LETTER TO THE EDITOR

THE INSTITUTE OF INFORMATION SCIENTISTS CRITERIA FOR INFORMATION SCIENCE

Introduction
Information Science is concerned with the science, art and practice of the provision of information, particularly, but not exclusively, in support of professional and academic work. To this end, it includes the study of information from its generation to its exploitation, and of its transmission in a variety of forms through a variety of channels.

There are large areas of knowledge relevant to the study of Information Science, and the broad scope of the subject has resulted in the development of a variety of programmes of studies and of examinations, each with its distinctive contribution to offer. Under these circumstances, the Institute of Information Sciencists, as a professional body concerned with recognition of the breadth and depth of knowledge and of the professional experience and competence to be expected of its members, has described Information Science in terms of the appended Criteria.

These Criteria are intended to provide a guide to topics which may usefully and justifiably be included in a course of instruction in Information Science. It would normally be expected that, for acceptance by the Institute for membership, a student will have a good knowledge of the topics covered by Sections 1-6. Topics covered by Sections 7-12 may be of value to an Information Scientist and therefore any of these may provide studies complementary to the core topics of Sections 1-6.

Whilst for convenience and clarity the whole subject has been subdivided into sections, it is not intended that the sections should form self-contained divisions. On the contrary, appreciable flexibility is to be expected, as, for exmple, by the incorporation of topics from Research Methods in Management of Information, Data Processing in Organisation of Information, etc.

Nor are the Criteria to be construed as exhaustive. There may be other specialised contributions which Educational Institutions would consider could usefully be incorporated. For example, it is known that a specialised area of Information Science is growing out of Computer Science studies, and therefore a course may satisfactorily be based on Data Processing together with selective studies of all of Sections 1-6, appropriately slanted. There are also likely to be developments in Information Science which, at present, are not foreseen and therefore the Criteria as set out below may be modified from time to time to reflect the Institute's appreciation of changes of emphasis or widening scope of the subject.

CRITERIA

Section 1 (Knowledge and its Communication) is concerned with the scientific and philosophical aspects of Information Science, whilst the rest is concerned with the "technology" of Information Science from theoretical and practical points of view.

1. *Knowledge and its communication*
Creation and growth of knowledge. Nature, properties and characteristics of knowledge and information. Generation, flow and use of information. Information needs and information seeking and user behaviour and the impact of historical, social, psychological, economic, technical and other factors on this behaviour. Communication systems theory, design and evaluation. Human communication from psychological and practical points of view.

2. *Sources of information*
Primary sources of information: documentary (e.g. books, serials, reports, laboratory note-books, patents, etc.) and non-documentary (e.g. computer files, photographic, magnetic

and other records, etc.) and their information contents, distributions of occurrence and use. Individuals and organisations (national and international) which collect, extract, and/or disseminate information (e.g. expert individuals, libraries, information centres, etc.). Information sources in general and special subject fields.

3. *Organisation of information*

Characterisation of information problems and methods of dealing with them. Arrangement of information-containing media in store. Theory and application of enumerative and synthetic types of classification and alphabetical schedules. Analysis of information content of sources. Coding of information content of sources by use of classification and indexing schedules (e.g. subject heading lists, thesauri, etc.). Construction of manual and computer schedules and files and their maintenance. The contents and characteristics of secondary sources of information (e.g. abstracts and indexes, publicly-accessible computer files, library catalogues).

4. *Retrieval of information*

User types; user patterns; finding user needs. Exploitation of resources—search methods and strategies; reference methods. Use of manual and machine systems and networks for the retrieval of information. Searching for references and data. Evaluation of secondary sources of information and retrieval systems.

5. *Dissemination of information*

Abstracting, translating and the preparation of bibliographies and evaluated information reports. Proof reading, editing and presentation. Use of appropriate documentation standards. Production of information bulletins of all types. Methods of reproduction (e.g. typing, off-set printing, vari-typing, photoreduction/printing, computer type-setting). Selective dissemination of information.

6. *Management of information*

General theory and techniques of management with particular reference to information systems: management by objectives and by exception; costing, budgeting, financial control; forecasting, policy making, planning; manpower-planning, recruitment, selection, employment, training and development; organisation and methods, operational research, systems analysis and design. Information systems: the institutional, mission, discipline, local, national, and international environments; the objectives, structure, organisation and policy of different types of institution; problems of equipment, accommodation, and operation; bibliometrical studies to provide data for decision-making; moral and legal problems (e.g. privacy, secrecy, copyright).

7. *Data processing*

Computer hardware: data collection and transmission; methods of producing data for computer input. Input and output devices. Computer software: programming principles and languages. Program packages. Computer processing: record layouts, database structure, file searching. Computer projects: feasibility of systems; cost-benefit appraisal. Investigating, designing, and implementing a new computer system. Computers in information systems; stock and personnel records; accounting; project control; type-setting; information retrieval; etc.

8. *Research methods*

Historical research. Deductive, inductive, hypothetico-deductive methods. Research proposal. Investigation, data collection, and sampling. Evaluation of results, errors, validity. Conclusions. Report.

9. *Mathematics*

Mathematical foundations. Functions, sets, mapping. Errors and accuracy. Logic and Boolean algebra. Integration and differentiation.

Statistics: sampling, probability, tests of significance, correlation, regression.

10. *Linguistics*

Natural and formal languages. Linguistic classification. Semantics, syntactics, pragmatics.

Relations of semantics and linguistics, psychology, logic, and philosophy. The development of language.

11. *Foreign languages*

Reading and comprehension of foreign languages. Preparation of abstracts, reports, etc. in English or the language of habitual usage. Use of foreign language information sources.

12. *Advanced information theory and practice*

Associative techniques: word frequencies, clusters, clumps. Automatic indexing and classification. Automatic abstracting. Linguistic methods. Machine translation.

Institute of Information   I. S. SIMPSON
Scientists