Educating the Students as Library Users in the Hungarian Technical Universities

K. Héberger
Technological University of Budapest

J. Balázs
Technological University of Budapest

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In our age technology, scientific knowledge and practical experience are developing with an extraordinary speed. As a consequence, information material is also continually growing. According to the data of Professor A. Kent (1) about 2,000 books, newspapers, reports and other documents are published each minute of the day and their approximate volume is one milliard and fifty million pages.

The increasing volume of the special literature makes it more and more difficult to survey the necessary source-material. The rapid industrial development of the different countries in such that it is now necessary to scan the special literature of countries that, a decade ago, did not play a considerable role in the industry in question.

It is, of course, vital that existing scientific and professional knowledge reaches the specialists in need of it. Here we can again quote a statement of Professor Kent (2) that in the United States the difficulty of acquiring scientific information may be one reason for the waste of 45 cents out of each dollar spent on research. This is why research on meeting the demand for information and the development of methods to satisfy it has become of great importance. J. Martyn (3) reports the following results from the analysis of data obtained by sending out questionnaires to scientists:

80 per cent of them use quotations and data out of books at their disposal;
77 per cent systematically survey the publications of their special field;
66 per cent are supported by information from colleagues working in the same field;
58 per cent read the author and subject indexes of the abstracting journals and special journals;
50 per cent could name the current standard works and monographs of the special field;
47 per cent use individual (personal) bibliographies;
31 per cent acquire their information by correspondence with other specialists;
16 per cent use special bibliographies;
10 per cent make use of library catalogues;
8 per cent ask librarians and documentalists to supplement source data of information.
The most important result of the above summary for us is that the researchers gather information not only from one but from many kinds of sources. Other searches, however, point out that the sources and research methods of the individual special fields (forestry, chemistry, mechanical engineering, etc.) differ greatly. Use of abstracting journals as well as new services of documentation (card services, digests of technical and economic literature on specific subjects, mechanical indexes, etc.), shows a common tendency to increase.

Having indicated the general trend let us see the concrete reasons why a technical specialist must be well informed:

1. Gathering information in professional literature - an element of engineering work

The first two work phases of an engineer's creative activity, are recognition of the problems and their incorporation into the system of the acquired theoretical material which are followed by the third phase in which the existing results are summarised. Having become well informed on the professional literature - and only after this - he attempts to work out the principle of solution of the given problem, to perform the necessary calculation, planning, laboratory and operating tasks etc. In our age the character of the problems which arise demands information on the professional literature for executive activities, just as much as do the workers involved in technical development and design.

2. National features

The efficiency of applying scientific knowledge is an important factor in increasing the national income. The economic resources and possibilities of small countries for scientific research are limited, and therefore to be well informed in the professional literature is an imperative need for them. The developed industrial countries endeavour to increase their intellectual export. Intellectual export, however, means renewed demands on professional literature, namely for a detailed exposition and analysis of such factors as the environmental, geological, and operating conditions of the user of intellectual products.

3. Collective research methods developed in our age

In our age theoretical and industrial research is not an individual but a collective activity. Research work takes place, in both the institutions and universities, in teams. According to this method the individual contributions to the research project are fixed - in time and programme - by strictly determined plans. It is obvious that the primary essential of a literature search is speed, and that results of the individual researchers can decisively influence the success of the whole research project. Speed is also a decisive factor on account of obsolescence. Use of the old literature instead of the most up-to-date information results in backwardness in international competition.

4. Quick obsolescence of knowledge

One or two generations ago knowledge acquired at the university had an adequate stability for engineers. But the technical revolution of today is causing a part of this knowledge to become obsolete. Therefore engineers working in education, research, and practice must continually refresh and modernise their knowledge.
5. Quantitative increase of information

In connection with this we are seeing very progressive developments. A most important opportunity for rationalising the work of creative scientists lies in gathering reliable data and information and subjecting this to critical selection and evaluation by experienced workers. A very good knowledge of librarianship, information and documentation is demanded for surveying and selecting from the enormous quantity of professional literature.

6. Scattering of professional literature and language difficulties

The quantitative increase of the professional literature has led to a new phenomenon, namely to the scattering of professional literature. By scattering we mean the wide scope of the actual organ of publication of professional articles and papers. The difficulty caused by this is demonstrated by the following example. A collection gathered over ten years on the subject of shaft coupling has resulted in 1687 articles published in 336 journals of different titles, in 14 languages (4). 20 of the 336 journals contained 54 per cent of the papers while 46 per cent of all the articles were published in 316 journals. 200 of the journals published, over ten years, only 1 or 2 articles on the subject of shaft coupling. Analysis of the special literature made it evident that some themes have no basic journal at all (e.g. calculating size of production, hydrostatic bearings) and, as a consequence, the communications on such subjects are widely dispersed. It is evident from the examples mentioned above that the language problems mean serious difficulties in getting acquainted with information. Many people think that knowledge of the four world languages (English, German, French, Russian) solves the question. No doubt that with knowledge of the world languages one can obtain a good survey of the special literature. But we should commit a great fault if, in the course of a literature search, we should totally exclude the communications and other source materials published in other languages. In technical tasks it is very often necessary to solve part problems and we must draw on sources published in many different languages. In the case of patents we are interested in whether the construction or procedure in question has any protection in the given country.

7. The rapid development of technology has also transformed the sources of information.

Traditional material such as books, journals, standards, and patents, are today being supplemented by documents of a new type such as research reports, preprints, theses, technical films, magnetic tapes, microfilms etc. These new type documents are also stored and available to researchers according to a definite system. One can only find the desired information by the possession of adequate knowledge of these systems.

8. Consequences of the integrating endeavours of the libraries

The libraries can accommodate the ever increasing quantity of the special literature only by cooperation. Instead of collecting documents with an attempt at completeness, stricter limitations and circumscriptions have been coming into existence in the field of collection interest. For example, in Hungary 30 libraries are collecting the literature of physics, while 25 libraries are acquiring that of mathematics on a national level according to a previously fixed agreement of integration. For the researcher it means that the necessary literature must be sought not in one but several places. It is therefore evident that orientation in special literature and knowledge of up-to-date library techniques and documentation have become necessary to the specialists.
In the Hungarian People's Republic the Minister of Education has made it obligatory to give instruction on literature searching at the technical universities, in economics, and at the faculties of sciences of the universities (5). "The purpose of the instruction is to make the students well informed about the most important sources of the disciplines belonging to the special field of their training, and the more significant Hungarian scientific and research libraries. It is designed to make them familiar with methods of using libraries, of literature searching and to ensure that they acquire fundamental bibliographical and documentational knowledge."

The instruction in library techniques and special literature takes place in two stages. In the first years at the technical university students receive training in basic subjects. These subjects do not involve independent research by the students but require good comprehension, attainment and application of the subjects. In order to use special literature, the students are first of all in need of knowledge of general library techniques and of library use. Accordingly, it is necessary that they get to know and use the literature (handbooks, collections of examples, tables, catalogues, standards etc.) at their disposal for consolidating and extending their theoretical and practical work. This is considered as the first stage of the instruction.

In the engineers' training the need for instruction in special literature searching appears in the later years. The students, at this time, deal with independent designing and planning and carry out laboratory, measuring and technological exercises. This kind of activity requires a thorough knowledge of the special literature and acquisition of this is considered as the second stage of the course.

INSTRUCTION IN LIBRARY TECHNIQUES AS CARRIED OUT AT THE UNIVERSITIES (FIRST STAGE)

Technical University of Budapest

At the six faculties of the University 1600-1700 students begin their studies annually. Such a great number of students cannot be introduced to the library premises at the same time and the necessary knowledge is given most suitably by means of lectures. The leading representatives of the central library deliver lectures on the use and most important services of the library to first year students of each faculty. These cover the rules of lending, use of the reading rooms, the system and use of the catalogues as well as the information service. After delivery of the lecture the printed bulletin of the library is distributed (6). We can report favourable results from our lectures on library use which were introduced six years ago. Many of the first year students register in the library immediately and make use of the services as well. In order to inform the students we also arrange an exhibition of the textbooks and publications used in the first year and this can be seen at the time of registration.

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The first year students of the three faculties of the University - some days before beginning their studies - pay a visit to the library during a sightseeing tour of the University when a lecture on the use of the library is given and they receive duplicated material giving information on the services and arrangement of the library.
The first year students of the University visit the library in work teams and at the same time they are registered. The students get acquainted on the spot with the position and arrangement of the catalogues and with the different possibilities of using the holdings of the library (reading room, rules of lending, etc.).

**INSTRUCTION IN SEARCHING THE SPECIAL LITERATURE (SECOND STAGE)**

Organised instruction in searching the special literature can take place most effectively in the central libraries of the universities. The libraries are bases for instruction of this kind because the valuable holdings of source-materials make it easy to search and become familiar with the special literature, and its processing is a special library task. It is necessary, however, to emphasise that the instruction taking place in the libraries must not be separated from the work of the departments: it cannot become independent, but this new type of instruction must be so organised that it conforms with the profile of the individual branches, supporting and completing the already established special methods of research. It is most important that the students make literature searches on concrete subjects. It is not sufficient to indicate the documents bearing information (e.g. book, periodical, preprint, thesis etc.); the student must handle all kinds of documents, and one should demonstrate examples where he needs to consult various sources. It is also essential that the selected illustrations be up-to-date and didactically right as well as characteristic of the given subject field. It is necessary as well to stress the dominating language territory of the individual subjects. Of course, this activity requires an extensive technical knowledge and command of language from the information officers. At the Hungarian technical universities instruction in the special literature was preceded by a preparatory and experimental period of several years. Our present situation is outlined below.

**Technical University of Budapest**

Our training of chemical engineers has incorporated instruction in literature searching for more than a decade, and we have issued a publication on our experience (7). At present the instruction is given as follows:

The chemical engineering students in the third year must carry out individual literature searches connected with laboratory work in the Organic Chemistry Department. Then they attend theoretical lectures on general problems (organisation of librarianship, the approach to searching the chemical literature, construction of the classified catalogue etc.) occupying two 1 hour periods. The lectures are illustrated by using an overhead projector of type Apollo 6, of course, without darkening the lecture-hall. The illustrative material is of chemical character, much of it drawn from their professors' publications in foreign journals or quotations from them (e.g. quotation index). This method is employed because of pedagogical points of view. After the lectures the groups spend 8 hours, on three occasions (3+3+2), in doing a literature search. The individual literature search takes place in groups of 10 students under the supervision of the reference librarians. In order to eliminate the difficulties due to the students' lack of language knowledge they can get help with translation, - a special translator can spend up to 100 hours assisting them. Most of them cannot finish the literature search during the allotted time, therefore they deal with their subject in their own time as well. They have to present the results of the literature search to the leader of the laboratory exercise in a copy book; its level is taken into consideration at marking. The practical instructors of the Department take part in the literature search exercises of their groups of students. Thus, library, translation
and professional aid are provided by cooperation. The number of students involved is 150-160, and the course is obligatory for all chemical engineering students. Experience shows that the students do this individual literature search with readiness and pleasure because they are convinced of its usefulness. In addition, the experience is most helpful for writing up the diploma work.

At the Mechanical Engineering Faculty instruction has been going on for two years. In the first year we finished testing our methods and published the results (8). We planned the instruction for 10 hours altogether, out of which 4 hours are lectures and two 3-hour sessions are practice in groups. The programme (syllabus) of instruction is as follows:

LECTURES

1. Role of the special literature in university studies, research and production.

Necessity of being informed on the special literature on account of:

(a) modern methods of collective research
(b) quick obsolescence of knowledge
(c) quantitative increase of knowledge
(d) scattering of special literature

Trends in modern information:

(a) in libraries
(b) in institutions and information organisations

Circumscriptions of collection interest and library cooperation.

2. Traditional types of publications and their use

(a) Books
- works giving a comprehensive survey and covering fundamental concepts: university text-books and manuals
- multivolume series
- monographs, studies
- encyclopedias, lexicons
- other handbooks
- dictionaries
- scientific and other directories
- collections of data and materials
- atlases

(b) Periodical publications
- special journals, their significance and role
- official journals, gazettes
- publications of scientific societies (associations), research institutes, universities, e.g.:
  - yearbooks (annuals)
  - administrative publications
  - reports
  - time-tables
  - programmes
- certain documents of congresses, conferences, etc.
(c) Other types of publications
- lecture notes
- theses (dissertations) and published lists
- research reports
- standards, collections of standards, lists of standards
- patents
- trade literature, prospectuses, catalogues

3. Use of libraries, bibliographies, documentary services

(a) Using the holdings of libraries and institutes of information with the help of catalogues
- card catalogue and catalogue in book form
- data on the catalogue card: author, title, imprint, etc.
- author catalogue: fundamental principles of arranging in alphabetical order.
- classified catalogue (systematic, UDC, and alphabetical subject catalogue)
- periodical catalogues: alphabetical, classified catalogues
- catalogue of articles (catalogues made by punch cards and computer)
- central catalogue.

(b) Bibliographies
Concept, role, significance of bibliography
Types - general
- national (Hungarian National Bibliography)
- special
- recommendatory
- current
- retrospective
- bibliographies of periodicals, reviews (of articles)
- bibliographies of bibliographies
- concealed bibliographies

View-points of searching in bibliographies.

(c) Documentation services
- abstracting journals, abstracts, reviews
- card services
- quick information
- lists of translations
- digests of technical and economic literature on specific subjects
- card surveying service
- selective dissemination of information
- reproduction service
4. **Library searching, gathering, and processing of material**

(a) Ethical questions in relation to intellectual creations: industrial protection - protection of copyright.

(b) Gathering material on a given question or subject. Drafting of research plan.

(c) Technique of intellectual work. Reading, making notes, arrangement of notes, their storage. Systematisation of the material. Final construction of the paper. Wording, style, orthography.


**EXERCISES**

The exercises are carried out in relation to the diploma theses of the students.

**Lessons 1-3**

1. **Determination of classified number and practice in catalogue use**
   
   (a) Exact description of three well-known university textbooks.
   
   (b) Finding the books in the classified (UDC) catalogue.

2. **Use of the catalogue of journal articles**

   (a) Looking up three articles on a given subject.
   
   (b) Finding classified number, putting down data of catalogue cards of journal articles.

3. **Use of Műszaki Lapszemle (Technical Abstracting Journal)**

   (a) Ordering the translation of a foreign article on a given subject.

**Lessons 4-6**

1. **Use of abstracting journals**

   (a) Introducing the manual Gépészeti Irodalomkutatás (Literature Searching in Mechanical Engineering).

   (b) Finding the subject heading (English - German - Russian) of the theme.

   (c) Putting down the necessary reference data from the corresponding abstracting journal.
2. Use of other documents
   (a) Use of standards.
   (b) Finding dissertations on a given thesis.
   (c) Use of the serial catalogue of the Mérnöki Továbbképzö Intézet (Institute of Postgraduate Engineering Education).
   (d) Finding instructional films on a given thesis.
   (e) Reproduction services.

3. Consultation (in relation to the literature for diploma work)

We first held a course on literature searching in mechanical engineering in the academic year 1967/1968 for fifth year faculty students, during the first part of the semester in which they start their diploma work. At the exercises our aim was that the students - besides becoming acquainted with the sources and methods - should gather literature data useful for the theses of their own diploma project. In this way we endeavoured to concentrate the attention of the students on their task to a maximum degree. The experimental instruction was attended by 54 students, and the course during the next academic year was taken by 135. The instruction is optional, and the number of the students this year is 450-460.

At the Faculties of Electrical Engineering and of Transport Engineering the instruction takes place using a similar programme to that of the Faculty of Mechanical Engineering. There is a difference, of course, in that in surveying the abstracting journals and special journals and the material of examples we present the source-material of the professional field in question. At these two Faculties also the literature searching is connected with the subjects of the diplomas. The instruction at the Faculty of Electrical Engineering is optional (the number of students concerned is 450-460); but at the Faculty of Transport Engineering it is obligatory (the number of students concerned is 80-90). At this Faculty the students unanimously answered on the questionnaires given to them that they needed the instruction by the third year. They wished to make use of the knowledge obtained from literature searching in solving their problems in the course of that year. The Dean of the Faculty has now put the instruction into the third year programme and the wishes of the transport engineering students will be satisfied in the future.

At the Faculties of Architecture and of Civil Engineering instruction in literature searching does not take place as yet. At present we are collecting the source-material and working out the examples. The experimental instruction will begin next year with optional attendance.

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At two faculties - that of Mining Engineering and of Metallurgical Engineering - the literature searching takes place for final year students (fifth year) at the beginning of the ninth semester, in six lessons (9).

In lessons 1-2 we deliver an introductory lecture to all the courses; the programme is as follows:

1.0 Possible sources of acquiring knowledge (information
1.1 Source-material bearing information
1.2 Concept of document. Typology
2.0 The use of systematised knowledge

2.1 Description of library catalogues and their use

2.2 Short outline of the classification systems

2.2.1 Universal Decimal Classification (UDC)

2.2.2 Special classification systems

2.2.3 Subject heading system. Indexes. Processing by computers. Optical coincidence punched cards.

In the next 3-6 lessons we conduct the exercises according to specialities and departments. The advantage of this is that with a smaller number of students we can deal more closely with the professional literature of the special field of science. We have the following specialities and branches:

**Faculty of Mining Engineering**

- department of mine exploitation
- department of mining machinery
- department of oil mining
- gas industry section
- department of mine geology
- geological engineering section
- geophysics section

**Faculty of Metallurgical Engineering**

- department of metallurgy
- metallurgy of ferrous and non-ferrous metals section
- casting section
- department of metallurgical technology

Lessons 3-4: Methods of gathering information with special regard to the preparation of diploma theses.

- knowledge of sources: methods of searching source-materials.
- reference works: their systems and usage (with examples).
- abstracting journals: their systems and methods of searching in them.

Lessons 5-6: Practical literature searching based on diploma work. Principles of giving bibliographical references in the thesis.

From the next semester at the Faculty of Metallurgical Engineering, students in their fifth semester will take part in the instruction and a similar plan has been developed at the Faculty of Mining Engineering. At the Faculty of Mechanical Engineering the instruction will begin in the next academic year.

**Veszprém University for Chemical Industry**

At the University there has been a multi-grade chemical engineering education since September 1969. Special literature knowledge is more important for the students of the second grade than for those of the first grade (10). With regard to the working methods and customs of the national chemical societies the special literature is used primarily by high level researchers, by specialists dealing with technical development themes of serious economic consequences, and by persons interested in patent law. The demand for special literature by chemical engineers working in industrial production is unfortunately, much less. In spite of that, the industrial chemical engineer cannot be without a fundamental knowledge of the special literature. The qualified chemical engineer today will differ from earlier graduates in that he will have greater practice in applying the knowledge of special literature and in searching for information necessary to his work. The instruction at present in our multi-grade education, is given during the time allotted for practical work. The instruction in literature searching takes 8 hours; in the previous system it took place during the fourth year, but is now given during the fifth year.
In the course of multi-grade engineering education the appropriate place for acquiring knowledge of special literature is considered to be the fifth or sixth semester, and should be combined with practical work on chemical technology. The course is equally divided between lectures and practical work.

The outline of the programme is invariably the following:

Lectures (4 hours)
- significance of knowing the special literature from the point of view of research and technical development.
- physical form of the sources of chemical knowledge: books, journals. Speed of increase. Technique for locating material. Methods of systematisation and recording. Use of the abstracting journals, indexes of subjects and names, formulas and standards.
- machine searching. - Special literature services.

Practical (4 hours)
- introduction to the use of the most important abstracting journals by examples. Presentation of Chemical Abstracts, Chemisches Zentralblatt, Referativnij Zhurnal, Science Citation Index, Gmelin and Landolt-Bornstein, etc.

The most important requirement of the university engineering education is that the specialists graduating from the university - in possession of the acquired fundamental principles and special knowledge - should be able to solve problems independently by means of a systematic use of the special literature. The instruction in literature searching in the libraries fulfils this purpose well. In addition to the instruction the lists of source-materials composed according to the profile of the individual faculties (mechanical, chemical, electrical engineering, etc.) also significantly assist information activities on a national level.

The manuals on literature searching relating to metallurgy, mining, chemistry, mechanical, chemical, and electrical engineering as well as social subjects taught at the technical universities (industrial management, philosophy, pedagogy etc.) have already been prepared.

The new form of instruction has been favourably received by the students who quite understand the necessity of such knowledge. We can state that the standpoint of the great part of the teaching staff is also positive even if we admit the aversion and lack of understanding of some professors.

SUMMARY

In scientific research and education increasingly difficult problems are emerging on account of the growing quantity of, and change in, the source-materials. Therefore in engineering education it will be of great importance that the engineers graduating from the university have knowledge and orientation in the special literature. In Hungary the Minister of Education has issued an order regulating instruction in literature searching. There are 8-10 hours devoted to this instruction. In our short introductory lectures we deal with bibliographies and documentation services - besides the library presentation of books, periodicals and other types of publication. In the short time at our disposal there is a possibility in some faculties of lecturing on the technique of intellectual work, e.g. on the question of reading, making notes, systematising. In the practical work the students get to know the use of different catalogues, abstracting journals, theme-observing services, indexes and reprography. The instruction in literature
searching is connected with concrete themes at most faculties, primarily with diploma plans and work. Our experience hitherto has shown that the usefulness of the instruction is indisputable but the number of hours for practice has proved to be too small.

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DISCUSSION

The following contribution to the discussion by Zoltan Kovats was circulated with the Conference preprints.

The authors of the lecture that has just been delivered did pioneering work for the introduction and teaching of the use of scientific literature and know this subject thoroughly. They are leading co-workers of the library of the biggest Hungarian Technical University, and their views on the results of this work in Hungary must command attention.

Having dealt with general aspects, the study discusses only briefly that special subject in which teaching of the use of technical literature has been going on for the longest time, that is chemistry.

Since one of the authors is a mechanical engineer, and the spreading of the above mentioned teaching to the field of mechanics was a valuable new initiative of the Central Library of the Technical University of Budapest, it is understandable that the study deals most thoroughly with teaching about the mechanical literature. It is most commendable that the educational programme for the undergraduates is based on practical experience and on the technicians' need of technical literature. The paper reviews the needs of mechanical engineers with regard to information retrieval.

Before dealing with various aspects in detail it states with a farsightedness evincing extensive experience that "...the source-materials and research methods of each branch of science (for instance forestry, chemistry, mechanics) differ greatly". This statement gives me a chance to discuss briefly the requirements of Hungarian chemists on chemical literature and to give some further details on teaching undergraduates about the use of chemical literature.

I can illustrate the claims of chemists on chemical literature by the results of a nation-wide survey done by the collective of the Library of the Chemical University of Veszprem on behalf of the Hungarian Ministry of Education at the beginning of last year. The objective of this survey was to check empirically a working hypothesis based on library services abroad and on the experiences of my own research and librarian activities; its main features are as follows:

1. Reading of original journals chosen with the utmost care is not sufficient to achieve a thorough knowledge of the technical literature.

2. The whole literature of the world must be scanned with the aid of adequate reference journals and their indexes.

3. For effective research work thorough documentation of the field and continuous updating is needed.

4. Chemical research in Hungary, will soon reach a stage of development, where continuous retrieval of the world literature by computers and automatic collection of literature in chosen fields is indispensable.

Nearly 6,000 questionnaires were sent out and 552 came back on schedule, filled in as follows:

1. Of those who replied, 57.3% read original and 71.0% read reference journals.

2. 59.0% read Chemical Abstracts
   41.6% read Chemisches Zentralblatt
   13.8% read Referativnyi Zhurnal
   49.5% read Hungarian reference journals
3. 82.7% require reprographic service
   67.5% have their own documentation
   50.2% have indexed their own documentation
4. 72.2% require computerised retrieval of information.

These results confirmed that one should lay stress on methods of searching the
literature when teaching the use of the chemical literature for information retrieval.

Instead of reviewing the sources we show the undergraduates how to use the
catalogues and reference journals, and the technique of checking up on various
indexes. Since there is no reliable computerised retrieval service in our country
the research worker has to compile his own bibliography which requires a thorough
knowledge of the field. The collection of photocopies, reprints, translations etc.,
that give the full texts of the documents can be entrusted to experienced
librarians who know the techniques of inter-library lending, and of reprography.
The check-up is the task of specialists, but supply of the verified papers is
the task of the librarian.

It is also necessary to give instruction on methods of indexing and systematising
personal documentation and to demonstrate the application of optical co-incidence
punched-cards.

Finally we summarise briefly the theoretical basis of computerised searching for
information and its historical development, and also cover the compilation of the
great reference journals and their indexes by computerised treatment of data in
the scientific literature.

We deal with the standards of superscription, the principles of catalogue
construction and the UDC System only so far as they are indispensable for retrieval
of the literature. Our intention is to give the students all the important
knowledge for the successful tracing of information, rather than to supply minimal
training as librarians.

The correctness of the above concept is confirmed by the steady increase of the
average number of references to be found in the diploma-works over the years.

CONFERENCE DISCUSSION

(Answers given by J. Balázs after consultation with his co-author)

L. J. VAN DER WOLK: Hungarian instruction courses are creating a new type of
student well aware of the existence of important knowledge in the world literature,
and whose searches will lead to literature in languages he does not understand.
Your own information officers have a wonderful command of languages but they
cannot supply all the translations required by the students. Would Dr. Balázs
tell us something about the organisation of translations in Hungary.

J. BALÁSZ: There is a national Hungarian translation centre in Hungary which
supplies translations according to fixed charges, and this is often used by
industry and academic institutes. Such translations are filed and are available
to the public, thus avoiding duplication of work. We have found it possible to
recruit good linguists to the library staff since an increment of 15 per cent
on the basic salary is paid for each foreign language in which an information
librarian is proficient.
R.F. EATWELL: It would be interesting to learn how many foreign languages are studied by the students, and to what standard? Is this standard high enough to make an effective literature search in foreign language abstracting journals?

J. BALAZS: It is compulsory for our students to learn at least two foreign languages. The standard they reach is a good basic knowledge for reading and understanding the abstracts in the field appropriate to their course but - of course - it is necessary for them to develop their proficiency in foreign languages individually as well.

R.A. WALL: I am interested to note that the Hungarian Minister of Education has made instruction in library use and literature search an obligatory part of the curriculum. It would seem that such a move might be desirable in other countries and would provide a firmer basis for courses.

J. BALAZS: It is undoubtedly the case, and we make no secret of it, that the fulfilment of the ministerial order requires great efforts from our technical university libraries. Thus, we have difficulties in enforcing its obligatory character in some cases. At the smaller faculties the instruction is obligatory but at some larger faculties (e.g. Mechanical and Electrical Engineering Faculties of the Technical University of Budapest) it is at present virtually optional. Of course, in the future we wish to extend the obligatory character of the instruction to these faculties as well.

One thing is sure: the ministerial order is a firm legal basis and motivating mobilising force for the organisation of this new kind of education but at the moment it is still too soon to estimate its full effect.

R.A. WALL: Much thought has obviously been given to the timing and amount of instruction throughout a student's course. I feel that the amount of information retrieval instruction given in the first year requires particularly careful optimisation. Can Mr. Balazs tell us how much is given in Hungary during the first year.

J. BALAZS: As I have mentioned in our lecture the instruction in library use and literature search takes place in two stages in the Hungarian technical universities.

In the first year - at the very beginning of the academic year - our instruction on library use is on a simple level only, corresponding to the needs of the students; it forms part of a series of general introductions to university life. The library introduction is for one hour only, during which the most senior staff (director, deputy director, heads of departments) of the central library give general information on using and utilising library services. Thus, they speak to the first year students on the necessity for registration, use of the reading rooms, lending services, different catalogues, general and special information services, reprography etc. After the lecture we give out a short, more detailed, handbook. The lecture and this handbook together seem to be sufficient for the overwhelming majority of the students to take the first step and get in touch with the central library of the university. The immediate result of the lectures and the handbook is a large increase in registrations. It is quite natural that in the course of actual library use by the students we give further and more detailed information to them individually.
Instruction in full-scale literature searching takes place during the advanced courses of the students and lasts 6-10 hours altogether. We prepare it very carefully by composing detailed curricula for the lectures and practical work, and by writing more comprehensive special subject manuals on library use and literature search, complemented by bibliographies of the most important handbooks, reference works and periodicals in the given field of science. According to our experience our lectures, practical work and manuals taken together give a really useful base to the students and arouse their interest in library use and literature search.

Of course our manuals are useful aids not only to students but also to graduate engineers working in research institutes, factories etc. These establishments acquire our manuals and use them.

R. GIRDHER: It has been said that knowledge of literature searching is only obligatory in some faculties. Is this because large faculties have difficulties in arranging lectures and the accompanying practical work, while small faculties can accommodate such a programme quite easily, or is it because instruction by librarians is not favourably received by the teaching staff in some departments?

J. BALÁZS: I have mentioned that instruction in literature search as an obligatory subject is only gradually being introduced in some large faculties, that is to say, it is optional for the time being in these faculties. The cause of this is simply the shortage of library staff. Our Department of Information and Methodology which deals - among its other duties - with the instruction is relatively small in relation to its responsibilities and therefore it is impossible at present to arrange lectures and practical literature searches as an obligatory subject for all the students concerned at these faculties.

As to the enthusiasm of the academic staff about instruction of students in literature searching by librarians we have had varied experiences. Several faculties accepted the idea with pleasure and sympathy, others did not receive it wholeheartedly - but gradually more and more academic staff are coming to believe in the value of such teaching. As we have said in our lecture we think that these problems can be solved most fruitfully by close cooperation with the teaching staff. We have good experience and examples in this field. Let me mention for example the preparation of the manual of literature search on civil engineering which is taking place at present in our University. The standpoint of the Civil Engineering Faculty of the Budapest Technical University is that this manual should be written by librarians and academic staff members in close cooperation. Consequently, the editor of this volume is the director of the Central Library, the author of the chapters relating to library technique and services is the deputy director of the Central Library, but the lists of literature (bibliographies) containing the bibliographical data of books, periodicals etc. important in the field are compiled by fifteen members of the teaching staff of the Faculty. We hope that this close cooperation between the librarians and the teaching staff will be successful and give useful further experience for future endeavours in the field of literature search instruction.

J.S. DAVEY: It would be interesting to know whether Hungarian libraries experience difficulty in obtaining current literature from Western countries and, if so, what methods are used to overcome currency problems.
J. BALÁZS: We lay great stress on acquisition of the most important material published in world-wide languages such as English, French, German and Russian. For example our library acquires several thousand volumes annually in world wide languages by commercial means but in addition the Hungarian technical university libraries have established exchange arrangements with over 1000 universities abroad. We hope that in the future member libraries of IATUL will be able to help to a greater extent in making documents available to each other. Of course, it is sometimes necessary to make use of reprography when the original material is not available. It would be very useful if member libraries of IATUL could find a financially simple way of offering reprographical services to one another. For our part we should support such an initiative by IATUL and would have pleasure in cooperation mutually advantageous to our members.