Indexing Gladstone: from 5 × 3" cards to computer and database

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The Gladstone diaries (1825–96) consists of 13 volumes of text recording much of the political and cultural history of the nineteenth century. Its index, which is in three parts published in a separate volume of 862 pages, was compiled using 'Ingres' database software so as to allow readers easily to find the 20,500 people, the 22,000 book and periodical titles, the 550 cabinets, the 3000 letters and the mass of political and personal detail which the Diaries contain.

Gladstone and his diaries

William Ewart Gladstone (1809–98) kept a daily diary from 16 July 1825 to 23 May 1894, and then episodically until 29 Dec 1896. He rarely missed a day, and so there are about 25,200 daily entries. Publication of the diary by Oxford University Press began in 1968, the final text volumes (volumes 12–13) being published in 1994. In addition to the text of the daily diary the published volumes include a) memoranda written by Gladstone, b) the Cabinet minutes for the 550 cabinets which he chaired during his four administrations (he was four times Prime Minister and four times Chancellor of the Exchequer), and c) nearly 3000 of the letters which he wrote when Prime Minister.

The Gladstone diaries with Cabinet Minutes and Prime-Ministerial correspondence—to give the full title—thus covers a long chronological span and contains material about almost all aspects of Victorian public life, culture and religion. Gladstone's diary entries are mostly brief and were clearly not written for publication, but they contain much information, as often of a personal as a political sort. They include a very thorough record of his voluminous correspondence—the names of the correspondents of each day (sometimes as many as twenty) are usually listed—and of his day-to-day reading, which comprised books, pamphlets, periodical articles and government documents and papers. He also noted many details such as the number of hours spent each day in the House of Commons, his audiences with the Queen, his attendance at church (usually daily, and twice on Sundays), miles walked, speeches made, trains caught, etc. When in London, he often spent some time each evening trying to redeem prostitutes (often being tempted by them), and such activities and their consequences are itemized.

Anticipating the index

When I became involved in the edition in 1970, work had reached the early part of volume 3; i.e., there were still ten volumes of about 600 pages each to go (the final total was 7679 pages in 13 volumes of text). In 1972 I became editor, and one of my early decisions was to improve the detail of the information in the two card indexes already in process of accumulation—5 × 3" cards for people, 5 × 7" for Gladstone's reading.

It was obvious that so large a work would be accessed by most readers through its index, but it was decided not to try to compile indexes for each brace of volumes (they were published in pairs, except for volume 9). This would have greatly slowed up the pair-by-pair publication and would have caused eventual duplication, for a cumulative index would also have been needed. This meant, however, that the index, when compiled, would be bound to be very large. Indeed, given that Gladstone used his diary almost as an index of his own life, compiled each evening to show his beneficial use of time, a wholly thorough index would be almost as long as the edition itself! Readers in the meantime were helped by a list of Dramatis Personae at the back of each pair of volumes; the entries on the list gave name, initials, title and date of first reference to that person in the diary.

Most of my work on the diaries was done while holding a tutorial fellowship at St. Hugh's College, Oxford, to which I was appointed in 1978. It was difficult to find time to keep the text edition going. I decided only to maintain the card index of people mentioned and that of books, etc., read, and not to try to compile a subject index until the text volumes were largely complete.

Anticipating this, I had decided to try to learn some of the tricks of the indexing trade. My wife Sue and I
used to do the annual index for the journal *African Affairs*, and we indexed a variety of OUP books: I remember especially indexing J.A.W. Bennett's *Chaucer at Oxford and Cambridge* (1974). I also indexed the book of my thesis, *The Liberal Imperialists* (1973), and of several other monographs of friends. This was all good experience. It taught me that there are no absolute rules for indexers, only guidelines, and that each book requires a slightly different sort of index. It taught me, I hope, some sensitivity to the reader's needs and expectations, for it is the indexer's awareness of the character of the reader and the use that he/she is likely to be making of the book that is an essential preliminary to the compilation of a good index. It also taught me that the index is an organic part of the book and must be in harmony with it; it must reflect the book's character and proportions. A long solemn index to a brief comic work is grotesque; a short, name-only index to a complex, scholarly work shows an author and publisher careless of their readers, producing a deformed book.

**Agreement with OUP and the decision to computerize**

As in the late-1980s the end of the editing of the text volumes came into view, I discussed the index with Oxford University Press. We decided a) that the index (Volume 14) should be a stand-alone volume, and b) that it should be published together with the last two text volumes (Volumes 12 and 13), for an index volume launched after the edition was otherwise finished would be a damp squib. This was a sensible decision, but it posed several problems, not least the burden of preparing the index at the same time as completing the editing of the last two text volumes. Funding of the costs of entering the data was initially problematic, the difficulties being solved by the generosity of the Marc Fitch Trust, with the Rhodes Trust in support.

In the intervening fifteen years, the card indexes had expanded: there were about 30 shoe-boxes in all. My room in Christ Church, Oxford, where the editing materials were kept, had an eighteenth-century pipe above the ceiling which had no known stop-cock, and in cold winters it sometimes froze. I used to cover the card boxes with huge sheets of polythene, fortunately never in fact needed.

Even the thought of processing the contents of the boxes was intimidating, for they had been completed by several hands over a twenty-year period and a glance showed marked inconsistencies. And the boxes were only a start, giving only basic information on people, and crude listings of books read.

In the preparation of the text volumes, old-fashioned methods were used: typescript with a good deal of ink-correction. It had seemed undesirable to introduce computerization into the text volumes two-thirds of the way through. So the last two text volumes were prepared for the printer in much the same way as the first two had been.

But clearly the size and character of the required index volume cried out for computation. I did not have a pc, but had some sense of what one could do, and I knew something of databases. With this sketchy preparation, I mapped out in 1990 what the index volume should comprise. There was no very obvious model, and I planned largely on the basis of what I, as a long-term user, would want the index to tell me, while trying also to be aware of the needs of other readers with interests different to my own. I knew that many historians had been irritated with the diaries because they did not offer a political commentary of the sort found in the diary of Charles Greville, and I intended to show that the political content of the diaries was very much greater than an initial glance at their sometimes forbidding entries suggested. Partly as a result of a paper I had been invited to give to the Oxford Bibliographical Society, I had also become increasingly interested in Gladstone's record in the diaries of his day-by-day reading, and felt that, though recording this would produce something of a hybrid—a combination of index and bibliography—it would be of general interest as well as of value to scholars of the nineteenth century.

**The three parts of the index**

Clearly, the 20,500 people on the 5x3" cards needed to be included, but, equally clearly, they would clutter up an index which included other information. I decided therefore that it would be best to keep the *Dramatis Personae*—as they were known—separate. The aim of these cards was to enable us to give a cross-reference to the footnote which gave the details of the person's career. The diary date on the card was thus that of this information (usually included at the date of first mention of the person); few of these cards had more than a few dates. But many people in the diaries were mentioned quite frequently. I decided that it would be impossible to index each mention of each person—for in some cases that would produce lists of thousands of date-references—but that we should try to index each substantive mention. Thus 'saw Mr Hamilton' would not get an index reference, but 'Discussed my visit to Windsor with Mr E.W. Hamilton' would. Moreover, about 200 of the people in the *Dramatis Personae* would also have full-scale entries in the Subject Index (see below).

The cards for Gladstone's reading constituted an extremely interesting and possibly unique cultural record. I know of no other major figure who recorded his or her life-time's reading. The cards were already being consulted by a number of historians and graduate students who had heard of their existence. Rather than collapse them into some more general series, I
decided to make them a separate index, which might at some later date also be published in its own volume. Unlike the cards in the *Dramatis Personae*, mentions of reading subsequent to the date of the first reading had been added (if not wholly systematically) on these cards, recording not every mention of a book but each time Gladstone began a fresh reading of it. Thus one could tell how many times (four) he had read *Rob Roy*; the Scottian scholar would have to look up those bouts of reading to find further details.

That left the Subject Index, which would in effect deal with everything which was not in the *Dramatis Personae* or Gladstone’s Reading, and would be the most orthodox of the three indexes, but one which offered considerable opportunities for wit as well as information (for should not an index have the same qualities as a book?)

**Designing the ‘Gladstone’ database**

We therefore needed three tables to hold these three indexes which would, together, constitute Volume 14, the Index Volume.* Inquiry suggested that none of the standard indexing software packages would be satisfactory for such a complex and interlocking undertaking. Moreover, I needed face-to-face advice. I went to Oxford University’s Computing Service and was there, in Dec 1990, introduced to Beth Crutch who supports those in that university needing help with designing databases. ‘Need help’ in my case was a major understatement! Fortunately, Beth took on the project and designed the database for me.

The database software used was a programme called ‘Ingres’, which produces a relational database. Our database was, naturally, named ‘Gladstone’. Though the purpose was primarily to use the database as a huge word-processor, with the primary purpose of producing a printed volume, ‘Gladstone’ would hold the data in fields which could be cross-loaded, arranged in whatever order was thought desirable, searched for duplications, errors of spelling and formatting, and could be given instructions for global alterations. The ‘Ingres’ programme was on the University’s central VAX computer. This meant that the data would be held on that computer. It could be added to or consulted from any terminal connected to the University’s Gandalf network by however many operators I could assemble. And it would be archived to the central VAX archive. This was a major advantage, for it removed the dangers of losing data which would have been a constant worry with a stand-alone PC.

Even before deciding on computerization of the index volume, I had decided to use the diary date, rather than the volume and page number, as the reference when indexing. The index would therefore be independent of the printed edition in which the text is presently available (a minor element in this decision was the fact that it permitted indexing of the final two text-volumes before they were in page-proof). At some future time, if the edition is published on CD-ROM or in some other format, or if the database is searched on-line, the user will not be tied to a printed page reference; equally, a reader wanting information on a particular cabinet decision will get from the index the date rather than a volume and page reference. I think that in large, multi-volume editions chronologically arranged this is usually more useful to the reader, who often wants to know first whether the reference is to the year or period he/she is interested in (the Index Volume has the volume numbers and their dates printed along the bottom of each page for easy finding). As G (as Gladstone is referred to in the Subject Index) lived entirely in the nineteenth century, the first two digits of the year date could be omitted—as in 15/6/83—without confusion being caused. This saved many keystrokes.

Beth Crutch having done some preliminary designs, I became more familiar with ‘fields’, ‘varchars’, etc., and, with greater understanding of the possibilities of databases, I began to have a clearer view of what a computerized index could do. I also began to understand the ruthless logic of the computer. In making a good index, common-sense is a major ingredient; the exhaustively logical indexer usually irritates the reader. But the computer has no common-sense, only logic. My purpose was to use a computer to produce a

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printed volume; the use of the database was incidental, not definitive; a means to an end. So I had to be careful that the computer did not distort by making the index over-fussy. This led to some corner-cutting by including some items in fields not intended for them—the alternative being a very much more complex database to include all the ambiguities (e.g. the names of two or more authors for a book is a complex matter to record in fields; I solved this by including the name of the second (and third) author as part of the first names of the first author: bad computing practice, but it looks all right in print!). Of course, tricks such as this pose problems when searching the data electronically.

The Dramatis Personae index was fairly straightforward once we had solved the problem of aristocratic titles and how to order them. Each person had a number of fields to be filled in (or left blank if there was no data for a field). Provision was made to generate a cross-reference from the title field to the surname (Argyll, see Campbell), for the surname was to be used as the headword name in each case.

Gladstone's life-time's reading

The reading index was more complex and in designing it we failed to include adequate distinction for italics and non-italics in book titles: this led to a good deal of fine tuning at the proof stage. It was decided to have a separate entry for each of the 17,500 titles; there were therefore several name fields, a title field, a date of publication field, and a field to show the number of volumes. But in the final printed version we would want the titles to be gathered under the author's name (without that name being repeated each time for each title). This could be done by a (fairly) simple instruction not to repeat identical names. But a computer would only recognize names as identical if they were so in every aspect of their keying, including the number of spaces, etc. Not surprisingly, it took many print-outs to get the authors' names exactly correct. There was a small, separate database to hold Gladstone's periodical reading (about 5000 articles); this was, in the printed index, integrated with the Reading Index.

The 5 x 7" cards on which the authors' names, titles, etc., had been entered were by no means fully accurate. A short trial run showed that to continue to use abbreviated titles, and initials only with authors' names, would produce a messy and muddled result. I decided, therefore, that we should regard the British Library catalogue as the authoritative source for bibliographical information. Fortunately I had bought a copy of the compact edition at a sale years before, and it was thus available in my room next to our main terminal. That catalogue contains descriptors to separate authors with the same name (e.g. John Smith, of Woodstock/John Smith, LLB) and this useful device was followed with a special field for descriptors. Each author and title would therefore have to be looked up in the B.L. catalogue before being keyed into the database; as the information on the cards was often scrappy, especially for the early volumes of the diaries, this was a considerable task, given that there were about 17,500 titles, or 22,000 if periodical articles were included. It was lessened somewhat by the fact that these were already—at least in principle—gathered on the cards by author or periodical, i.e. all the works of Thomas Arnold read by Gladstone were on the card for 'Arnold, Thomas', and so could readily easily be checked against his entry on the B.L. catalogue.

The Subject Index

It seemed likely that the Subject Index would be the most regularly used. While the Dramatis Personae and Gladstone's Reading indexes largely constructed themselves, the Subject Index required much more conceptual planning. An important preliminary decision was not to have an entry for Gladstone himself. This would have been so large as to be extremely difficult to navigate in, and would have repeated most of the other entries in the Subject Index. For almost the whole of the Subject Index was an entry for Gladstone: everything in it was there because it related to him in some way.

Even without an entry for Gladstone, some of the entries were bound to be very large (that for 'Ireland'—a major nineteenth-century political preoccupation—is over eight pages long) and potentially difficult for the reader to use. After some minor experiments, I decided to have three 'levels' in the Subject Index, that is, a main heading followed by a maximum of two indentations. That, I hoped, would be a satisfactory compromise between the need to index complex material and the need to keep the Subject Index usable by a reader who wanted to find information quickly.

The fact that the headwords on the first level would not all be known until the index was finished meant that each heading in the Subject Index had to be keyed each time, even when working at the third level. This could be done by using a function key instruction to repeat data when the new entry was keyed immediately after the previous one. But if another entry intervened, the keying of each level would have to be done again (unless I could remember the id number, and there were by the end about 30,000 initial entries in the Subject Index). This was easy enough if the heading was 'Ireland'; but if it was 'Cavendish, Spencer Compton (1833–1908), Marquis of Hartington (1858), 8th duke of Devonshire (1891) . . . .' it would be highly problematic for a person whose keyboard skills were rudimentary. A system was devised by which the full data on a person would be held in the Dramatis Personae database and then transferred by a numerical
link to the Subject Index heading at the last moment, once all the keying was done. So all I would have to key in would be 'Cavendish' as the headword. This saved much keying, but it was an alarming prospect, should the transfer of the data go wrong.

The *Dramatis Personae* were mainly minor figures, with no provision in their table for the inclusion of more information than the dates on which they were mentioned. Clearly the people with whom Gladstone dealt regularly and about whom there was considerable detail in the diary needed more ample treatment. About 200 people (the Top 200 as we called them) were therefore included in the Subject Index (with a cross-reference from the *Dramatis Personae*); indeed, the entry in the Subject Index on Queen Victoria is one of the longest in the whole volume.

**Loading the data**

After various experiments and some dummy runs, the moment had come to start entering 'live' data. I began in the spring of 1991 on the *Dramatis Personae*, as this was the simplest section. It was soon clear that with my very limited speed at the keyboard it would take years to enter the 20,500 people. Fortunately, our temporary Tutors' Secretary at St Hugh's College, Elizabeth Mitchell, was willing to help and she entered several letters of the alphabet. But progress was inadequate: a full-time operator was needed. Katharine Hugh, then a graduate at St Hugh's College, needed employment and had had experience in a holiday job in entering National Health Service invoices; these proved to be less unlike the details of Victorian politicians than might have been expected! From January 1992, Ms Hugh took on the *Dramatis Personae* and cleared them off in about six months: a remarkable effort.

Gladstone's Reading was a more prolonged task. Entering it on the database required someone who could both key data quickly and accurately and simultaneously extract titles from the tiny type of the compact BL catalogue. Fortunately, two graduates came forward, Mary Heimann and Cindy McCreery, and we divided the work between us, though they took much of the larger shares. Entering the reading data took about a year.

Capturing (as the computing people put it) all this data was made more complicated because work on the last two text volumes was still proceeding: more people and more titles were still being generated, with an increased likelihood of duplication (for in old age Gladstone re-read many works, which required a further diary date to be added, but not a repetition of a title).

**More on the Subject Index**

At last, in the spring of 1992, I got time to start on the Subject Index. I had a clear sense of what I wanted to do, as well as what was needed. All the political material needed to be indexed in detail (the 550 cabinets each had about ten items for discussion—often of course a repetition of an item from a previous cabinet—and that meant 5500 entries before I had even started on the more interpretative aspects of cabinet decision-making). But I was keen that the Subject Index should also be useful in aggregating information on less obvious subjects, a good example being the mass of detail on parenthood, which I collected under 'childrearing'. Similarly, the index is used to show Gladstone's fascination with the theatre (all plays seen and theatres visited being indexed—the Shakespeare entry is especially interesting); to provide as systematic as possible an iconography by gathering together information about his portraits, their artists and the details of the settings; to itemize his extensive European travels (under 'travels abroad' as well as under each country visited); to record his illnesses and medicines taken; and many similar analytical entries of this sort. The entries constitute a significant social and cultural as well as political history of the period. Gladstone noted in his diary most of his own numerous publications: over twenty books and about 100 periodical articles and pamphlets. These were to be collected under 'publications, Gladstone's' (they take up six pages in the Index Volume).

Gladstone's daily diary entries are short, but curiously memorable when he records a judgement or observation; but the reader recalls the words but not the date, or even the year. The Subject Index had therefore to assist such inquirers by acting as something of a concordance. It includes, in fact, quite a number of quotations. Of course, these are easiest to track on the database through keyword searching, but the printed index tries to make them available to the reader.

Given the length, density and complexity of the diaries, the Subject Index could be, I hoped, in effect a commentary. Indeed, anyone wanting to write a paper on, for example, 'Gladstone and Wales', could get a good way towards planning it simply by consulting the Index Volume. Many a biography will, I suspect, be written largely from it! Already knowing the contents of the volumes very well, I was able to draw up a list of general headings before I started, though aware, of course, that more would occur and some would be modified as I compiled. I also made a list of the 'Top 200', the leading personages in the diaries who would have full entries in the Subject Index. Many of these chose themselves—Queen Victoria, Benjamin Disraeli, immediate members of the Gladstone family, Alfred Tennyson, John Bright, Lord Salisbury—but the list also included some, such as Oscar Wilde, with whom Gladstone did not have extensive dealings, but who would be of general interest to readers. I tried my plans on Professor Derek Beales and Mr Peter Ghosh,
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both of whom knew the diaries well, and they made some useful suggestions.

It was with considerable trepidation that I opened Volume I at page 1 to begin compiling the Subject Index. The first word I keyed in was 'Gloucester', for the diary opens on 16 July 1825, with Gladstone aged 15 and his family living near that city. Those opening diary days also recorded a heatwave, and that became the first of my analytical headings (Gladstone was a good observer of the weather, especially as it affected agriculture). Nervous at first about the complexities of the three levels of the Subject Index and about keeping control and about being able to remember all the headings (did droughts go under 'weather', 'heatwaves', or did they need their own headword?), I soon found the process one of absorbing fascination. I have never felt as close to a text or as absorbed into it as when I compiled that Subject Index. Ideally, an editor should compile an index first, for it is the best way of fully confronting and comprehending the text!

With such a character as Gladstone, it was not difficult to make some of the index reasonably humorous as well as useful, as in accidents

- G shoots off his left forefinger 13/9/42f
- gun cotton experiment shatters Downing Street windows 1/8/72
- heifer, G knocked down by 29/8/92, 8/9/92

or

treesfelling

- tree felled with H.N.G in it 27/12/67

I made my way through the text chronologically, very slowly at first until I learned the complexities of co-ordinating my reading of the text with my keying of the data. The latter involved not just using the keyboard as a typewriter, but using the function keys very frequently. Each headword had an id number, and I kept a list of the 300 most used id's for rapid recall. I learned to work the combination of function and letter keys almost like an organ, and gained a curious satisfaction from the almost hypnotic sequence of hand actions needed to generate an id number, key the data, and then save it. I reached 29 December 1896 (Gladstone's 87th birthday and the last entry in the diary) on 30 January 1993.

As I keyed in the data for the Subject Index, I also tidied up and amplified the Dramatis Personae and Gladstone's Reading, for there were many substantive references to people in the former which were not on the 5 x 3" cards, and there were important areas of reading, especially Gladstone's reading of the classics, which had not been included on the 5 x 7" cards, as no particular title had been mentioned in the daily diary (as in, e.g. 'read Ovid', the first words of the first diary entry); these were of obvious interest though hard to treat bibliographically. I devised the formulae, 'Ovid, Opera' to cater for such cases.

Checking and final preparations

Every second evening I used to order a print-out of the Subject Index (without the diary dates) from the main printer in the Computing Centre (this could be done from my terminal in my college room). Seeing the new entries printed out was always dramatic, partly because it was only when printed out that I could see how much work I had done. This related to a more general problem. Because of the character of the construction of the database, there was a good deal of repetition of data. This would not ultimately be a problem, because the final specifications of instructions for converting the data for printing in the Index Volume would include an instruction to eliminate such repetition (as earlier mentioned, such instructions would work only if the repetitions were exactly the same). But until those instructions had been given and a proof generated, it was extremely difficult to know how long each table—and especially the Subject Index—would turn out to be. At first I tried to make calculations, but these worried me further, for they suggested that there might need to be two Index Volumes, and this would have been problematic for several reasons, not least that the three parts of the Index were of roughly equal length and would not easily divide into two volumes. I stopped worrying about length and keyed in what I thought needed to be included.

The last two text volumes began to go the printer in May 1993. After that, the index was tied into a publishing schedule. I had delayed sending the text volumes for printing until I was sure that the indexes were sufficiently advanced to meet that schedule (as it happened there were various delays caused by extraneous factors).

The print-outs of the three tables were read by several people, but chiefly by Mrs Jean Gilliland, who applied the rigour of a former civil servant to ensure consistency, especially in the Dramatis Personae. John Palmer kindly read the reading index's titles, looking especially for errors in the foreign language titles.

In the midst of all this, I had in September 1992 taken up a new post as Editor of the New Dictionary of National Biography and the index had to occupy an even more 'before breakfast' slot in the day. In my new post I was dealing frequently with Sir Keith Thomas, a person famous, among many things, for his fastidious proof-correcting of whatever agendas, committee papers, etc., came before him: I was therefore delighted when he agreed to read the print-outs of the Subject Index; his sharp scrutiny caught many an inconsistency.
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From data to print

Keying in the data and checking it got us nearly to the end of the preparation of the Index Volume. The database was by this time quite large. In its Ingres version it was 20 MB; when the files were unloaded into ASCII it took up about 10 MB. The process of unloading into ASCII was therefore complex, with considerable manipulations to the data occurring on the way. This next stage was begun by Tina Stoecklin, an American with database expertise, who helped to polish the Dramatis Personae and Reading Index and who wrote the specifications for converting the databases to a text. These were then worked up by Beth Crutch and by Liz Atkinson of OUP's Electronic Publishing division and were sent with the data (on a tape) to AND of Rotterdam, the company charged with making the actual conversion. AND then sent the text tape (as it had now become) to Anne Joshua of Joshua Associates, the Oxford company which also set the text volumes, for proofing onto CRC. This chain of command, not surprisingly, was difficult to coordinate.

On the whole, the plans worked. Miraculously—or so it seemed to me—the data on the 'Top 200' cross loaded from Dramatis Personae to the Subject Index; the cross-references were correctly generated; the repetitions disappeared; the rules for italicization (largely) worked. But small errors remained, and the tape had to be returned several times to Rotterdam before we were reasonably confident that we could print a proof accurate enough for proof corrections to be at the usual sort of level.

Anne Joshua proofed the text in the order in which it was to appear. The Dramatis Personae took 283 pages—about what was expected. Gladstone's Reading took 327 pages—more than was expected. It would be touch and go whether the Subject Index would take us into a second index volume. In fact, the Subject Index was only 252 pages, a good deal less than I expected, giving a volume of xv + 862 pages in all. The volume was rounded off with a delightful drawing by Sydney Prior Hall of Gladstone reading, a thoroughly appropriate frontpiece.

This blissful state was not reached without some panics on the way. One example will suffice. The diary-date references had a field qualifying them by a piece of further information, e.g. 31/5/92c meant the cabinet of that day, 23/2/72L meant there was a letter written that day and printed in the Diaries. A '?' after a diary-date meant that the attribution on that day was uncertain, and 'f' after a diary date was the usual printing convention for 'following', i.e. read on. When we proofed out the Dramatis Personae each 'f' (about 7500 of them) had been transposed into '?'. I discovered this on returning from a short holiday to cele-

brate what we thought was the end of the worrying period of data conversion! Anne Joshua came to the rescue and ingeniously found a means of identifying—in the proof text held on her own computer—most of the examples of 'f' which needed changing to '?'. Even so, a massive checking process was needed. A mistake in a computer instruction is a mistake indeed! Fortunately, this one only happened in the Dramatis Personae, as we were able to correct it before the other two tables were proofed.

Publication

The last three volumes of The Gladstone Diaries were published on 29 September 1994, about three years and nine months after I first met Beth Crutch to discuss preparing the index on computer. My family and my friends were amazed at the central part indexing came to have in my life during those years. When I mentioned in an interview the fascination and the intellectual challenge I had felt in preparing a large-scale index, the Sunday Times put forward the volume as a strong contender for 'The Most Boring Book Ever', an insult to every indexer the world over, and, I hope, a view not shared by the index's readers. I had found indexing on this scale quite the opposite of boring. The opportunity of using the index to open up, consolidate, almost to reinterpret, so central a text of the Victorian age, had been a formidable intellectual as well as technical challenge. Only readers, of course, can say how successfully I and my little 'team' responded.

Organic indexing: the index of the future

A major advantage of a database index is that it is organic rather than static. A printed index is embalmed in its volume, but a database index can be searched in combinations other than those used or anticipated by the compiler. It can be put online and a distant user can search it using SQL for keywords, or by date, or by whatever combinations the reader wishes. A databased index can be updated, expanded, and corrected. The 'Gladstone' database is already significantly different from Vol. 14 of The Gladstone Diaries, for corrections have been keyed in, together with some additional material. In the future, 'Gladstone' will doubtless become available online and the database will pass into the next century for posterity to make what use it wishes of it. Large editions are today in a curious hinterland between the traditional printed format and an electronic future whose character and evolution cannot as yet be understood, though its all-pervading nature seems quickly to be taking form. The text volumes of The Gladstone Diaries are thoroughly traditional, and none the worse for that (the first six volumes were beautifully set in hot metal type by Clowes, who had also printed most of
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Gladstone's own publications). Their Index attempts to bridge this hinterland, complementing the printed volumes but anticipating the 'virtual book'.

Professor Matthew is author of a two-volume life of Gladstone, and editor of the New Dictionary of National Biography. His index to The Gladstone Diaries, described above, won the Wheatley Medal for an outstanding index for 1994.

A meditative index

Mr Palomar by Italo Calvino, translated by William Weaver, was first published by Secker and Warburg in 1985, complete with index. It was reviewed by the Paperbacks column of the Sunday Telegraph on 31 July 1994.

This unusual index to a short novella could be a lesson in meditation. One's initial reaction is that it is not really an index but a duplication of the Contents page. The British Standards Institute (BS 3700:1988) states that an index is 'a systematic arrangement of entries designed to enable users to locate information in a document'. This index is indeed a systematic arrangement, precisely reflecting the form of the book which is divided into three sections. Each section is subdivided into three further sections, each of which is further divided into three short chapters. As page numbers are given, users are enabled to locate information but only up to a point as these correspond only to the twenty-seven headings in the text.

The index has, however, an introductory note that so baffled the Sunday Telegraph reviewer that he commented, 'There is, unusually, an index, which, despite being prefaced by a four-paragraph note intended to be helpful, one would need a degree in the Higher Esoterica to comprehend.' In fact, the note is quite clear, explaining the use of what at first appears to be the decimal system of subheadings, and I cannot think of a simpler way of expressing it. Perhaps this index should be called a 'theme index' or a 'theme chart' as it draws the reader's attention to the perfect form of the text. We can see from the Contents page how it is divided, we can see the titles of the sections, yet we may not appreciate how exquisitely Calvino has drawn our attention first to the visual detail, then to the possible, the wider meaning and symbolism of those details, and then to the wider speculations arising from them. He makes the ordinary extraordinary; he leads us from microscope to telescope—hence 'Palomar'? We move from '1.1.1 Reading a wave' and dwelling on the visual experience, to '3.3.3 Learning to be Dead' which can only be pure speculation. I was intrigued by the Contents and enchanted by the content, but only by studying the unusual index did I fully appreciate the skill of the writer and the translator. I have learned how to look.

We reproduce below, with permission, the introductory note and the complete index to Mr Palomar.

VALERIE ELLISTON

The numbers 1, 2, 3 that mark the titles of the index, whether they are in the first, second, or third position, besides having a purely ordinal value, correspond also to three thematic areas, three kinds of experience and enquiry that, in varying proportions, are present in every part of the book.

Those marked I generally correspond to a visual experience, whose object is almost always some natural form; the text tends to belong to a descriptive category.

Those marked 2 contain anthropological elements, or cultural in the broad sense; and the experience involves, besides visual data, also language, meaning, symbols. The text tends to take the form of a story.

Those marked 3 involve more speculative experience, concerning the cosmos, time, infinity, the rela-