CHAPTER 5

ANALYSIS OF FAILURES

On the completion of the second round of the test programme, a complete analysis was made of all cases where the source document, within the range P12001 - 18000, had not been retrieved. As a result of this analysis, some changes were made in the rules for the third round of testing (as discussed in Chapter 2), and further analysis was done of all failures in the third and final round of testing. This work was done mainly by Miss Warburton; Mrs. Aitchison assisted in the later stages but her work was checked by Miss Warburton to ensure consistency. All doubtful cases were also considered by the Director.

The procedure involved obtaining in each case the source document, the master indexing card, the question and the master search card. These were then considered in relation to each other and a decision taken as to the factor or factors responsible for them. The reasons fall under four main headings, namely:

1. Question
2. Indexing
3. Searching
4. System

Within these headings there are a number of divisions and the complete set are shown in Tables 5.1, 5.2 and 5.3. These tables include the figures relating to each division in the second and third rounds of testing and also the cumulated total for the two rounds.

329 documents and questions were involved in this analysis, while the number of failures by one system or another amounted to 495. The average time to complete each analysis was about an hour, although in some complex cases the time went up to two hours.

The complete summary of the analysis of failures by project staff, of which the following pages give a precis, is contained in Appendix 5A while some examples of the complete analysis of the individual documents are given in Appendix 5B.

		UDC	ALPHA.	FACET	UNITERM	TOTAL
1.	**QUESTION**					
a.	too detailed	2	2	2	2	8
b.	too general	5	4	6	4	19
c.	not easily understood	1	1	1	1	4
d.	misleading	1	3	3	2	9
e.	incorrect	3	2	3	2	10
2.	**INDEXING**					
a.	insufficient indexing:-					
(i)	personal errors	8	9	11	6	34
(ii)	time allowance	8	8	10	10	36
b.	overdetailed indexing	1	1	1	1	4
c.	incorrect:-					
(i)	personal errors	3	0	1	0	4
(ii)	time allowance	3	2	3	0	8
d.	insufficient number of entries	7	0	1	0	8
e.	careless indexing:-					
(i)	personal errors	6	11	15	6	38
(ii)	time allowance	7	3	3	1	14
f.	lack of entry in indexes to schedules	0	0	1	0	1
g.	lack of cross references	0	1	0	0	1
3.	**SEARCHING**					
a.	lack of understanding	2	5	6	2	15
b.	failure to use all concepts	3	3	4	0	10
c.	chain indexing	0	0	12	0	12
d.	failure to search systematically	1	2	5	0	8
e.	incorrect searching	3	1	2	0	6
f.	insufficient searching	2	7	3	2	14
4.	**SYSTEM**					
a.	number of places for same subject	2	2	4	0	8
b.	lack of place in schedules	4	3	5	0	12
c.	lack of subdivisions causing placing to be too general	3	0	0	0	3
d.	bad choice of heading	0	1	0	0	1
e.	synonyms	0	0	1	2	3
f.	inability to combine particular concepts	0	1	0	0	1

TABLE 5.1

REASONS FOR FAILURES IN SECOND ROUND

OF TESTS BY PROJECT STAFF

		UDC	ALPHA.	FACET	UNITERM	TOTAL
1.	**QUESTION**					
a.	too detailed	4	3	3	3	13
b.	too general	0	0	2	0	2
c.	not easily understood	2	2	2	2	8
d.	misleading	3	3	4	4	14
e.	incorrect	1	0	0	1	2
2.	**INDEXING**					
a.	insufficient indexing:-					
(i)	personal errors	7	8	4	3	22
(ii)	time allowance	8	6	9	5	28
b.	overdetailed indexing	3	3	1	0	7
c.	incorrect:-					
(i)	personal errors	4	3	4	0	11
(ii)	time allowance	2	2	3	1	8
d.	insufficient number of entries	11	0	0	0	11
e.	careless indexing:-					
(i)	personal errors	16	8	14	12	50
(ii)	time allowance	8	2	8	5	23
f.	lack of entry in indexes to schedules	5	1	0	0	6
g.	lack of cross references	1	1	1	1	4
3.	**SEARCHING**					
a.	lack of understanding	4	4	4	5	17
b.	failure to use all concepts	0	0	0	0	0
c.	chain indexing	0	0	0	0	0
d.	failure to search systematically	0	0	0	0	0
e.	incorrect searching	1	1	1	0	3
f.	insufficient searching	1	2	2	1	6
4.	**SYSTEM**					
a.	number of places for same subject	1	1	1	0	3
b.	lack of place in schedules	2	2	3	0	7
c.	lack of subdivisions causing placing to be too general	1	0	0	0	1
d.	bad choice of heading	0	1	0	0	1
e.	synonyms	0	0	1	2	3
f.	inability to combine particular concepts	0	1	0	0	1

TABLE 5.2

REASONS FOR FAILURE IN THIRD ROUND

OF TESTS BY PROJECT STAFF

		UDC	ALPHA.	FACET	UNITERM	TOTAL
1.	**QUESTION**					
a.	too detailed	6	5	5	5	21
b.	too general	5	4	8	4	21
c.	not easily understood	3	3	3	3	12
d.	misleading	4	6	7	6	23
e.	incorrect	4	2	3	3	12
2.	**INDEXING**					
a.	insufficient indexing:-					
(i)	personal errors	15	17	15	9	56
(ii)	time allowance	16	14	19	15	64
b.	overdetailed indexing	4	4	2	1	11
c.	incorrect:-					
(i)	personal errors	7	3	5	0	15
(ii)	time allowance	5	4	6	1	16
d.	insufficient number of entries	18	0	1	0	19
e.	careless indexing:-					
(i)	personal errors	22	19	29	18	88
(ii)	time allowance	15	5	11	6	37
f.	lack of entry in indexes to schedules	5	1	1	0	7
g.	lack of cross references	1	2	1	1	5
3.	**SEARCHING**					
a.	lack of understanding	6	9	10	7	32
b.	failure to use all concepts	3	3	4	0	10
c.	chain indexing	0	0	12	0	12
d.	failure to search systematically	1	2	5	0	8
e.	incorrect searching	4	2	3	0	9
f.	insufficient searching	3	9	5	3	20
4.	**SYSTEM**					
a.	number of places for same subject	2	2	4	0	8
b.	lack of place in schedules	4	3	5	0	12
c.	lack of subdivisions causing placing to be too general	3	0	0	0	3
d.	bad choice of heading	0	1	0	0	1
e.	synonyms	0	0	1	2	3
f.	inability to combine particular concepts	0	1	0	0	1

TABLE 5.3

TOTAL REASONS FOR FAILURES IN SECOND AND
THIRD ROUNDS OF TESTS BY PROJECT STAFF

PRECIS OF SUMMARY OF ANALYSIS

1. **QUESTION**

The analysis has divided the failures because of questions into five main types:-

(a) Too detailed:- in which the information the questioner required was hidden in a short paragraph and consisted of only a small part of the whole paper. (21 failures).

(b) Too general:- in which the search would have retrieved large numbers of documents, any of which may have given the information required. (21 failures).

(c) Not easily understood:- with which the answer might have been forthcoming if the enquirer had been at the librarian's elbow whilst the search was being made. (12 failures).

(d) Misleading:- again if the searcher had been able to talk to the enquirer, the difficulty in finding the document would probably have been eliminated. (23 failures).

(e) Incorrect:- where the questioner appeared not to have understood the subject of the article, and compiled a question which was inaccurate. (12 failures).

2. **INDEXING FAILURES**

(a) Insufficient indexing:- These are divided into (i) the errors caused through the indexer's lack of judgement, and (ii) the failures caused by shortage of time allowance. The latter will not be discussed, on the assumption that the indexer would have made the necessary additions to his entries had time allowed.

(i) Personal errors:- Under this heading have been placed fifty six failures. This total comprises the single failures under each system, but they are grouped in this analysis under the causes of failure and not the systems.

(α) Omission of an important concept:- In 16 cases, the indexers' failure to include an important concept has caused the document to remain untraced.

(β) Too general indexing:- In 12 cases, the indexer did not index particular concepts in as much detail as he could have done, and so placed them at a more general number or heading.

(γ) Failure to recognise practical applications:- In 2 failures, the indexer omitted to index the applications of the subject of the paper. In each

paper, the theory was indexed in sufficient detail, but the practical applications, usually referred to in the summary, introduction or conclusions, were ignored.

(δ)   <u>Lack of technical knowledge</u>: - In only 5 cases was it apparent that a particular concept was missed because of the indexer's lack of technical knowledge.

(ε)   <u>Effect of one concept on another</u>: - In one failure, it was clear that the indexer, although he had indexed the principal part of the paper, ignored the effect of a single concept on another concept. As the document was approached by a question based on the second concept it remained untraced.

(b) <u>Overdetailed indexing</u>:-   11 failures have been classed under this heading, emanating from 4 documents. In each of these documents, the indexer indexed the examples given in the test, but did not index the general purpose of the article, in each case expressed by the title. As the questions were based on the titles, the searchers were not able to trace the documents from the specific headings and entries given, without checking whole sections of the catalogue.

(c) <u>Incorrect indexing</u>:-   Again, only section (i) under which have been placed the failures caused by personal errors not affected by time allowance, are considered.

There were 7 failures under this heading, in the U.D.C. system, 3 by Alphabetical and 5 in the Facet system. The failures in U.D.C. are not easily explained, for a rule that had been fully understood by the three indexers had, on these occasions, been ignored. Possibly fatigue of the indexer, or some slight forgetfulness was responsible.

The errors in Facet were due to carelessness or lack of memory. The indexer remembered an element of notation incorrectly, but it was used so frequently that it was not checked in the schedules. Although the documents were not traced in three systems, there were sufficient Uniterms found to consider the searches successful.

(d) <u>Insufficient number of entries</u>:-   The failures falling under this heading are from two systems only, U.D.C. and Facet.

The 18 failures with U.D.C. are due to lack of permutation. The indexer had, in each case, chosen the correct U.D.C. number, but had not made

sufficient entries from those numbers. Also, on occasions, the indexers coloned four U.D.C. numbers for one entry. It was found in the searching programme that a searcher rarely used more than two notational concepts with which to start his search programme.

The one failure in Facet was traced to the indexer's use of one long entry, of nine elements, which would have made necessary a long search via the chain index to trace the particular document. This was because the question was more general than the indexing entry, which with the addition of extra elements separated those required by the searcher.

(e) Careless indexing:-   A total of 88 reasons for failure fall under section (i) Personal errors. Again, only these are considered useful to discuss, as the remainder are due to shortage of indexing time allowance.

Of these 88 reasons for failure, 22 documents were not traced in U.D.C., 19 in Alphabetical, 29 in Facet and 18 in Uniterm. There is no apparent reason, apart from carelessness, for the high numbers in Facet or Alphabetical, or U.D.C. Possibly the failures in Uniterm were due to the fact that code numbers and not terms were entered on the master indexing card, so that the indexer could not readily assess which Uniterms he had included. It is true that numbers are used for the notation of U.D.C., but these would be fewer in toto and were more familiar to the indexers.

73 documents are included in this total of 87 failures, showing that normally the indexer used the necessary elements for success in most of the systems, but through lack of thought or carelessness, did not include the elements in all the systems. In each case considered, the inclusion of the same elements in each system would have traced the document.

(f) Lack of entry in indexes to the schedules:-   7 failures can be attributed to this reason, 5 in the U.D.C. system, one each in Alphabetical and Facet.

The failures in U.D.C. were caused by the use of a new number without the appropriate entry being entered in the alphabetical index. Thus the searchers for these documents were unable to find their way to the correct part of the catalogue.

The single failure in Alphabetical was also due to a new heading being used. Later, the form of the heading was altered to bring it into line with the other entries, but no reference was made from the first heading to the second.

(g) <u>Lack of cross reference</u>:- 5 failures are included under this heading, 4 from the same document. A particular term was used in the title and question which was not known to either the indexer or searcher. If, in the alphabetical lists to all systems, an entry had been made from the unknown term to that in each system under which the document had been placed, there would have been no difficulty in searching. One failure in the Alphabetical can be attributed to the searcher failing to check a heading with which she was not familiar, due to the fact that there was no cross reference from the general heading to the more specific.

3. <u>SEARCHING FAILURES</u>

(a) <u>Lack of understanding</u>:- Some failures where, if the questioner had been available, the searcher might have been able to formulate the search programmes correctly, are included here as well as in Section 1(c). There are also the failures in which if the searchers had given a little more thought to the problems, the documents should have been traced without difficulty.

Three questions failed in all four systems because the searching programme did not include a concept which should have been understood, and used from the question. A fourth question failed in Alphabetical, Facet and Uniterm, because of the same reason but, as the particular concept could not be expressed in the U.D.C. code, it cannot be counted as a reason for failure. Also, a fifth question failed in U.D.C., Facet and Uniterm, but, as the particular concept omitted in the searching programme was used as a subheading in Alphabetical, the reason for failure is due to another cause.

(b) <u>Failure to use all the concepts given in the question</u>:- Under this heading fall 10 documents, 4 failing in the search of the Facet catalogue, and 3 each in the Alphabetical and U.D.C. catalogues. In every case, the searcher failed to include in the search programme all the concepts given in the question. If these had been included, the required documents would have been traced.

Three of the failures in the searches of the Facet catalogue were because the searchers were frightened away by the number of cards under the single concept they had chosen. If they had also used one or more other concepts, the number of necessary searches in the classified catalogue would have been greatly reduced, and the search would have become realistic.

(c) <u>Chain index</u>:- 12 documents remained untraced in the Facet catalogue because

of the searchers refusing to continue with a search. In each case, all possible concepts were taken from the question, and used in the search programme, yet still the searches involved too many entries into the classified section of the catalogue from the chain index. The questions concerned can be divided into two; either they were too general to enable the chain index to be used satisfactorily, or there was no single adequate place for entry via the schedules, but several possible places, each of which would need to be checked in the chain index.

For the third round of testing, this heading does not apply, as physical search in the classified catalogue was obviated by the searchers listing, from the chain index, the entries containing the required elements and checking these against the master card.

(d) Failure to search systematically:- Under this heading are included cases where the document was not traced, because the searcher did not take the search to the limits allowed by the decision of the project staff. For instance, if a search programme included three concepts, only one could be dropped, although each could be dropped in turn, leaving two concepts remaining for the next search programme. This limitation was made so that the searchers would not let their searches become too general. In these particular cases, this limitation was not reached, although if it had been, the documents would have been traced.

Also included under this heading are the failures in the Facet system, where the searcher has tried a place in the classified catalogue, yet not checked under the translation of that element of notation in the chain index.

Another reason for failure in the Facet scheme was when the searcher did not check under the sub-divisions of a concept, which could easily be found from the printed schedules.

One failure in U.D.C., two in Alphabetical, and five in Facet comprise the 8 failures.

(e) Incorrect searching:- 5 failures, two in the U.D.C. scheme, and one each in Alphabetical and Facet, were due to the searcher checking an incorrect place in the catalogues. In the U.D.C. failures, the searcher probably through carelessness, checked the entry next to the correct entry in the alphabetical index.

One question in U.D.C., Alphabetical and Facet, failed because the

searching programme was incorrect. The document was traced in the Uniterm system because of sufficient additional Uniterms traced to constitute a success.

(f) Insufficient searching:-   Under this section fall 20 causes of failure from 13 documents. 3 failures were from the U.D.C. catalogue, 9 from the Alphabetical, 5 from Facet and 3 from Uniterm. In most cases the searcher did not formulate sufficient search programmes, or check in all the possible places in the catalogue.

One question failed in Alphabetical and Facet for the same reason, but was traced in U.D.C. because of the ability to combine two numbers and yet make a general search through the second, i.e. 533.6.013.129: 533.692+. In the Uniterm system, sufficient Uniterms were traced to consider the search successful.

4. SYSTEM

(a) Number of places in the schedules for the same aspect:-   In the U.D.C. searching, it was discovered that one failure was due to a number of entries in the alphabetical index for the same aspect, although each entry was described by the containing heads. Thus it was possible to sort the number of places into order of relativity. In another case, there were four possible places in which to index or search, and the searcher did not try them all.

In the Alphabetical searching, two failures were caused by there being two entries for similar concepts. A cross-reference from one to the other, or the inclusion of both under the same heading, would have eliminated the difficulty.

The Facet searching brought out two failures attributed to the fact that in both cases there are two or more possible ways of indexing and searching for the same concept. With each failure, the indexer used one method and the searcher another.

In another case, the failure showed up the ability of the indexer or searcher to use terms which, with adjectival terms, build up expressions with the same or similar meanings.   Some decision should be made as to which is the more suitable, and the material placed under one heading, with a see reference in the chain index from the other.

(b) Lack of place in the schedules:-   12 searches were unsuccessful because there was no obvious place to which the searcher was directed by the indexes

to the classification schemes. One of the three documents was not traced
in either the U.D.C., Alphabetical or Facet systems. Of the other failures,
3 were in the U.D.C. system, 2 with Alphabetical and 4 with Facet.

In each case, as the question was a fair one for the subject of the
document concerned, it also applies that the indexer could find no
satisfactory place in which to classify the document.

(c) Lack of sub-division, causing the placing to be too general:- Three
failures, all in U.D.C., were assessed to have been caused by a lack of
sub-division in the printed schedules, thereby causing the place chosen
to be too general. In one case, the place provided in the aerodynamic
schedules was too general for such an aerodynamic collection, but in a
second failure, it is the indexers' use of the schedules that is criticised,
not the printed schedules themselves. There was provision for sub-division
by alphabetical arrangement, but the indexers chose not to use it. Hence,
the section was very full and searching time was increased because of the
size of the section.

(d) Bad choice of heading:- One failure in the Alphabetical catalogue was
due to a bad choice of heading. The heading, which was adjectival, was
a general one, whereas the use of the particular adjective implied that a
more specific heading should have been used. The searcher therefore,
did not lead to the correct place in the catalogue.

(e) Synonyms:- Three failures were caused by synonymous terms, one
in the Alphabetical system and two in Uniterm.

With one question, there was a failure to trace the required document
in both Alphabetical and Uniterm, yet the searches were successful in the
other two systems, solely because the two particular terms were included
under one heading or number.

The third failure, in Uniterm, was caused by three similar Uniterms
which should have been combined under one Uniterm, with references
from the others.

(f) Inability to combine particular concepts:- One failure was caused by the
inability in the Alphabetical systems to combine two concepts. To search
each concept individually, would have made the search too general.

In the three other systems, the document was traced because the
two particular concepts could be combined.

Table 5.4 gives the reasons for failure by the four main headings of Question, Indexing, Searching and System, and from this will be noted the major part due to indexing, and the small percentage which can be shown to have been caused through any weakness of the indexing system. The basic figures are rearranged in Table 5.5. to bring out the effect of personal errors and the time allowance for indexing. While the latter was adjudged to be responsible for 22% of the failures, personal errors in either indexing or searching caused over half of the failures.

	UDC	ALPHA.	FACET	UNITERM	TOTAL
QUESTION	22 (13%)	20 (17%)	26 (16%)	21 (25%)	89 (17%)
INDEXING	108 (70%)	69 (56%)	90 (54%)	51 (60%)	318 (60%)
SEARCHING	17 (11%)	25 (21%)	39 (24%)	10 (12%)	91 (17%)
SYSTEMS	9 (6%)	7 (6%)	10 (6%)	2 (3%)	28 (6%)

TABLE 5.4

REASONS FOR FAILURES (PROJECT STAFF)

	UDC	ALPHA.	FACET	UNITERM	ALL SYSTEMS
PERSONAL ERRORS					
Indexing	66 (43%)	43 (36%)	52 (32%)	28 (34%)	189 (36%)
Searching	17 (11%)	25 (20%)	27 (16%)	10 (12%)	79 (15%)
TIME ALLOWANCE	36 (23%)	23 (19%)	36 (21%)	22 (26%)	117 (22%)
QUESTION	22 (13%)	20 (17%)	26 (16%)	21 (25%)	89 (17%)
ALL OTHER REASONS	15 (10%)	10 (8%)	24 (15%)	3 (3%)	52 (10%)

TABLE 5.5

BREAKDOWN OF REASONS FOR FAILURES (PROJECT STAFF)

In addition, an analysis was made of the cases where the technical staff had failed to retrieve the source documents and Tables 5.6 and 5.7 summarise the results of this analysis. These show a greater proportion of failures due to searching by Alphabetical and Facet, but a much smaller change in this respect for U.D.C. and Uniterm.

	UDC	ALPHA.	FACET	UNITERM	TOTAL
QUESTION	20%	15%	16%	25%	17%
INDEXING	53%	32%	34%	53%	42%
SEARCHING	23%	49%	43%	20%	37%
SYSTEM	4%	4%	7%	2%	4%

TABLE 5.6

REASONS FOR FAILURES (TECHNICAL STAFF)

	UDC	ALPHA.	FACET	UNITERM	TOTAL
PERSONAL ERRORS					
Indexing	40%	28%	24%	33%	33%
Searching	17%	32%	33%	18%	24%
TIME ALLOWANCE	15%	16%	14%	20%	17%
QUESTION	20%	15%	16%	25%	17%
ALL OTHER REASONS	8%	9%	13%	4%	9%

TABLE 5.7

BREAKDOWN OF REASONS FOR FAILURES (TECHNICAL STAFF)