Computer applications for archives in Britain : present problems and the way forward

by

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Although archivists in the UK began taking steps towards using computers for their work almost as early as did librarians[1], development of the work has proceeded in a cycle of progress and decline. At the moment, there are signs that we are emerging into another period of progress. There are new experiments and a new confidence and perhaps a more sober and realistic spirit than at first. The lack of any central direction or leadership, particularly one with some funds to dispose of, is much felt; and one should not ignore the fact that the vast majority of practising archivists take no active interest in these developments, and that when it comes to participation in a new system, indifference merges into hostility. This situation is paralleled in other professions, but nevertheless points to the need for a widespread user education project as a preliminary to any successful scheme for using automated methods for archival management, information control in archives or records management.

I

One of the reasons why early beginnings in archival computer applications have either proved abortive or have failed to gain acceptance outside strictly limited areas, is that there are as yet no specific agreed standards for the construction of archival finding aids. Standards for this were not needed in the days of manually constructed inventories and indexes. That they are needed now is the most widespread effect of the electronic revolution. There have been some partial attempts to construct a basic standard and terminology. Arad and Bell's article in *ADPA* (1978) began it (unfortunately this journal is not widely read in Britain)[2]. My own contribution consisted of a short section of a chapter on computer system requirements, once again, I fear, not widely read[3]. A third contribution, very recently made and still under discussion, is Joan Smith's paper given to a Specialist Repositories Group seminar in October 1981[4]. A rather more sustained effort, including a plan for user education, is urgently needed on this question. Standards for archival description suitable for mechanisation should not be inconsistent with standards for manual operation.

In thinking about the kind of system which will eventually be adopted by British archivists, we can already guess at some of its likely characteristics. It is clear that we will be looking for a free-text information storage and retrieval system. The variety of jobs which it will have to do suggests that it will have to be very flexible, and that it will not tolerate a rigid structure or fixed fields. On the other hand, much of the data which is to be managed is of a highly structured nature. The system will have to cope with two quite different kinds of descriptive material, the individual forms of which are very various. These two kinds may for the purpose of present discussion be called 'calendars' and 'inventories', though I am aware that these labels are not entirely adequate. 'Calendars' would include abstracts of documents with a highly formalised structure. Figure 1 contains a simple calendar entry for a medieval deed of title (such documents are to be met with very widely in Britain)

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Figure 1

Reference	Devon Record Office
Code	312M/TY3
Date	[early 12 century]
Title	*Grant in Free Alms*
Donor party	Gilbertus son of William de Linguire, on the day in which his mother became a recluse (reclausum intravit).
Donee party	To God and the Church of St Mary de Totenesio and monks there
Property	2 ferlongs at Cheulstune with 2 villeins (rusticis).
Conditions	He has placed his gift on the altar with his brothers' consent.
Witnesses	Textes Dominus Wido et Willelmus filius eius Mabilia uxor domini Widonis Radulfus capellanus domini Vnfredus presbyter Drogo miles domini Goscelinus presbyter Richardus capellanus monachorum Willelmus bechet Radulfus de Cheresburg Godwinus not et alii plures.
Physical	Pendant seal lost. Parchment. Latin.

Source : *Calendar of Totnes Priory Deeds*, Devon Record Office.

Other calendar-type entries, but much less formally structured, could include abstracts of letters and reports. Common to both these instances are a large, variable length, free text field (the basic description) with half a dozen peripheral fields some of whose content could well be delimited in the system, and automatically validated by it.

The second type of archival description, the 'inventory' consists of files containing large numbers of records set out linearly with a number of fixed fields, classically at least three (reference, descriptive title, dates).

An example is given in Figure 2.

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Figure 2

REQUISITION FOR WAR SERVICE

Ref		*Covering dates*
GM9/ 1	A series of box files, containing records relating mainly, (though not exclusively,) to the management of ships which were requisitioned for war service in the Second World War	1939 - 1945
	Completion reports on work carried out on Cunard ships in the USA together with covering correspondence between Cunard [New York] and Cunard [Liverpool]	1942 - 1945
	1a *Aquitania*	1942 - 1944
	1b *Brittannic, Franconia, Scythia Samaria*	1943 - 1944
	1c *Mauretania*	1942 - 1945
	1d *Queen Elizabeth*	1942 - 1945
	1e *Queen Mary*	1944
GM9/ 2	Documents relating to the Liner Requisition Scheme, which operated in the Second World War. The documents are grouped under the following:	1939 - 1945
	2a Heads of Arrangement; Voyage and Other Accounts, Auditors Certificates; Organisation Expenses	
	2b Rates of Hire Blue Book	
	2c Consultative Subcommittee; Accountants Subcommittee; British Liners Committee;	
	2d British Liners Committee; Accountants Subcommittee	
GM9/ 3	Correspondence relating to vessels on war service which were based on the Clyde	1942 - 1945
GM9/ 4	Correspondence relating to the operation of the Australasian trooping service	1940
GM9/ 5	Correspondence relating to the operation of of Cunard ships on war service. Most of the papers relate to personnel matters but some are concerned with maintenance of ships and the provision of stores	1940 - 1945
GM9/ 6	Documents relating to the work of the general manager's department grouped under the following headings:	1930 - c.1937
	6a Winter overhauls - 1934/1935	
	6b Laundry and bottling establishments	
	6c Liverpool cargo department	
	6d Sea Staff rates of pay	
	6e Pursers rates of pay	
	6f Engineers department Officers pay etc.	
	6g Marine Department, officers' pay, etc.	
	6h UK organisation expenses	

Source: University of Liverpool, Catalogue of The Archives of The Cunard Steam-Ship Company

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Here too, the central field is a variable-length free text one, and the peripheral fields may be formalized; but the final format of the output material will be different, and the relationship between records in the file will also differ.

There is also the question of level. Since they have their origin in administrative processes, and so always belong together in series, archives virtually always have to be described at two levels. I have attempted in my book to apply the terms 'macro-description' and 'micro-description' to these levels, which may be selected from a variety of possible levels in a way which will suit the situation(5). An illustration of two-level description is provided by an archives service which publishes a summary *Guide* to its contents, which contains a summary paragraph on each series (Fig. 3); and which also holds on its reference shelves a descriptive inventory of the contents of this series. Readers first use the *Guide* to decide whether or not a particular series is relevant to their search, and then the inventory, to identify particular documents and access them. Sometimes description is necessary at more levels than these two.

The complication of the two levels has been a difficult one to overcome. PROSPEC in the Public Record Office, for instance, sidestepped the problem by retaining series descriptions (administrative history narratives) in a separate manual subsystem(6). An additonal complication is that (traditionally at any rate) the physical treatment of these two levels of description has often been different : series descriptions are often produced for publication in a relatively prestigious format, whereas micro-descriptions are often kept in typescript for internal use. Both however are necessary, and one may perhaps repeat here that it is not usually desirable to set up descriptive systems for archives which treat individual documents or items as discrete objects. An important function of the macro-description (and of archival reference coding) is to preserve and explain the provenance and functional relationships of the archives.

The great variety between archival accumulations, a variety which extends from the nature of the materials themselves to the character of the archives service and its users, means that even in principle no single automated (or manual) system of descriptive methods is likely to be satisfactory in all cases. We should probably be aiming at a system which will allow all sorts of applications carried on by individual adaptations, independently but not mutually incompatible. If networking is eventually possible it will probably only be in sections of the industry which have strong common interests.

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Figure 3

HIGHWAY RECORDS

TURNPIKE TRUSTS

Turnpike Trusts were empowered by individual local Acts to build and maintain roads and to collect tolls from those using them. At the beginning of the nineteenth century there were thirteen such trusts operating in the country.[25] The Flint, Holywell, and Mostyn District Trusts, although administered separately, had the same clerk and trustees. Meetings were usually held on the same day at the Bell and Antelope Inn, later at the Royal and White Horse Hotel, in Holywell. By an Act of 1863 (26 & 27 Vict., c.30), their powers were extended to maintain existing roads, and to build new ones. The trustees, now acting as one body, continued to meet until January 1885, when responsibility for the roads in these areas was handed over to the local Highway Boards.

FLINT DISTRICT. Minutes, 1781-1830, 1843-58; accounts, 1796-1822, 1841-60; cash books, 1822-60; copy toll mortgages, 1812-42.

HOLYWELL DISTRICT. Minutes, 1808-30, 1858-63; accounts, 1822-63; copy toll mortgages, 1812-57.

MOSTYN DISTRICT. Minutes, 1769-93, 1803-22, 1843-63; accounts, 1792-1809, 1822-63; cash book, 1822-59; copy toll mortgages, 1812-42.

[25] Records of the Chester and Northop, and Chester and Wrexham Turnpike Trusts, are in the Cheshire Record Office.

Source: A.G. Veysey (ed). Guide to the Flintshire Record Office. Flintshire County Council 1974.

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What facilities should be offered by an automated system for archival description ? It must be possible to sort records by a variety of fields or keys. It is this (relatively simple) facility which initially marks out the automated descriptive system as desirable. Advanced or leisured archives services have for years been sorting their lists on the basis of, for instance, location codes, subject keywords, place-names and so forth, by manual methods. Among finding aids, the sectional guide is the characteristic new form of the 1970's(7). The moment fo conversion from manual methods comes when an archivist recognises that automatic systems inherently contain this possibility : other features remain peripheral, at least at first.

As long ago as the spring of 1979, David Bearman in the USA was speaking of "the (to us essential) capability of being searchable" as a characteristic of an archival information system(8). At that time this was regarded in both countries as being excessively idealistic. We can now see that the power to search the data base interactively is an essential characteristic; it is hardly controversial any more. This being so, we must revise our ideas about the nature of the archivist's access to a system. Interactive working demands either that there should be a terminal in the office, or, more likely nowadays, a micro-computer. The rapid development of the micro-computers, and their use as intelligent terminals, has been a major factor in opening up possibilities in the relatively fund-starved field of archives. My personal view is that it is from this direction that most archivists will now be approaching their problems, rather than through batch mode access to mainframe configurations.

There remains the question of indexing. There were signs that even before the advent of the computer archivists were beginning to turn their minds to problems of indexing. They were asking how to stimulate the development of indexes in a field in which these have traditionally been a very subordinate form of finding aid, and how to control indexes which had become unwieldy over time(9). We now see the possibilities of automatic indexing, especially of terms within narrative fields, as a very interesting aspect of automated systems. Some work is in progress towards solving the preliminary problems of index design(10), but there is no denying that in general British archivists continue to regard indexes as peripheral, and to fight shy of the problems involved in subject indexing. So far none of the complex indexing systems developed for the library world have been successfully adapted for archives(11).

Since the output from an archival description system should be capable of being published, at least in part, upper and lower case output should be possible. I mention this, but of course the normal development of computer peripherals has already made single-case working look old fashioned. Similarly multiple xerography from camera-ready text has allowed many to side-step the problem of interfacing computers and printing services, at least for many purposes. Output in the form of COM may be a possibility for the future but is not one which would command much support at present. (Ordinary microfiche is still viewed with suspicion). The failure of this most recent attempt to develop a potential network underlines the persistent lack of close co-operation that is such a feature of archive work. The best one can hope is that future systems should not be incompatible. However, the likelihood of incompatible processes developing is high, since there is such a variety of

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archives services, e.g. those in firms, research institutes, local government, museums etc.

II

At the time of the International Seminar held at Chelwood Gate in 1974 (an event which provided an excellent base document for future development)(12), British archivists, or the minority of them concerned with these things, were in the first flush of their enthusiasm. Even so, there was not very much to report on, outside the Public Record Office. The system known as ARCAIC at the East Sussex Record Office occupied much time, but otherwise British projects known to the organisers were limited to a little indexing work. The Public Record Office projects still continue today in much the same form as they were in 1974. There have been some small modifications which restrict the original scope in some respects(13), and as yet there has been no output for public judgment. It is understood that the PRO has now acquired a good deal of practical experience and has settled into the regular operation of its systems. PROSPEC's outward extension, has now subsided under the weight of public indifference with which it was met(14). Outside the PRO, the ARCAIC package has been withdrawn (a restricted version, PARC, used for the management of certain legal records, continues)(15). The fate of these systems indicates more than that there was a little too much easy optimism in the early days - there were substantial defects in the packages which were revealed by experience, This was particularly true of ARCAIC, which was a poorly adapted bibliographical package, and always suffered from narrowly fixed fields, limited batch input, batch output on to index cards (which had then to be manually sorted), and staff opposition(16).

Overtly, there has not been a strong recovery from these setbacks. But during the International Congress on Archives, held in London in September 1980, the Automation Committee carried out a full programme, which included visits to a number of British projects. This uncovered the fact that several new projects were under way, and the starting up of a new organisation, the Specialist Repositories Group, caused the emergence or co-ordination of even more. Some of these new systems are operational within particular organisations, others are at an experimental or early development stage. There has been little mutual consultation, and virtually no investment in development research : all have been adaptations of one of the standard packages. A brief survey, which certainly does not include all active projects, follows.

There are three operational systems in records management; These are ARMS (Tyne and Wear County Council)(17), CAR (Dyfed County Council)(18)and CMF (University of Liverpool)(19). All are simple systems which accept strict field limitations and avoid automatic subject indexing (though CMF does have an indexing facility), but ARMS has achieved a degree of sophistication which renders it very acceptable as an instrument for managing a records centre. Its ability to report on the use made of particular series of records, and to bring forward records for periodical review make it especially useful as part of a system for appraisal. It can also interface with archival systems. Until interactive systems become much more cheap and common, it is difficult to foresee any substantial improvement in the field of records management.

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In archival management, the most popular contenders are the packages known as STAIRS, FAMULUS and GOS. STAIRS, an IBM package developed for scientific and technology documentation, has made little headway among archivists since the late 1970's. It is in operational use at the House of Lords Record Office for their list of Acts of Parliament[20], and this gives it a status in the archives world from which it would be hard to dislodge it; but it does not seem to have spread. FAMULUS, originally a package for the management of small libraries, but incorporating a much more flexible structure than earlier systems for this, has attracted rather larger numbers. Recent recruits to the band include the Universities of Glasgow and Warwick. At Glasgow 64K Superbrain microcomputers are used for direct data entry[21]. The Modern Records Centre at Warwick, also hopes to use a Superbrain, but made the choice of package largely because it was already well maintained by a library programmer[22]. I was under the impression that St John's College, Cambridge, was also using this package but it is not acknowledged in their publication[23].

No generic adaptations have to be made to use FAMULUS with archives (with the important reservation that this package is not thought to be suitable for large amouts of data). This is not the case with GOS, and it is possible that, there will be central funded development in this case. The package was developed by the Museums Documentation Association, an offshoot of the Museums Association, primarily for the cataloguing of museum objects. Some Museums which hold considerable archives took up the system, and an operational scheme was demonstrated at the National Maritime Museum in 1980. Since then informal discussions have started the Specialist Repositories Group, the Computer Applications Committee of the Society of Archivists, and the MDA. An experimental pilot scheme is now operational at the archives of the British Antarctic Survey in Cambridge[24], and development work is in hand at the Greater London Record Office[24a].

The basis of the system is a catalogue card which can be used both as a manual catalogue/index and for data entry. Figure 4 illustrates the card adapted for the BAS scheme. From this input catalogues can be compiled by sorting on various fields. It is perhaps a pity that the card element was introduced, for this method immediately arouses the traditional suspicions of archivists, who know that librarians commonly use cards for catalogues/indexes, and that manual card catalogues of archives have generally been unsuccessful. Archival description, as indicated in the first section, must include an element of historical narrative which serves to preserve and explain the original administrative context of the series. Consequently one cannot describe individual archival items as separate objects. However it must be admitted that this difficulty can be overcome by treating whole series as single units of description, and then listing components as subrecords (this is the method adopted by PROSPEC-SA, which has unimpeachable respectability); and in any case further development of direct data entry might make the card otiose.

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Figure 4

REFERENCES	Associated Documents		
	Publications	reference only/quotation	in part/complete	altered/unaltered
	Author: date: title: journal/publisher: vol: details		
CONSERVATION	Physical format		
	Condition		
	Conservator	To	From
MANAGEMENT	Transfer to Archives	Accession & Process Record	Access Code
	Location	Record Transfer List	Disposal Code
INDEX	(Additional to contents)	Particular	
	General		
	Cross ref.		

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Source: GOS data entry card as developed by the British Antarctic Survey.

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Other commercial packages which have attracted attention are STATUS (which seems to be regarded as too expensive, but which may have possibilities eventually) and ASSASSIN (only used for scientific documentation as far as I know)(25). Other experiments are under way at the British Library, using standard CR/M-based packages for microcomputers, and one of these was demonstrated at the International Congress(26). Finally, the capabilities of a large word-processing system, a Philips 5002, are demonstrated operationally by a freelance archives service, Routledge Associates(27). This incorporates both sorting and indexing facilities. The approach through word-processors is interesting as it is a natural development of basically familiar office technology. It is a nuisance that self-contained word-processors are so often incompatible with other microcomputer systems.

One of the principal benefits of the word-processor is that it is relatively easy to train its operators. Anything more open-ended requires not only fairly radical systems analysis but also some knowledge of computer basics. The real problem before us now is the education of archivists in post, and the construction of training curricula for student archivists, with the aim of attaining a more widespread computer literacy. All archival training courses at present include some elements of ADP, and some give a little practical 'hands-on' training. It seems clear that more is needed, perhaps to the extent of teaching programming in a simple language such as BASIC. This should be an active point of consideration in professional circles. Traditionally oriented training programmes would certainly not have room for the intrusion of a new element as dominant as this would be, quite apart from the necessary changes in attitude. A fairly radical break with the past would be needed : have we really reached the point at which this has become necessary ?

The tentative, small-scale and unco-ordinated new projects of the last year or so are an independent witness that computer techniques are increasingly of value to archival management. These individual projects need now to be reinforced and extended. In particular, there should be some central direction, a programme of user education, and an effort to obtain some planned development. Development requires funds and staff. Both of these present a difficulty, for there is in Britain no central research agency under whose aegis archive administration (as opposed to the contents of certain archives) falls. Funds are therefore hard to find. Staff is almost equally hard to find since the framework of the archives profession in England provides hardly at all for academic members, or for practitioners who have time and commitment to research. There is, unfortunately, a growing pool of young, qualified unemployed; and perhaps these may help with the staffing problem. The problem of central leadership for new development in archives remains.

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FOOTNOTES

(1) About 1963. M. Roper, 'Computers for archives management in the Public Record Office'. Public Record Office. *Proceedings of an International Seminar on Automatic Data Processing in Archives.* L. Bell and M. Roper (eds), London, HMSO, 1975, pp. 8-29. This work hereinafter cited as Bell and Roper.

(2) A. Arad and L. Bell, 'Archival description - a general system'. *ADPA* 2 (1978), 2-9.

(3) M. Cook. 'The structure of archival description'. *Archives and the Computer.* London, Butterworths, 1980, pp. 21-29.

(4) Joan Smith. 'The computerised listing of archives' (general requirements and draft data standard). Society of Archivists, Specialist Repositories Group, 1981; to be published by the Society.

(5) M. Cook, *op. cit.*, p. 22.

(6) F. McCall, *PROSPEC Manual*, Public Record Office internal document, section 2.2. The problem is partly overcome in PROSPEC-SA, where there is provision for main and sub-records.

(7) E.G. the Hampshire Archivists Group lists. Public Record Office Handbooks.

(8) D. Bearman. 'Automated access to archival information : assessing systems'. *The American Archivist* 42 (1979), 179-190. The quotation is on p. 187.

(9) The society of Archivists working party on subject indexing sat for most of a decade, attempting to construct a manually-based classification scheme. Overtaken by events, this was wound up in 1979.

(10) D. Chalmers. 'Computer indexing in the Public Record Office'. *Journal of the Society of Archivists* 6 (1981), 399-413.

(11) Some interest was displayed in adapting PRECIS, e.g. by the Devon Record Office : *Journal of the Society of Archivists* 6 (1978), 116 but there has been no progress report.

(12) Bell and Roper : see note 1.

(13) PROSPEC originally included sybsystems for a microfilm catalogue and a catalogue of searchroom lists and indexes : these have been dropped or modified : M. Cook, *op. cit* p. 77.

(14) Information from Mr. M. Roper, Public Record Office.

(15) I am indebted to Mrs. M. Whittick, in charge of records management at East Sussex Record Office.

(16) R.G.A. Chesterman. 'The operational development of ARCAIC in the East Sussex Record Office 1970-1974', Bell and Roper, 176-198.

(17) D.J. Butler and W.H. Nicholson. 'ARMS - a computer - based records management system developed by Tyne and Wear County Council'. *Journal of the Society of Archivists* 6 (1979), 200-208.

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(18) M. Patch. 'Record management in Dyfed'. *Journal of the Society of Archivists* 6 (1979), 209-213.

(19) M. Cook. 'Experimental automation of records transfer control in a small records center'. *ADPA* 3 (1979), 16-23. Chester City Council also operates a privately developed system, but this has not been published.

(20) M. Cook, *op. cit.*, 93-97.

(21) Information from Mr. A.T. Wilson, Assistant Archivist, University of Glasgow.

(22) Information from Ms. Deborah Jenkins, Assistant Archivist (CBI records), University of Warwick.

(23) M.G. Underwood. 'A computer index for the archives of St. John's College, Cambridge : a progress report'. *Journal of the Society of Archivists* 6 (1979), 214-218.

(24) Information from Mrs. Joan Smith, archivist, BAS.

(24a) Information from Miss J. Coburn, Head Archivist.

(25) J.H. Ashford. 'Report of a study of the potential users and application areas for free text information storage and retrieval systems in Britain, 1979-81'. *Program* 14 (1980), 14-23.

(26) I am very grateful to Dr. D.W.G. Clements, Catalogue Systems Branch, Department of Printed Books, British Library.

(27) Grateful acknowledgement to Miss Roberta Routledge.

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