based on a knowledge of all the

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available facts, a knowledge which is to be obtained by consulting all relevant documents in the Bureau's possession' [27]. To be retrieved, documents had first to be organised scientifically. It was necessary, therefore, 'not only that every document received should be serially numbered, recorded and filed in such a manner as to be easily found, but also that all Names, Places, and Subjects mentioned in the documents should be minutely indexed in order to enable new information to be readily linked up with that already recorded' [28]. Investigations often depended on 'the tracing of a connection between isolated scraps of information', often 'meagre and of doubtful authenticity' [27].

### The First World War

The flow of huge amounts of information into MI5 resulted in the development of systematic storage and some type of 'inversion' system – in auxiliary indexes, for example – to provide access to materials alternative to the principal *physical* filing order [29]. Two distinct uses for the information were identified: categorised as 'passive' and 'active'. 'Passive' related to the category of suspect aliens who might prove dangerous in the run up to, or during, a war and who might be arrested on the outbreak of hostilities. Emphasis was thus placed on the observation of individuals' activities and the accumulation of personal data. 'Active' related to espionage on known spies and suspects, the dissemination of misinformation and the purchase of foreign information.

The information gathered was focused principally on suspect aliens who might prove harmful in any conflict and who might be targets for arrest and/or counter-espionage operations. To enable its effective use, it was organised into a series of linked files: personal, official, subject, etc. These were supported by a number of card indexes: general, temporary and transit [27]. The establishment of a register of aliens from 1910 onwards was based on the organisation principle that a single file was opened for an individual and that all relevant papers, along with extracts of others located in other files, would be held in it: 'The rule . . . [was] that papers are filed whenever possible in a Personal file' [27]. The collapse of the Registry in the early days of the Second World War (more about this later) may well be attributed to the breaking of this rule by diminishing the numbers of the individual files and use of subject files instead.

If a document could not be placed in an individual's file, the location would be in one of the official files, i.e. those relating to government bodies or police units

which were the original sources of the documents. These, as stated, related to the 'place card index' and might be inferred to have been in some geographical order, as opposed to corporate name order. Should neither personal nor corporate name provide appropriate filing locations, the document would be placed in a subject file: a category regarded as the least important of the records kept. The fact that the subject files eventually came to be favoured above personal files is telling. It points to a reduction in the status of the Registry, reflected in the reluctance to invest appropriate resources after 1918. The material held in these files seems to have been viewed as a source of 'cases', but it is not clear precisely what these cases were. It is possible that they were used simply to be illustrative of methods, processes and procedures used by spies and to give 'proof that such and such a method *either* has been *or else* could perfectly well be used by enemy agents' [30]. It is hard to see how such information would be used, compared with the indexing of information about an individual spy (something which would facilitate prosecution): one possibility is that 'cases' were needed in order to develop counter-intelligence operations to be launched against those spies. It is also difficult to speculate on the forms of headings, although one officer, in his observations on the Bureau's indexing procedures, hints at some likely forms [30].

There appear to have been additional auxiliary devices, alternative to the primary methods of organisation and retrieval related above, designed to provide routes to the information. Records were so arranged, it was stated in one report, 'that particulars regarding the association of any of the names with other given names, places or subjects could be quickly traced when required in connection with any enquiry' [26]. The auxiliary devices included the correspondence ledger, a general card index (possibly an inversion of personal names and corporate names), a subject card index, a temporary card index and a transit card index. As may be seen below, it is this last device which seems to have broken down under the pressures of information overload between 1938 and 1940, resulting in 'lost' or 'hidden' files resident in officers' rooms, awaiting use and thus unavailable to others. It may well be that this gave rise to an *ad hoc* remedy: staff known as 'snaggers' were eventually appointed to search 'for files wanted before other files and papers could be released' [31, p. 372].

It should be remembered that, in the days of paper, technology considerations of economics and the bulking of files influenced the design and character of retrieval devices. Such considerations would have been

in the minds of those organising the information systems in MI5. A memorandum by one officer refers to the problems of coping with vast amounts of information from which it was difficult to extract the useful elements [30]. The document contains suggestions for improving the indexing of the information held and states that a more systematic approach was required if the information system was to function efficiently in the future. It also contains handwritten annotations referring to indexing practice followed in *Encyclopaedia Britannica* and in the London Library. Stress in the document is laid on the need to establish the 'corporate memory', which would outlive the staff of MI5 and their methods of operation. In brief, the critique outlines the weaknesses in the old subject index as being not entirely systematic and being liable to failure because of the large amounts of detail contained therein. Consequently, the subject index had been employed very little in the war in preparing 'historical reports'. A number of suggestions are made, including the use of improved indexing (i.e. to minute detail) to a small number of really useful 'cases', the use of the 'Black list' as a basis of a controlling vocabulary for the subject index, an analysis of the main 'dividing lines' to be followed in dealing with relevant subjects and the adoption of precise classification. The limited extent to which these recommendations were adopted may be seen in the slowing of development in MI5's information machine between the wars and the unhappy experiences of the organisation during the international crisis of the late 1930s.

## Between the wars

During the First World War, MI5 became a relatively efficient information management system. This was evident not only at the level of indexing but also in terms of the bureaucratic organisation of the Bureau, procedures and duties being laid down in detailed documentation [32]. However, efficiency was too dependent on the personal knowledge and expertise of MI5's officers and operators. Any intentions to establish a corporate memory to reduce dependence on those who had developed the system soon fell by the wayside. After the war, the peace dividend was cashed in and development of MI5's information system slowed abruptly. Importantly, contemporary and continuing technological innovations in the handling of information appear not to have been investigated. Punch-card systems, e.g. Powers-Samas machines, which appeared in 1913 and which by 1924 could handle alphabetic as

well as numerical data [33, p. 1137], were clearly of potential benefit to MI5, but were not exploited by the organisation until the Second World War.

The reduction and reorganisation of MI5's information machine commenced almost as soon as the Armistice was signed. Officers were charged with writing card summaries of the more bulky and complicated files and with the weeding out of documents 'that had yielded worthless results' [34, Section 13]. It was also decided to write up the history of the different branches of MI5 from the inception of the Bureau in 1909, a task facilitated by the Bureau's possession of its own press (it is these documents which formed the basis of the collection of declassified papers covering the period 1909–1919) [34, Section 15]. It is possible that one of the aims of compiling these historical reports was to help to enhance the organisation's reputation and deflect criticism which might lead to loss of status resources. On the other hand, the exercise plainly offered the opportunity for an objective and meaningful reflection on mistakes made and difficulties encountered. This certainly appears to have been the case in respect of 'H' Branch and its Registry, the performance of which was assessed in detail in the form of guidance, or 'notes and lessons', offered for the future – advice which matched closely contemporary information management practice in large firms. Firstly, to facilitate the flow of information through the organisation, it was advised that memoranda should be circulated as regularly as possible, showing lists of personnel, composition of branches and any reorganisation in administrative structure, and that a staff magazine, or 'office gazette', be produced monthly. Secondly, an attempt should be made to record the details of administrative developments. Thirdly, every effort should be made, in the event of a future war, to appoint an adequate staff to manage informational tasks and to avoid overworking, or the 'breaking down', of 'important personages on the staff'. The warning was given that: 'The first few months after mobilisation, when the work expands in an unprecedented degree, are very liable to lead to disorganisation and chaos' [34, Section 16]. This plainly failed to foresee that difficulties would arise prior to mobilisation during the 'precautionary' period, a term used in relation to the accumulation of 'passive' information (see above).

The inter-war period saw a dramatic scaling down of MI5's information handling capacity, commensurate with the reduced intelligence-gathering operations the organisation now had to conduct, despite the perception of an ever-present threat of Communist subversion. The issue of duplication of information management in

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the security services also proved to be a continuing problem [35, p. 160]. MI5 faced competition from other security services, such as Basil Thompson's Directorate of Intelligence (at Scotland Yard) in the immediate post-war period and, throughout the 1920s and 1930s, the Foreign Office's Secret Intelligence Service (SIS), better known as MI6. The sharing of responsibility for intelligence and the lack of coordination between agencies inevitably impacted on the efficiency of information management, which is normally enhanced when systems tend towards standardised procedures.

By the early 1930s, the staff establishment numbered fewer than 25 officers, a total which included some secretarial staff empowered to carry out investigative duties [21, p. 47]. However, as the international crisis deepened in the late 1930s, capacity was gradually increased. MI5's share of the Secret Vote (from which it derived most of its funding, the remainder coming from the War Office) rose from £25,000 in 1935–1936 to £50,000 and £93,000 in 1938 and 1939–1940, respectively, while the number of employees increased from around 30 officers and 120 supporting staff in September 1938 to 83 officers and 253 supporting staff in September 1939. By January 1941, the establishment had ballooned to 234 officers and 676 (634 of these women) supporting staff [36, pp. 9, 69].

By the late 1930s, it was clear that war was to be resumed and the need to handle security information was going to increase. Problems with the information system were first indicated by the need to handle large numbers of travel permits. The demand overwhelmed the existing resources, in terms of both staffing and equipment. The large number of applications put pressure on existing documentation and files were not used or returned to central storage in an efficient manner. As emphasised below, because of the breakdown of the transit index, it became impossible to locate files and to process them and the information they contained effectively. This combination of circumstances led one source to describe the situation as one of 'utter hopelessness' [31, p. 372].

## The Second World War

Despite the difficulties created by an overlapping of responsibilities between intelligence agencies, as well as the belated increase in information handling staff, some have assessed the service provided by MI5 in the period before 1939 as adequate and, during the war itself, as outstanding [35, pp. 156, 160]. The rapid investment in MI5's information infrastructure between

1939 and 1941 illustrated that although the organisation may not have been fully prepared for war, there existed some level of acknowledgement of the potential depth of the crisis or, as one commentator has put it, an 'anxiety' for more and better intelligence was evident [37, p. 3]. In May 1940, Maurice Hankey, Minister without Portfolio, reported that there was no evidence to suggest that MI5 was approaching a point of crisis, observing in the process that the organisation had in fact achieved some success since the beginning of the war in detecting enemy activity [36, p. 41]. Nonetheless, Vernon Kell, head of MI5 since its inception in 1909, was sacked by Churchill that same month. Kell's reputation was derived largely from his sterling work in the First World War. His character had always commanded the trust and respect of his staff. However, his reign was essentially 'a peculiarly personal affair in the sense that this office [MI5] was built around his personality' [25, p. 135]. In the final analysis, this mode of managing MI5's information infrastructure was unsuited to the needs of the time, which, transparently, called for the development of an effective bureaucratic corporate memory rather than charismatic leadership and officer-based knowledge.

Hankey's report would have been of more immediate assistance had he emphasised the inadequacy of the staff in the various branches and in the Registry in particular [25, p. 135]. Nonetheless, as noted above, an increase in personnel did occur. However, rapid expansion in any organisation, and certainly at the speed and on the scale experienced by MI5 after 1939, is always liable to compromise efficiency, not least in respect of the problem of recruiting and training appropriate staff. Further, efficient information management in MI5 was compromised at the start of the war by the poor quality of staff holding senior positions. The low salaries paid to MI5 officers meant that recruitment was restricted to individuals of independent means [36, p. 10]. Moreover, there was a reluctance to tap into talent in the universities, because of the fear that university minds were more susceptible than most to Bolshevik contagion [38, p. 9]. These factors considerably narrowed the range of talent available for recruitment. Yet, as one historian reminds us – in a way which evokes the skills required of the modern information manager – like any other profession, 'intelligence undoubtedly requires all its good practitioners . . . to combine an imaginative streak for culling information with a careful analytical mind in order to evaluate it coolly and with objectivity' [35, p. 162]. This message was eventually taken on board. From the late 1930s, and increasingly after 1939, high-calibre individuals from the professions and the

universities began to be recruited by MI5: in 1940, six judges were recruited, as well as barristers, solicitors, law academics and historians [39, p. 459]. The war was, after all, in many respects as much an intellectual as a military effort. It was a conflict in which not only scientists and engineers, plainly, but also economists, psychologists, sociologists and professionals of all kinds made telling contributions [40]. This said, the sudden injection into MI5 of a large number of 'knowledge professionals' came too late to avert the crisis which befell it early in the war.

Inadequate skills, knowledge and experience among staff was compounded by the heightening flood of data coming into the organisation. For example, the pile of files of reports received in 1940 and 1941 about secret signalling was said to have reached a height of five feet, while reports of suspect markings on telegraph poles filled sixteen files alone [36, p. 66]. As the intelligence expert Nigel West has commented, 'files stored every kind of information, from cocktail party gossip to the more solid intelligence accumulated in the period since the Great War' [21, p. 140]. Given the scale of the information overload afflicting MI5 early in the war, it is hardly surprising that, in December 1940, Churchill was informed that MI5 was on the verge of collapse. As a result, an immediate enquiry was ordered, under the direction of Sir David Petrie, a former officer in the Indian police and, from March 1941, the director general of MI5 [36, p. 69]. Petrie reiterated the gravity of the crisis, especially in respect of training and general organisation.

The crisis was also confirmed retrospectively by an internal report written in 1946 by J.C. Curry [31], who had been appointed head of research in MI5 early in the war. Having reviewed documentation and interviewed key players in MI5's wartime activity, Curry related, in the course of a handful of highly revealing pages in his report [31, pp. 370–372], that, by June 1940, 'the organisation of the service had all but broken down'. At that time, it was recognised that, while the reorganisation and redistribution of the work of officers was important to a rehabilitation of the Bureau, 'the provision of an efficient Registry was the first and most urgent need if a complete breakdown were to be averted'. It was considered 'axiomatic that efficient intelligence work depends primarily on good records', yet, despite this generally understood principle, 'the Registry had been allowed to lapse into a lamentable position'. Curry noted officers' 'absence of directives to, or interest in the work of, the Registry', as well as an 'absence of accord and harmonious working between the Registry and the remainder of the Office'. Recognition was given

to 'the necessity to weld the Service, officers and Registry alike, into a co-operative whole, helping each other for the common cause'. The report was also critical of the way in which the Registry's work was arranged on a sectional basis: 'Each section did all the Registry action on its own files, hence wide differences in procedure developed', thereby divesting officers 'of all responsibility regarding records': a system which Curry described as a 'scramble'.

It was reported that the central index 'had been allowed to lapse into a lamentable state', a degeneration which was listed in detail: 'a) cards were misplaced; b) there were practically no guide cards [41]; c) the cabinets were overfull; d) there was duplication of cards; e) unnecessary carding abounded; and f) new cards were not filed at once'. Curry further found that:

The basic system of filing was inefficient and inelastic. While a diminishing number of individual files were made, the records of those individuals on which interest centred (Aliens, Right and Left Wingers) were filed on a subject basis (i.e. Communists in Northumberland). The effect was that to obtain complete information regarding an individual several files were needed, many of which were required by other officers for other individuals. So few obtained the files they needed and officers' rooms were stacked with unanswered correspondence and with files all awaiting other files which could not be obtained. Personal files were classified in series, this being a quite unnecessary complication in the process of file making.

Crucially, it was discovered that there had been no control of the transit of files. The fact that officers held onto files and deprived others of their use indicates the complete failure of the transit card index [42]. Finally, beyond these organisational failings, efficiency was undermined by both poor accommodation and the fact that the 'head of the Registry had insufficient status' relative to the crucial importance of his unit of operation to the Bureau as a whole.

While it might be speculated that the breakdown in the Registry could have been precipitated by any particular demand consequent to the outbreak of war, it seems that the need for the issue of travel permits was an important factor in overwhelming the Registry, contributing greatly to the chaos which resulted from other causes. The small peacetime complement of Registry staff had resorted to diluting the existing system to cope with the rapidly increasing volume of work from 1936 onwards, by creating a very large number of 'omnibus' files 'in preference to a far larger number of subject files or personal files for individuals' [25, p. 132]. Early in the war, there were only around half a dozen officers with any knowledge of the work or

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the 'traces' (additional index entries which allowed alternative approaches to them, referred to in cataloguing terminology as 'tracings' in the main entry or in the shelf list registers). Thus, large bundles of files frequently accumulated in many of the sections and work slowed by demands for files in those accumulated bundles by other sections. A further effect of this congestion was that 'the Registry staff were unable to obtain the files in order to put papers away in them and consequently masses of unfiled papers accumulated in the Registry' [25, p. 132].

The reorganisation of MI5's information machine – what might be referred to in the vocabulary of information systems today as an exercise in 'business process re-engineering' – commenced in the summer of 1940. In July 1940, Reginald Horrocks, a specialist in business methods and organisation, was recruited from Roneo as deputy director of MI5, his main task being the restoration of the Registry's fluency and authority [36, p. 67; 23, p. 18]. Horrocks 'proceeded to take immediate steps to remedy the situation in the Registry for which purpose he was able to obtain Treasury sanction to an immediate increase of Registry staff bringing the total up to nearly 400' [25, p. 146], a development which vindicated the earlier advocacy of the chief clerk, Miss Paton-Smith [25, p. 133], the ex-store detective, 'who guarded the secrets of the massive card-index with jealous enthusiasm' [21, p. 140]. Furthermore, increased staffing was complemented (for much of the work remained labour-intensive) by the introduction of punch-card sorting technology. This was an important but, it has to be said, belated innovation. Such technology had been in operation in the inter-war commercial sphere for some time. It had even found its way into the world of culture. By the mid-1930s, for example, a number of public libraries in the USA were using punch-card machines for their internal information management [43, p. 132]. The appointment of an authentic information manager at the level of deputy director, aware of recent developments in the wider information world, not least in respect of the technologies and systems offered by the corporation he had recently left [44], signalled an acceptance of the indispensable contribution which formal information management principles and practice could make to MI5. To an extent, this new recognition manifested itself empirically in the fact that, by the end of the war, one-third of MI5's staff were assigned to duties in the Bureau's Registry [23, p. 18].

The recruitment of large increases in untrained staff made it necessary to change the system which had been in force since the Great War and to adopt a system

'which simplified the processes in the Registry' [25, p. 147]. The change rejected the accumulation of specialised knowledge by individual officers and instituted greater control of procedures by the Registry. This was not well received by some, 'who had acquired knowledge as a result of application and industry [and who] had worked the old system efficiently' [25, p. 147]. Horrocks held it necessary to introduce changes which reduced the work to 'a number of simple processes' [25, p. 147]. In so doing, it was reported, he 'brought about a great improvement in the mechanics of the Office and gradually introduced order where there had been disorder and confusion' [25, p. 149]. Thus, the system 'which had been recognised as a factor contributing to the success of the whole organisation in the war of 1914–1918 and had afterwards been maintained to the general advantage in spite of inadequate numbers' [25, p. 149] was swiftly discarded, greater resources allowing the improved tracking of files, the construction of a more detailed and efficient central index and an increased production of files containing the necessary duplicated information. Importantly, the practice of assembling unwieldy subject and omnibus files, where information appears to have been dumped haphazardly, was modified: 'Tags [i.e. treasury clips] were cut and the files housed in boxes. This enabled papers relative to any one individual [a single numerical numbering series was adopted for personal files] to be circulated without immobilising those of others. From this stage the knot began to untie' [31, p. 373].

For reasons of security, it was deemed necessary to produce a duplicate central index for the Registry, on film. Before the war, this idea had been rejected on grounds of cost. However, the danger of destruction by enemy action forced the issue and a duplicate index based largely on photographic prints (of variable quality in the final event) of the original documents was initiated. In late 1940, again for reasons of security but also to avoid interruptions to the work caused by air raids, the Registry, with duplicate index in tow, was evacuated to the country (Blenheim Palace), although not before a German bomb had destroyed a small amount of the original archive (not the entire archive as rumoured) housed in Wormwood Scrubbs prison in West London [21, pp. 140–143; 25, p. 373]. Using the photographic prints of the original documents, the entire index was retyped and the opportunity taken to amalgamate files, eliminate unnecessary cards (about 750,000 were discarded) and regroup the index on a phonetic basis [45]. This work was not completed until March 1944, by which time the cards in the index numbered 1,250,000 [31, pp. 373–374].

A certain amount of confusion continued during the war, concerning the individual or shared responsibility that the various intelligence agencies felt they had for recording information. The idea that there should be a single agency, i.e. MI5, responsible for all counter-intelligence data – that all ‘counter-espionage should be recorded, carded and indexed by one Registry’ [31, p. 402] – was firmly rejected, not least by the SIS (MI6), which was responsible, among other things, for counter-intelligence *outside* the Empire and which viewed with disdain the proposition that it should become a mere provider of information to its sister organisation in this particular field [36, p. 133]. Additional confusion appears to have been created by the establishment in 1942 of a separate War Room Registry for handling top-secret dossiers. Criticism of this Registry’s performance began to be heard towards the end of 1943 and so, in February 1944, it too was evacuated to the country, under the control of the main MI5 Registry [25, p. 375; 36, p. 180]. From an immediate operational perspective, a proliferation of databases no doubt made some sense to those involved in managing the various organisations. However, in terms of effective information management, there were clearly issues concerning wasteful duplication and poor access to (i.e. sharing of) data to which too little attention appears to have been paid at the time.

Yet another index, although one which was to achieve a good level of efficiency and served as an example of best practice, was set up in 1942 by the London Reception Centre (LRC), which had been opened to handle large numbers of alien refugees flooding into Britain from occupied Europe [46, pp. 199–204]. It was necessary to check their *bona fides* to ensure that enemy agents were not slipping in under cover of the influx. At first, record keeping was scant and haphazard, but an elaborate information system was gradually established which was well equipped with the necessary indexing to ensure satisfactory access to the information it held. During 1940–1941, a records system known as the Information Index, which differed in scope and purpose from any other index used in the security service, including MI5’s Registry, was developed. The flood of refugees from occupied Europe was dealt with in LRC from January 1941. No records were available at the start to establish the authenticity of refugees and the pressure put on staff meant that only cursory interrogation was possible. Hence, only brief and unsystematic records were made on each case. When it became clear that the Germans would be using the flood to disguise insertion of agents, steps were taken in autumn 1941 to reorganise the staff of the LRC and establish a system of records

which would make it easier to distinguish friend from foe. The Information Index came to contain details regarding methods and routes used by enemy agents or members of allied resistance movements, together with a great variety of other relevant details obtained from hundreds of incoming travellers. The Information Index was said to have facilitated the uncovering of suspects by virtue of its comprehensive nature: ‘An outstanding feature of it was that – unlike the Central Registry or other counter-espionage Registries – it carded the “sheep” as well as the “goats”, the object being to compile information about individuals and organisations on the Allied side, because this information was necessary to enable the interrogating officer to recognise a friendly arrival and distinguish him from a suspect or an enemy’.

The Information Index eventually contained some 100,000 cards and was in two distinct parts: a name index, which gave all the available details about an individual’s description, addresses, occupation and history, and a geographical index, which was subdivided for addresses, town cards and subjects. The subjects carded included an immense number of details, including ‘pro-allied organisations or resistance movements, escape routes, pro-German organisations, youth organisations, political parties, enemy or other intelligence services, the police and other authorities . . . welfare organisations, prisons and concentration camps, the press . . . boats used by enemy intelligence, [and] firms (if used as cover for enemy intelligence)’. Other sources of information were used in its compilation, including the SIS (MI6) Registry (useful because it indexed names and addresses on the Continent), the War Room Registry (because this index contained fairly comprehensive records of German secret service personnel and other agents) and indexes held by the Special Operations Executive.

The Information Index of the LRC made it profitable to look up such vague indications as Christian names or an unnumbered address in a particular street (in effect, an application of the keyword approach). The Index included information specifically useful to LRC operations, e.g. ‘plans and routes about prison camps from which a suspect . . . might pretend to have escaped’. It was reported that: ‘The outstanding importance of the Information Index arose from the fact that it made all this information readily accessible; and the skill, care and thought with which it was compiled was a remarkable achievement’. The very minute and eclectic information gathered purposefully by the LRC for its Information Index proved highly effective – a fact which perhaps indicates that it developed with the benefit of received wisdom in the creation of indexes

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elsewhere, including the more enlightened circumstances which came about in the wake of the virtual failure of MI5's Registry in 1940.

### Discussion

Just as State and commercial bureaucracies of the late-Victorian and Edwardian period began to give formal recognition to information, including rationally planned information management, as a key function of organisational efficiency, so also the establishment of MI5 in the period of international tension before the First World War marked a 'transition from the informal to the more organised pursuit of security' [36, p. 3] – a transition which was characterised by the introduction of relatively sophisticated information systems for the production of intelligence. As Vernon Kell, MI5's first director, told Ministers in 1920: 'Counter-espionage is no longer a question of steaming open a letter and reading the contents' (quoted in [39, p. 233]).

The practice of information management in organisations pre-dates, by a century or more, its emergence, in the last quarter of the 20th century, as a formal professional-academic discipline. Managers and clerical operatives in large-scale bureaucracies before the age of the computer may not have answered, respectively, to the descriptions 'information professional' and 'information handler', yet this is not to say that they were not engaging in information management practices. The history of the development of (mostly manual) information systems and activity in MI5 in the first half of the 20th century supports the proposition that information management, like the emergence of an information society itself, commands a long tradition, reaching beyond the age of the computer and deep into the industrial era.

However, no matter how sophisticated, in relative terms, information management in early MI5 might be seen to have been, it should not to be assumed that problems did not arise or that mistakes were avoided. One of the guiding information management principles recognised by MI5 early in its history was the need for systems to be continuously monitored and periodically updated, in the context of demands and potential demands made on the intelligence service: 'In the system of registration, filing and indexing used by the Bureau, as in all such systems, the methods must be planned to allow for indefinite expansion, and there must be perpetual watching to see whether any part of the plan has been out grown or has become in any way unworkable' [27]. Yet, in both 1914 and 1939, this

principle was breached. As the author of the official, internal history of MI5 concluded in 1946, 'the problem of dealing with the flood of paper which has accompanied the outbreak of both wars ... materially contributed in both cases to an early breakdown of the organisation' [47]. The foremost lesson for the future, MI5's Director General remarked in reply, 'is the risk of the Registry being swamped on the outbreak of the next war with a flood of references, demands for look-ups, etc., quite beyond its capacity to handle' [48]. The notion that 'effective counter-espionage is far less easy to achieve in time of peace' [25, p. 401] was ignored in the periods of international tension preceding both 1914 and 1939, when adequate preparation of an information infrastructure would have paid dividends once hostilities commenced. By 1945, however, there appears to have emerged an understanding that innovation in information management, not least in terms of an ongoing commitment to the 'more mechanical structure of the Registry', must not be slowed and that MI5 should conform 'with the requirements of this Age of Scientific' [25, p. 401].

The information systems which evolved in MI5 in its early decades were, in many respects, impressive. This was clearly the case with regard to the emphasis placed in the First World War on the production of files on individuals and the reinstatement of this approach in preference to the production of omnibus files following the reorganisation commencing in the summer of 1940, which established once and for all the value of the corporate memory. MI5's information machine during the period under consideration was not problem-free. Systems were undermined, it might be suggested, by an inward-looking culture which appeared to take too little account of contemporaneous developments and innovation in the worlds of business and library science. Regarding MI5's apparent failure to make use of expertise and knowledge in the library field, it is hard, of course, to prove that Registry managers took no account of indexing and information management theory and practice in the wider world. It may simply be that no documentary evidence exists to confirm such a claim. However, comparing the knowledge that was available at the time with the nature and performance of MI5's information systems demonstrates that there was a large gap between best practice in the information management field and actual practice in the organisation. A great deal of potentially useful knowledge was available at the time: firstly, the conventional library (both public and academic) methods in cataloguing and classification and, secondly, some gradually emerging special library techniques.

The conventional method encompassed descriptive cataloguing, including the control of the forms of both personal and corporate names by means of codes such as the Anglo-American Cataloguing Rules (1908) and that employed by the British Museum's Department of Printed Books (BMDPB). There was also the use of alphabetical and classified access for subject retrieval. While the latter was the more usual approach in the UK, there were many examples of the use of the alphabetic approach, including, for instance, the subject index of the BMDPB [49, p. 35]. While classification was the preferred headings system in British libraries, the general schemes (Dewey Decimal Classification and Library of Congress classification) would not have provided satisfactory levels of detail for the work of the Registry. However, Universal Decimal Classification (UDC) was making its mark for the control of papers, articles and other publications in learned societies and professional bodies: this scheme, devised originally for indexing (as opposed to shelving) purposes, might have offered possibilities. Further, Sayers [50, p. 134] identified a number of examples, including the Science Library Subject-Matter Index and the index created at Imperial College Library, which would have been readily available for inspection.

As for lessons which might have been learned in the special libraries field, in 1940, Thornton [51, p. vii] observed that: 'Special libraries have been seriously neglected by the profession, and literature on certain aspects of their work is scarce or non-existent'. Notwithstanding the existence of such readily available information as that on UDC given by Sayers [50, p. 134], it must be acknowledged that it would have taken some energy to obtain appropriate guidance in the use of special library techniques. However, the fact remains that guidance was available, not least in the form of the work, publications and consultancy service of the Association of Special Libraries and Information Bureaux (ASLIB), established in 1924. The same might be said, of course, of organisations like the School of Librarianship (University College, London), the Library Association and the information bureaux of the industrial research associations as sources of assistance in the traditional library field, but whether these would have occurred to the military mind is debatable. Thus, professional constituencies were available to provide knowledge of information management methods and although there is evidence to show that on at least one occasion MI5 staff were aware of this [30], that knowledge was not exploited, possibly due to the culture of insularity and self-sufficiency which understandably dominated the organisation.

It may be argued reasonably that we should not be too critical of the management of MI5 for not finding and applying library techniques to the Registry. Quite apart from the fact that the service was starved of resources after 1919, it is probably justifiable that the link between librarianship as publicly understood (it was hardly a profession with a reputation, in the public eye at least, for possessing a rigorous knowledge-base) and the indexing required for the work of counter-espionage and -insurgency would not have been made. In respect of the potential lessons to be learned from the world of business, and its use of automation in particular, there would appear to have been less of an excuse for ignoring, or resisting, external developments. Punch-card tabulating equipment first appeared in the late nineteenth century and, by the early 1930s, IBM had begun to lease alphabetical tabulating machines to government agencies and large companies [52, p. 80]. It is inconceivable that the existence of such technology, and its dissemination by a company as large as IBM (much larger than Powers-Samas, the company which sold and leased such machines in Britain) [33, p. 1137; 53, pp. 259–260], would not have been known to the management of MI5. Such was the adaptability of punch-card technology that mobile units – some 274 in total – travelled with American combat units during the Second World War for the preparation of casualty lists, personnel records and strength summaries [53, pp. 92–93]. Moreover, it is incredible to think that punch-card methods could have penetrated the relatively slow-moving world of libraries to record purchases, issues of books and membership [54], but not a government department as important as MI5. The failure to exploit such technology in the inter-war period, as well as to maintain and develop the system established in the First World War, very nearly resulted in the complete breakdown of information management in MI5 in the opening months of the Second World War, an experience which propelled the organisation's information infrastructure in a more mechanised and efficient direction.

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indicators of the different sections in the sequence to improve location of specific entries, e.g. alphabet, dates, countries. File-specific guide headings would include terms appropriate to the subjects organised by the file, making the searching of long, linear sequences more efficient.

- [42] The problems which can arise from not maintaining a transit index were vividly, yet tragically, demonstrated during one of the largest criminal investigations ever to have taken place in Britain: the hunt for the serial killer Peter Sutcliffe, the Yorkshire Ripper, in the north of England in the late 1970s and early 1980s. At one point in the investigation, police in Manchester provided their colleagues in West Yorkshire, who were leading the hunt, with a list of over 200 names of individuals who could have received in their wages a bank note found on one of the killer's victims. The list included Sutcliffe. However, when the list was checked against the manual files of suspects held in West Yorkshire, no match was found, as Sutcliffe's file was, at the time, absent from the sequence, being worked upon by detectives, no transit record having been made. Sutcliffe went on to murder again. Criticism of police record-keeping methods was later included in the official report into the investigation: West Yorkshire Metropolitan Police, *Report into the Investigation of the Series of Murders and Assaults on Women in the North of England between 1975 and 1980* (June 1983), p. 57.
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