

the first term of three years, and Mr. Farradane is the Honorary Secretary. The present President is Prof. Sir Lindor Brown, who opened the 1958 Washington Conference. By a fortunate coincidence, it may be of interest to note, Sir Lindor Brown is also now President of Aslib, which augurs well for continuation of the co-operation between the Institute and Aslib which has already proved fruitful in regard to education.

The Institute has been able to hold about six meetings a year for lectures and discussions on progressive topics. These have so far had to be held in London, England, except for one in Glasgow, in Scotland. As in other scientific societies, it has been the aim of the Institute to stimulate interest in new techniques and encourage the improvement of standards of work. One early meeting discussed the results of the Washington Conference and another dealt with the value of obtaining information concerning Russian scientific and technical work, and the difficulties involved. Dr. King gave an important lecture on the international development of scientific and technical information services. The question of the importance of a knowledge of foreign languages for information work aroused a most lively discussion on one evening. The problems of mechanization of information retrieval have been the subject of two meetings, even though such techniques have as yet made little headway in England; it is clearly of importance for all information scientists to keep well abreast of such work. The writing of good English has not escaped attention, and was discussed at a joint meeting with the Presentation of Technical Information Group which flourishes in England; a more specialized, but important collateral problem discussed on another occasion was that of the transliteration of Cyrillic characters. It will be

seen that there are still many aspects of information work which remain to form the basis of future activity.

The field of chemistry, in which consciousness of the literature problem is most developed, is naturally also the field in which the majority of information scientists are working. It has the largest literature and the greatest complexity of subject matter of all sciences, so that it is not surprising that the majority of the information scientists who are members of the Institute are chemists or are at least working in the chemical field. Other members provide evidence, however, of the extent to which information work is also being carried out in other fields, such as physics, biology, geology, medicine, engineering, and also economics. It is clear that recognition of the value of information work is spreading throughout the whole scientific field.

The steady growth of the membership of the Institute has encouraged us to feel that the institute has begun to satisfy a real need in regard to professional co-operation and the provision of education, as well as in other matters. Already discussions have been started on the question of establishing branches abroad; the first of such branches may well arise soon in India. In the United States it is more likely that the establishment of a parallel organization will best meet needs, though we shall hope for much friendly co-operation. The Institute will always be ready to co-operate with all having the same aims and interests. Information work needs to develop as a branch of science in its own right if the pressing problems of information retrieval are to be solved, and, as in other sciences, progressive evolution from a stable foundation is essential. The Institute hopes to provide a focus for the development of the new scientific profession in our midst.

Education in Information Work: The Syllabus and Present Curriculum of the Institute of Information Scientists Ltd.*

By G. MALCOLM DYSON and JASON E. L. FARRADANE

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The Institute of Information Scientists Ltd., as a professional organization, necessarily makes education for information work, and the standards to be attained, one of its main interests. This is all the more important since this is a relatively new field of activity, since its growth and development has been unorganized and consequently very irregular, and because its scope and the nature of the work are not generally appreciated. For example, although there are many points of contact and common interest with librarianship, information work has now developed along many different lines, and even in the areas of mutual interest it shows a very different approach. The information scientist is primarily a scientist who is approaching the literature and other sources of informa-

tion from the research standpoint, whereas the librarian, even though he may have studied science, is trained to approach the literature from the standpoint of a custodian, although he may in fact be competent to undertake much more. We have, as it were, a complete spectrum of activities from the public library to the researcher reading in the library, the two ends being very distinct, with the information scientists not far from the research end. As chemical engineering arose at the junction of chemistry and engineering, so information work has arisen at the junction of librarianship and scientific research. Subjects such as abstracting have been incorporated entirely from the scientific side; classification, in rather different forms, has been a matter of interest to both librarian and scientist, but the new needs for detailed information retrieval require radically new solutions which are the business of the information scientist.

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Several other factors were involved in the decision that the time was ripe for the better definition and co-ordination of information work by means of educational courses and qualifications. With the rapidly increasing demand for workers in this field, both employers and employees will benefit by the existence of standards by which attainments can be assessed. It will be to the advantage of industry and in the interests of progress in general if the possible scope of information work is more widely appreciated. The techniques and principles of information work will develop faster when the subject is recognized as a field of study in its own right.

The syllabus now set up by the Institution of Information Scientists is the results of many years of discussions, many of which took place in Aslib committees, though the earlier aims were then of a more mixed character. The syllabus now in use is intended as a basis for an essentially practical course of training, though wider aspects of the communication of knowledge and general theory are also included. Since adequate subject knowledge is considered essential for information work, the syllabus is intended largely for post-graduate training. A course based on the syllabus has been started at the Northampton College of Advanced Technology, in London, England, and is an evening course of two hours on each of two evenings a week in term time, extending over two years. There was evidence that persons already just starting in information work would be sent by their firms, and such employees would of course be able to attend only in the evenings. When the courses are well established, or perhaps even earlier, it may be possible to present the subject as a full-time course over one or two terms, available as a recognized choice among post-graduate studies. The Institute will hold external examinations based on the syllabus, and the Certificate of the Institute will be awarded to successful candidates. It is proposed that the examinations, at present, shall be in two parts, one at the end of each year of the course, and that each part shall consist of two papers.

The syllabus is divided into three main groups: (1) Language, Writing and Editing, (2) The Flow of Information, and (3) Information Techniques. Information work is in essence a process of communication, and clear and explicit grammar and style are emphasized as being important in all branches of work, such as in writing reports, abstracts, articles, or reviews. To this are linked the problems of dealing with foreign languages, dictionaries and translations. An allied subject is that of editing and the attendant techniques of typography, graphic illustration, proof correcting, *etc.* The technique of abstracting and the production of abstracts, journals, and their indexes, forms a major section of the course, with practical work.

Flow of Information includes some study of the history and theory of communication, of scientific societies and the development of books, journals, *etc.*, and the use of films, radio and television. The syllabus also calls for study of the flow of information in industry, commerce, research and government, problems in the efficient use of the results of research, and questions of standardization and organizations issuing standards.

The organization and administration of an information department must of course be geared to the general picture, and the staffing, training of staff, administration

and relations with other research, works or administrative staff in an organization is covered by the syllabus. Beyond this are the relations of the information department with other branches of the firm, research association or government department, *etc.*, within which it operates, and with outside bodies. The equipment, planning and lay-out of a department, its publicizing services, if any, and the costing and budgeting are also noted. Some attention to business methods for publishing and distribution is called for. A somewhat separate, but important, subject linked with these is that of law, and elementary knowledge of copyright law, and patent, design and trade mark law is required.

Information Techniques forms the third and largest part of the syllabus. First there are the sources of information, which may be printed—books, data tables, periodicals, abstracts, journals, reports of all kinds, government publications, patents, trade catalogues, *etc.*, or oral—discussions, lectures, conferences, or visual—pictures, diagrams, models, films, exhibitions, *etc.* The location of sources is fully covered: libraries and their indexing methods, scientific societies, trade organizations, research or development associations, and all types of national and international bodies. The facilities and comparative value of such sources are also to be considered.

The techniques and theory of information work fall into four groups: (1) Storage, (2) Collection, Collation and Retrieval, (3) Reproduction, and (4) Dissemination. Storage comprises principles of classification, especially logical principles and advanced methods for information records, and all types of indexing from simple cards to punched cards and all types of mechanized methods. The use of indexing systems comes in the next section. Patent classifications and their principles are also to be studied.

The section on collection, collation and retrieval covers the main work of obtaining information by the use of the sources which already have been surveyed, and principles of efficiency in such work. This includes some knowledge of patent searching. Information retrieval, which implies the use of indexes and other systems up to large-scale devices such as computers rounds off this type of work. The section also includes, however, the preparation and presentation of information in the form of bibliographies, summaries, digests, reports, reviews, *etc.*

Methods of reproduction include a survey of all types of copying documents, including printing, and their relative economics, recording machines, films, *etc.*, and also teletransmission. The syllabus provides for some study of mechanical translation.

The final section of Dissemination starts with the analysis of enquiries and the handling of enquirers—the latter a most important point. Methods of disseminating information within an organization, to outside organizations, and nationally and internationally are to be dealt with here. The growing activities of liaison and advisory services, and field work for dissemination of information conclude the syllabus.

The first course now being given on the basis of this syllabus does not, for obvious reasons, proceed in the exact order of the syllabus subjects as described. The various parts are fitted into the hours of study so as to form an evolutionary system of education, whereby the student is given the more elementary parts and progresses to the more complex, while at the same time he proceeds from

sources of information to their use and the dissemination of information. The lectures have been arranged so that in the first year one evening of each week has been devoted almost entirely to a detailed examination of the sources of information. The other evening of each week has been more varied. The basic principles of communication, and especially clarity and accuracy in communication, were emphasized as fundamental to the whole of information work. Techniques of reproduction and typography, illustration and the various aspects of editing have been dealt with. Six lectures were given on patent law (British and foreign), trade marks and designs, and patent publications. The second evening of each week in the third term will be devoted to abstracting, its principles and techniques, with practical work for writing good abstracts, and the production of abstract bulletins or journals, and their indexes, especially the subject index.

In the second year one evening a week for most of two terms will be devoted to classification and indexing systems, and the other evening to the use of sources of information and the collation of the information obtained, and its dissemination. Time will also be found for such special items as standardization, more complex recording methods, *etc.* In the third term, national and international activities will be considered, and the organization and administration subjects will then be shown in their relation to the various activities. The exact lay-out of the second year's lectures is still to be discussed further by the course organizers, so we cannot give a more precise account.

The emphasis of the syllabus throughout is that the information scientist is primarily a scientist and will obtain, organize and disseminate information from the standpoint of one as well versed as may be possible in knowledge of the subjects dealt with. There is also the emphasis that the information scientist is not the primary provider or custodian of sources of information, but is to be an expert *user* of all sources of information. His task is to be, in a specialist capacity, the alter ego of the persons

and organization which need information, and as such he occupies an important central position in a research team and its external relations.

As we stated already, the Institute is arranging to hold examinations based on the syllabus. It should be mentioned that these will be the Institute's examinations and not those of the college at which the course is being given. The Institute will award a Certificate to those achieving an adequate standard in the examinations. This Certificate will form part of the requirements for membership of the Institute, the other main requirement being a suitable period of approved experience in information work. The present requirement of five years of such experience will then be altered to two years plus the Certificate. For some time to come, of course, it will be suitable to admit members on the present basis. When the examination standards are well established it will be time to consider making the examination obligatory for all applicants.

Clearly much remains for the future. There is the hope of providing a full-time day course, which will then take a much shorter period. The syllabus is a first essay in providing adequate education in the field of information work. It will of course be subject to refinement and improvement in the light of experience, and to extension as techniques advance. Insofar as information work becomes a subject of study and research, especially on information storage and retrieval methods, it may be desirable to introduce a more academic section into the syllabus. There is no doubt that information work has become, and will remain, a recognized and important specialization within scientific affairs as a whole, and its development will no doubt involve many new activities and call for new techniques. It is therefore important to start now to establish organized education to high standards and to achieve coherence within the profession. In all these respects the Institute regards its work as a service to science and the future.