The use of KWIC to index the proceedings of a Public Inquiry

PETER A. THOMAS

[The opinions expressed in this paper are those of the author and are not necessarily those of the Greater London Council.]

The public inquiry is a peculiarly British institution with its beginnings in the Inclosure Commissioners of the late eighteenth century who were appointed to look at the rights and wrongs of each individual inclosure scheme (1). The procedure was developed and extended in the nineteenth century into other areas. Recent years have seen some very lengthy inquiries on matters of general public concern, such as the Roskill Commission on the Third London Airport and the Public Local Inquiry into the site for the proposed National Exhibition Centre, Birmingham. These inquiries tend to produce a vast amount of documentation with the consequent problems of storage and retrieval for librarians and archivists.

An attempt to solve these problems has been made by the Research Library of the Greater London Council's Department of Planning and Transportation, which is concerned with the documentation of the investigation into the Greater London Development Plan (GLDP). The Plan, which appeared in 1969, is a statutory development plan made for the area of Greater London as constituted in the London Government Act of 1963. Its essential purpose is to create a physical environment and a social and economic framework which will both conserve and also improve the standards of life in London. The Plan was submitted to the Minister of Housing and Local Government (now the Secretary of State for the Environment) and he instituted a public inquiry which was conducted by a panel assisted by expert assessors.

The Inquiry began on 7 July 1970 and, with a number of breaks, extended itself into a total of 237 days, finally concluding on 9 May 1972. The proceedings were initially recorded in shorthand and typescripts subsequently produced to give a full account of the hearings. In all 21,175 objectors were either heard in person at the Inquiry or submitted written objections. These objectors included the thirty-two London Boroughs, the City of London, local authorities adjoining the GLC area, societies, action groups and residents' associations, as well as numerous personal objectors. Each objector was given a number for administrative purposes.

When presenting their case several objectors submitted in advance written proofs of evidence which, for purposes of easy reference, became a numbered series of 'E' papers. There were almost 500 documents in this series. Supplementary evidence, pro-

Figures illustrating this article are on pages 160-163.
duced later, resulted in a further 1,400 documents referred to as the support paper series (‘S’ papers). A further set of documents dealing with technical matters were termed Background Papers. This ‘B’ series contained almost 600 books, pamphlets and reports, some of which were produced at the request of the Inquiry Panel. All these documents are referred to in the transcripts and this factor had to be taken into account when preparing an index.

The transcripts, officially entitled Greater London Development Plan Inquiry: notes of proceedings of the hearing, contain an estimated nine million words. Xerox copies were available at the time of the Inquiry and have now been made available in the form of microfiche.

To present anyone interested in the GLDP with such a volume of verbiage without any guidance is far from satisfactory. Even before the conclusion of the Inquiry the Research Library was being asked by some of its users to locate certain topics recorded in the transcripts. Although a summary of each day’s proceedings (erroneously called an index) prefaced every transcript, no enquirer had either the time or the inclination to read through the ever-growing mass of documentation in order to satisfy their need for a specific piece of information. Clearly some form of alphabetical index had to be constructed.

When the decision was eventually taken that the Research Library should be responsible for the index, the hearing had reached day 225. We were presented, therefore, with a considerable backlog to be indexed, and if the index was to be of maximum usefulness it had to be produced as soon after the conclusion of the hearing as was humanly possible. A target date for completion of three months was set, so there was little or no time for any research and development in spite of the fact that we had a unique task to perform.

The indexing system to be adopted needed to have three basic attributes: it should be relatively simple to decide upon and record the entry words; the processing of the selected words should be speedy; and the resulting index should be easy to use.

Users of the proposed index, it was surmised, would generally be seeking information about a particular subject. A simple enquiry may pertain to the days of the hearing when, for example, housing problems were discussed. Other approaches to the index, however, had to be considered before a system was finally selected and put into operation and it was decided that besides an alphabetical listing of subjects the following lists should be compiled:

- Speakers in alphabetical order by surname
- Objectors’ names in alphabetical order by name, whether individuals or corporate bodies
- Objection numbers
- Inquiry document numbers comprising Background papers (B Series)
- Evidence papers (E Series)
- Support papers (S Series)

Having outlined the requirements of the proposed index a suitable system had to be found. The use of cards employed in conventional library indexes and catalogues was ruled out since it is too time-consuming not only in the preparation of cards but also in the effort required to file entries into alphabetical and numerical sequences. About 58,000 cards would have been required to compile a detailed index in this manner. Moreover only one copy of the index would have been produced and it was hoped to devise a system which would eventually produce multiple copies.

A punched-card system would have made the filing of entries automatic, but the indexers would have had the additional burden of writing index terms on to coding sheets. Also the key-punching time required would have been considerable and the target date for production of the index could not have been met.
Clearly the words selected for the index would produce a considerable volume of data which required sorting. The computer was the best tool for this sorting operation. All that was required was a program which would accept data which need not be coded according to a complicated system. Already the Research Library had indexed its pamphlet collection using a KWIC (Keyword in Context) program based on the titles of the documents. This had worked well and it was resolved that with certain modifications the program could be used to create an index to the Inquiry transcripts.

KWIC indexing, of course, is by no means a new technique, having been developed by H. P. Luhn in the late 1950s. Since then applications of the system together with a number of variations have continued to be put forward.

All these indexes, however, have tended to rely upon titles rather than the texts of documents and are largely restricted to the fields of science and technology where language and terminology tend to be well defined and precise. An exception to this trend is found in Kenneth Janda's book *Information retrieval applications to political science*, which he claims to have indexed by KWIC working from page proofs, dictating terms, phrases and names from 220 pages of text to a keypuncher in less than four hours. So using this technique to index a large volume of text in the area of strategic planning documentation, can be regarded as something of an innovation.

Luhn defined ‘Keywords’ as ‘those which characterize a subject more than others’. To derive them, rules have to be established for differentiating between what are significant words and what are non-significant words in a given piece of text. Since significance is difficult to forecast, it is easier to isolate it by rejecting all obviously non-significant or common words, with the risk of admitting certain words of questionable status. These common words are referred to as ‘Stopwords’ in the program and include articles, conjunctions, prepositions, auxiliary verbs and certain adjectives. These stopwords do not appear as entries in the index but are merely printed alongside keywords for semantic purposes.

The index produced by the Research Library used the IBM KWIC/360 package which is written in PL/1. The significant features of this package are that it will: automatically accept a word of more than twelve characters; ignore words of under three characters and words which commence with a numeric character; compare words of three to twelve characters with a user-supplied list of primary stopwords limited to 255 in number.

The package defines a ‘word’ as ‘a string of characters which lies between delimiters’. Besides a blank or space, characters recognised as delimiters include the following:

- full stop
- left bracket
- ! exclamation mark
- ) right bracket
- ; semi-colon
- , comma
- ? question mark
- : colon

Other special characters allowed as input data, such as an asterisk or hyphen, are not regarded as delimiters, which means that they can form part of a word, including the beginning of a word. The significance of this will be demonstrated later.

It is also possible with this package to use a list of ‘secondary stopwords’. These limit the actual output of KWIC by preventing the records for those words listed from being printed. Similarly a list of ‘gowords’ will result in an index consisting only of the records of words so listed. Secondary stopwords and gowords may contain up to sixty characters. Words in excess of twelve characters can only be eliminated as entry words by using the secondary stopword facility since, as mentioned, primary stopwords may not exceed twelve characters in length.
Experience has shown, however, that there are very few words in excess of twelve letters which are insignificant for indexing purposes. Moreover these words occur very infrequently.

The number of characters which appear both to the left and to the right of the keyword are specified by the user of the program, as is the length of the line. Two spaces are always maintained in front of the keyword to assist in the location of terms—the resulting column in the printout being referred to in indexing jargon rather ungraciously as the 'gutter'. After some experiments, including putting the gutter on the extreme left of the page, it was decided that for the purposes of the present exercise twenty-two characters should appear on the left of the keyword and fifty-one characters to the right of the gutter.

The progressive shifting of the words of the index entry to position keywords along the scanning column frequently causes a portion of the text to be curtailed, resulting in a loss of context. When the keyword is the first or last word of an entry, a considerable amount of empty space will appear to the left or right of the line. To minimise the loss of context and to make maximum use of the space available, the computer is instructed to bring the end of the entry in at the beginning of a line. This is often referred to as the 'wrap-around' technique and can result in a word being split, one half beginning at the extreme right of the line and the other half continuing at the extreme left. Should the entry exceed seventy-three characters, however, part of the text, of necessity, will be lost because of the limit set on the line length.

To make the index easy to use the coding of the document reference was kept as simple as possible. It is best described by taking an example:

T091044D

All numbers are prefixed by the letter T representing 'Transcript'. If, at a later date, a separate index to, say, the Background papers is constructed, this can then have a document reference number prefixed by the letter B and can then be amalgamated with the present index without any confusion resulting from the coding of documents. The following six characters are two codes of three digits each representing, firstly, the day of the hearing, in this case Day 91, and secondly the page reference, in this instance page 44. The final letter indicates the position of the text on the page, each of the transcripts being divided into six sections clearly indicated by the letters A to F in the left-hand margin. When a separate hearing was held in the evening this is indicated thus:

T168EV023A

Similarly on the occasions when three hearings were occurring simultaneously the suffix X, Y or Z is added to the day number thus:

T128Z015B

Having decided upon the coding, the line length and the position of the gutter the following tasks remained:

Selection of index entries
Presenting these in machine-readable format
Compilation of stopword list
Computer processing and output

Since the transcripts of the hearings were not in machine readable form it was obvious that index records would have to be prepared by hand. This work was undertaken by three students with no knowledge of planning or indexing, plus the part-time assistance of four members of the staff from the former Plans Branch of the Department of Planning and Transportation who had been involved with the Inquiry documentation. Both groups were given a brief period of training and instruction and all entries were checked by one of two professional staff in the Research Library. In this particular project it soon became apparent that subject knowledge was not a necessary attribute to good indexing, even when involved with the technical jargon of such topics as computer
models of traffic demands which were debated at great length during the Inquiry.

The indexers read through a xerox copy of each page of every day's transcript, writing down phrases which seemed to indicate the subject matter of a particular paragraph or section. These phrases were also underlined in the text as an aid to checking by the professional librarians. If possible the phrases were limited to the line length of seventy-three characters and when transcribed the code giving the location of the text was written down.

Indexing words as spoken rather than words as written can present problems to the indexer, especially when the texts are in unedited form. Most of the objectors at the hearing sought the help of solicitors who presented their cases in a comprehensive manner. Even so, on several occasions lengthy speeches resulted which, when examined for subject content, proved to have said very little and in consequence did not contribute greatly to the number of index entries. Moreover, to stress a particular point a speaker's argument often tended to be repetitive, which could well have resulted in several pages of text being given the same index entry. In such cases only the first reference to a particular topic is given in the index.

Some objectors preferred to present their own cases and in several instances, because they were unfamiliar with presenting their arguments in public, often tended to wander from the subject upon which they were supposed to be addressing the Inquiry Panel. After allowing them to speak for some time the Chairman would indicate with considerable tact and patience that they were not contributing to the conduct of the Inquiry. In these instances several pages of transcript would remain unindexed.

No time was available to formulate a set of detailed rules for indexing: only a few relatively simple instructions were given to the indexers.

All speakers were to be indicated by inverted commas around the surname. Fortunately most of the participants in the Inquiry had surnames which were unique to the occasion. Where two people had the same surname, however, initials had to be added. Inverted commas were added for two reasons: firstly to indicate who had spoken on a given subject; and secondly, since an inverted comma is not recognised as a delimiter, any word prefixed by this symbol will file in a separate alphabetical sequence, since the filing value assigned by the computer to this character is less than the letter A. In this manner an index to speakers was easily compiled (Fig. 2).

Some difficulty arose when indexing speakers undergoing cross-examination, since two people were talking about the same subject. In these instances the person undergoing the cross-examination is taken to be the speaker rather than the person conducting the actual examination. When any cross-examination was commenced in the text an index entry was made:

'Bayliss' cross-examined by 'Lane'

Great care had to be taken in indexing when three or four people were being cross-examined at the same time, since it was not always clear from a first reading of the transcript who was answering.

When speakers were first introduced to members of the Inquiry Panel, a brief résumé of their positions and qualifications was given. This is indicated in the indexing by adding the words CURRICULUM VITAE after the speaker's name—the name in this instance appearing in the subject section of the index since it was not enclosed in inverted commas.

All references to the numbered series of Inquiry Documents, i.e. Background, Evidence and Support papers, were carefully indexed. Since a separate index was also required for these the symbol * (asterisk) was used as a prefix to the document number, resulting in a file of these numbers with an
indication of the context in which they were quoted and, of course, the textual reference (Fig. 3). A typical sample reads:

'THIRLWALL' *B090 ON CAR PARKING REQUIREMENTS

indicating that Mr. Thirlwall was quoting Background paper no. 90 on car parking requirements. In order to maintain a numerical sequence in the printout, each element in a document number had to be represented by a three-figure minimum; *B001 representing Background paper no. 1; *E012/001 indicating E12/1; and *S011/025 symbolising S11/25.

The same character (*) which introduces document numbers is also used to indicate objection numbers, which are clearly indicated by the abbreviation OBJ. Using the index, it is, therefore, easy to ascertain when a particular objection was dealt with, provided its number is known. Very often the objection number is followed by the name of the objector and preceded by the name of the speaker introducing the objection:

'WHITMORE' *OBJ0319 & HARINGEY RATEPAYERS ASSOCIATION

A minimum of five characters is used to specify an objection number in order to maintain the correct sequence in the file. Objection no. 1 is coded as *OBJ00001.

The ampersand (&) appearing before the name of the objector in the above example was used to create a separate index to objectors' names, this character again not being regarded as a delimiter. This sequence in alphabetical order precedes all others in the printout of the index (Fig. 4).

When indexing subjects, the indexers were instructed to use the words as they appeared in the text. No attempt was made at standardisation by inverting phrases, indicating synonyms or any of the techniques generally employed in conventional indexing. To take an example:

RINGWAY 1 BENEFIT TO CENTRAL LONDON

was expressed on another occasion as

BENEFITS OF RINGWAY 1 TO CENTRAL LONDON

In both instances the text was input exactly as spoken at the hearing. Because all significant words appear as index entry words their position in any particular phrase is relatively unimportant. To have created and evaluated rules for word order and word forms based upon syntactic and semantic principles would have delayed the indexing process considerably and the effort would not have produced a result proportionate to the work involved.

One previous experience with KWIC indexing the Library's pamphlet collection had indicated that certain concepts were not indicated by merely one word, e.g. PARK AND RIDE, ONE WAY SYSTEMS, and OPEN SPACE. In these examples it is obvious that the second and third words only modify the first and are not required as entry words in an index. One way to prevent this would be to designate them as stopwords but when indexing on the scale described here it became impossible to forecast all insignificant words and one found oneself limited by the program to a total of 255 words, most of which are taken care of by very common words used in everyday language such as ALL, BUT, EVERY, HIS, NOW, THE, etc. An alternative method is to represent the concepts described by more than one word as, in fact, one word as defined by the program, and since a hyphen is not designated a delimiter it can be effectively used to link words, e.g. PARK-AND-RIDE. This device has been used in several KWIC applications and is referred to as 'stringing'.

Ideally one should work out a set of rules for stringing before embarking on an indexing project, but in this instance there was available neither the time nor, since the venture was something of an innovation, the data on which to base any rules. Experience showed that this stringing process would have to be undertaken by the professional librarians involved on the project, using their natural flair for understanding indexing techniques. No rules were ever written down and although some inconsistencies occurred in the index it is quite remarkable.
how well this procedure worked. Had stringing not been adopted, all words, except for stopwords, would have been permuted as entry words, considerably increasing the bulk of the index to no good purpose. Other examples of stringing include:

BOROUGH-COUNCILS
CONSERVATION-AREAS
GREEN-BELT
EALING-BROADWAY
NEW-TOWNS
POPULATION-ESTIMATES

The names of objectors generally comprise a string of words, e.g. BLACKHEATH-MOTORWAY-ACTION-GROUP. The Department of the Environment road numbers have their elements strung to provide a word of more than two characters, e.g. A-2, M-1. As already mentioned, words of less than three characters are not accepted as keywords by the program.

The process of stringing could be facilitated in any future indexing project with the aid of the proposed Thesaurus of Planning and Transportation Terms (5) which the present author hopes to compile. This should indicate most of the concepts in this field which are expressed by means of two or more words, i.e. those which need to be linked by hyphens for input to a KWIC or similar program.

The conversion of the manually produced index data to machine-readable form was in this instance a two-stage operation. The manuscript index entries were firstly transferred to magnetic tape by means of an IBM Magnetic Tape Selectic Typewriter (MTST). These tapes were then converted in batches to tapes of computer-compatible format.

A typed copy of the data was made simultaneously with the recording on to magnetic tape. This was checked for typing errors and the MTST tape corrected before conversion.

Stopwords were input by means of punched-cards, six words being accommodated on to an eighty-column card.

Processing took place on an IBM 370/155 computer. This was carried out in several stages as and when there was a sufficient cumulation of data. The first run produced an index for about thirty days of transcripts. From this we were able to glean a considerable amount of information for improving the indexing. We were better able to judge the optimum length of entry, improve our knowledge of the stringing technique and revise our list of stopwords.

There was certainly no difficulty in selecting the list of the maximum number of stopwords allowed by the program. At one time we had nearly 500 potential stopwords which had to be reduced to 255. Frequency of occurrence was the criterion used in this selection. The remaining non-significant words could be eliminated at a later date using the secondary stopword facility.

In all, five runs of the index were made, each new set of data cumulating with that previously processed. Not only was this a valuable aid to our learning process and evaluation of the results but it helped to satisfy some of the user demands which preceded the completion of the final printout—such was the urgency of the task.

The preliminary edition of the index was contained in 995 pages of 58 line computer printout. As explained elsewhere, it is in five sections comprising:

An index of objectors' names
An index of objection numbers
An index of document numbers
An index of speakers
An index of subjects

By far the largest section is the subject index, which is contained in 615 pages (Fig. 1).

On average, two to three index entries were made per page of transcript. No more than one entry could be made per lettered paragraph since the program required each entry to have a unique reference number.

The GLDP is a structure plan for the whole of the Greater London Region and
upon this general plan will be based the Local Plans of the individual London Boroughs. Because of this it was important to index all references to particular localities including the names of individual streets and roads. In some instances even individual buildings, e.g. BUCKINGHAM PALACE, have been indexed.

Many specific topics are indexed including, for example, FOOTBALL PITCHES, TREE PRESERVATION and LORRY PARKS. Other more general topics such as CONGESTION, HOUSING, MOTORWAYS, POPULATION and ROADS have hundreds of references under each entry. London's major problems could be identified, in fact, by examining the words which produced the maximum number of entries in the index to the Inquiry.

The KWIC technique, with the aid of stringing, indicates various aspects of these problems, which enables the searcher to pinpoint one or two references on a given subject out of a total of two to three hundred citations. A few examples for the subject POPULATION indicates this clearly:

BENEFITS OF SMALLER POPULATION
DECLINE OF POPULATION IN LAMBETH
CHANGES IN POPULATION OF THE S. EAST
EFFECT ON POPULATION PARAMETERS
HACKNEY POPULATION-FIGURES
GLDP POPULATION-FIGURES
IMPLICATIONS OF POPULATION-ESTIMATES

At the time of writing, copies of the index are only available in the GLC Research Library. This means that we have the satisfaction of seeing the index regularly used as well as learning the type of enquiries that it is expected to answer. Not only has it been extensively used by the staff of the Greater London Council but also by the London Boroughs, research students at universities and others.

Should the demand from outside users grow, extra copies will have to be provided and it is hoped that a microfilm version of the index will be available in the future.

References

METRIC TYPOGRAPHY

Britain has again taken the lead in a field ripe for international standardization—typographic measurement. The change to the metric system provides an ideal opportunity for the print room to abandon its specialized range of units. In considering the advisability of devising a new system the British Federation of Master Printers and the International Council of Graphical Design Associations (who urged the introduction of a new system in 1966) recognize that a metric based system could be put forward internationally since no other country has a system of typographic measurement based on the metre. Accordingly BS 4786 Metric typographic measurement which has now been published by the British Standards Institution, describes a system employing the conventional millimetric scale—intended first as a viable alternative to present systems and later as a replacement.

The Standard recommends a basic unit of 0.5 mm having 20 sub-multiples of 0.025 mm for calculation of character width, the expression of line length in millimetres, and interlinear spacing in multiples of 0.25 mm. It recommends a range of preferred sizes meeting the needs provided for by existing systems.
Oarlinscroft

Oarlinscroft:
- piece of land adjacent to Cleishbotham’s garden (HEART, Intro of 1818, para 1)

Carlisle:
- Jeanie Deans reaches (HEART, ch 40, “In these ...”)

Carlisle Sands:
- Harry Wakefield had been at (TWO, ch 2, “Adsooks! ...” passim)

Camelites
- see under Religious orders

Cambridge:
- sheriff-depute in Pife, was the intended victim of Arch-bishop Sharpe’s murderers, but he was warned of plot (OLD, ch 4, last para but one and note)

Cambridge, Beauvis (GUI, ch 56, “Had not ...” passim)

Carnatic (SUR, ch 14, last para but four)

Caroline, Queen (wife of George II):
- effect of murder of Porteous on (HEART, ch 7, last para but one)
- to show the queen that something was being done to punish the Porteous rioters, it was suggested that some habitual criminals should be imprisoned without evidence, this to be taken into account at any subsequent imprisonment (ch 16, “He was ...” et seq)

- interview of Jeanie Deans with, at Richmond (ch 37)

political power of, in England (ch 37, para 3)

intrigues of (ch 37, “It was a ...”)

appearance of (ch 37, “They were two ...”)

promises to help Jeanie Deans (ch 37, last para but three)

Carpenter
- see Shaving

Carpenter, Gen. George:
- Francis Cebaldstone joins army under (ED, ch 37, “When we ...” passim)

Carpovius:
- and bier-sokht (PAK, ch 23, “High mass ...”)
- (This would appear to be the family Carpow in Saxony of which several members were prominent in the theological and legal field)

Carrick, Robert Bruce, King of:
- name given to Earl of Cassillis (IVAN, ch 22, “Seest thou ...” note, passim)

Carrick, Robert Bruce, Earl of:
- see Bruce, Robert

Carrifm-gawns:
- precipitous mountainside in Moffatdale, Sir Robert Dugaldston’s riding ability on (NB, Letter 11, Wandering Willie’s Tale, “Far and wide ...” and note)

Illus. 1 A page from An Index to the Waverley Novels.
Law cases lasting many years (cont.)

Rutlandson v Mackinnichson
(ANT, ch 3, para 4)

Poor Peter Peablace v Paul
Planestanes, used as prac-
tice for newly qualified
lawyers (KBD, letter 15, and
note)

case of, begun in 1745
(oh 7, "The dail a bit ...")

Law terms:

assent (amount in attone-
ment for bloodshed) (FAIR,
ch 21, "The Duke stopped
..." and note)

attaint, used earlier in
chivalry (IVAN, ch 6, "A
second ..." and note)

brief, equivalent to Scot-
tish memorial (GUY, ch 26,
"Well, curse thee ...")

copyhold (KENIL, ch 5, "Ay,
and those ..."; ch 7, "Thou
art like enough ...")

ditty (indictment) (FAIR,
ch 25, "Do you think ...")

dues (FRIDES, ch 13,
para 4 and note)

feu-rights (FIDES, ch 12.
para 4 and note)

flotsam and jetsam (PIRATE,
ch 12, "The furniture ...")

Fiabeaus Corpus, Scottish equiv-

alent known as "run letters"
(HABRAT, ch 16, "I doubt that
..." and note)

king's keys (ANT, ch 21,
"With stah ..." and note;
KBD, ch 19, last para passim)

leading questions, views of
Scottish lawyers on (KBD,
ch 25, "And she told you
..." et seq)

letters of haring and cap-
tion (KBD, Intro, "This was
nothing ...")

memorial, equivalent to Eng-
lish brief (GUY, ch 36;
"Well, curse thee ...")

mortgage in England, same as
wadset in Scotland (KBD,
ch 4, "A wadset ...")

mortification in Scotland
similar to settlement in
mortain in England (GUY,
ch 36, "A settlement ...")

Oyer and Terminer, commis-

sioners sitting at trial of
Fergus Mac-Ivor and others
(WAVE, ch 69, para 1)

Panel, means accused party
in Scottish trials (HEART,
ch 23, para 2)

Porteous Roll, list of crim-

inal indictments in Scot-
land (SUE, Pte, "I am far
..." and note)

Precoagulation, Scottish equiv-

alent to coroner's inquest
(GUY, ch 10, para 2)

or protocol (statement)
(FAIR, ch 18, last para but
three)

of Proudfute's death
(ch 20, para 3)

Protocol (or precognition)
(statement) (FAIR, ch 18,
last para but three)

Question, fishing (WAVE,
ch 50, para 3 et seq)

run letters, procedure simi-
lar to Fiabeaus Corpus (HEART,
ch 16, "I doubt that ..." and
note)

Illus. 2 A page from An Index to the Waverley Novels.

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HANDLING-FACILITIES AT HEATHROW AIRPORT: NEED FOR EXTRA AIR F
LD BE PERMITTED AROUND HEATHROW AIRPORT: WOOD COMMERCIAL-DEVELOPMENT SH
OF WAREHOUSING AROUND HEATHROW AIRPORT: 0304072 "FRANZINI' PROBLEM
WOOD' NOISE-LIMITS AT HEATHROW AIRPORT: GROWTH 'KILLICK' GLC-CONS
IERATION OF IMPACT OF PICCADILLY-LINE TO HEATHROW AN AID TO TOURISTS 'ELLEN' DEVELOPMENT
"KILLICK' LONGFORD IN RESIDENTIAL-LAND AROUND HEATHROW AREA-OF-OPPORTUNITY
"DANIEL' "WOOD' EFFECT OF NK BETWEEN SUNBURG X TRANSPORT LINK BETWEEN
TOPPLEY' LINK FROM HEATHROW-AIRPORT 'BUTTOMLEY' NEW RAIL-L1
"BOYDELL' *EO12/002 HEATHROW-AIRPORT AND CENTRAL-LONDON "GARLICK'
"STOTT' GRANT FOR 247 FLEET-LINE. MB24B "MORTON' IMPACT OF
ISS' RATE-OF-RETURN ON HEATHROW-LINK "BAYL
"ROCKWELL' HEATHROW-RAIL-EXTENSION "TAYL
"WILLIAMS' HEAVIER DEMAND FOR RINGWAY 1 "TAYL
"GREGORY' HEAVIER-LOADINGS ALONG THE A-4 "TAYL
VENT-GARDEN "BOYDELL' HEAVIEST TRAFFIC AT SPITALFIELDS-MARKET IS TG AND +
"THOMSON' HEAVILY-LOADED RADIAL-ARTERIES "TAYL
RISHING "ALLEN' HEAVILY-TRAFFICKED SHOPPING-CENTRES-OFTEN-MOST-FLOW
'BIGGS' RESTRAINT OF HEAVY COMMERCIAL-TRAFFIC IN TOWER-HAMLETS
SE OF PRIMARY-ROADS BY HEAVY COMMERCIAL-VEHICLES "JARVIS" U T609705C
*EO12/001 MOVEMENT OF HEAVY FREIGHT-TRAFFIC ON MOTORWAYS "DANIEL" T088042E
VERAGE TRIP-LENGTH FOR HEAVY GUDS-VEHICLES "JARVIS" LTS1 A T070006B
ACK OF SIGNPOSTING FOR HEAVY GOODS-VEHICLES 'QUICK-SMITH' L T219057C
ZONAL JOURNEY-TIME FOR HEAVY GOODS-VEHICLES 'JARVIS' MEAN INTER T070006F
DARY-ROADS RELIEVED OF HEAVY GOODS-VEHICLES BY PRIMARY-ROADS 'WADDACKER' S T110070A
"JENKINS' HEAVY GOODS-VEHICLES DESTRUCTIVE TO ROAD-SURFACES T088024F
"MIDDLE' HEAVY GOODS-VEHICLES TRIP-LENGTH T064028B
"BOYDELL' NUMBER OF HEAVY GOODS-VEHICLES-TRAVELLING THROUGH GLC AREA T003045E
WATE-SIDINGS TO REDUCE HEAVY GOODS-VEHICULAR-TRAFFIC "DANIEL' USE OF PRI T088043C
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