INTERNATIONAL FEDERATION FOR DOCUMENTATION

PUBLICATIONS ON THEORETICAL FOUNDATIONS OF INFORMATION SCIENCE

INTERNATIONAL FEDERATION FOR DOCUMENTATION
STUDY COMMITTEE «RESEARCH
ON THEORETICAL BASIS OF INFORMATION»
(FID/RI)

PUBLICATIONS ON THEORETICAL FOUNDATIONS OF INFORMATION SCIENCE

ABSTRACTS OF SELECTED PUBLICATIONS

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PREFACE

The compilers made an attempt to cover the most well known papers on information science and allied disciplines published during the last 15 years. The theme of the present volume is information science as a scientific discipline being formed, its subject, objects of research, major tasks, history and methodology, as well as its relation to other sciences and scientific disciplines.

The present publication has been prepared at the initiative of the FID Study Committee «Research on the Theoretical Basis of Information» (FID/RI). The compilation is aimed at making an inventory of major publications on information science mainly since 1960, and at providing scientists and other specialists dealing with the elaboration of theoretical fundamentals of information science with an aid to locate publications of interest to them. The compilation could be useful also for representatives of sciences and scientific disciplines allied with information science, especially for bibliographers and other specialists in library science.

The compilation covers 311 papers in more than 15 languages. The majority of these publications are represented by abstracts or annotations. The compilers had to limit themselves with bibliographic notations for the major part of books, short journal articles and the publications unavailable for the compilers.

The material is presented in the general alphabetical order of the authors, with the names of Soviet authors given in the English transcription. When an abstract or annotation is given, at first the title in English (or in English translation) is given, then comes the abstract or annotation in English, after that come the author's (or authors')

names and the title in the original language and finally the remaining imprint is given.

The bibliographic descriptions of the papers by Soviet authors are given in Latin transliteration. The compilers hope that such a system of presenting material will facilitate its use. The compilation has author and subject indexes.

The compilers do not claim their publication being comprehensive in coverage although they have tried to achieve that. If a paper is not covered in the present volume this can be explained by the fact that the paper remained unnoticed by the compilers due to its unavailability or other reasons. Thus, the absence of a paper in the present compilation does not mean that the compilers have found the paper of no interest. The compilers could more easily be criticized for having included into the present volume some papers of marginal relevance.

The compilers clearly understand that their work has some inevitable faults. But they nevertheless hope that specialists in information science will find this publication generally useful and will use it in their work. If this hope of the compilers comes true the main aim, to achieve which the publication has been prepared, will be reached..

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1. Ackoff Russell L. **Toward a behavioral theory of communication.** «Manag. Sci.», 1957—1958, 4, 218—234.

2. **Certain semiotic aspects of informatics.**

The paper is a preliminary discussion of some results achieved in the process of studying a number of aspects of the system «society-concepts-documents».

The paper examines a system of concepts, their categories, major operations with them, certain relations defined on a set of concepts, and the properties of these relations. Practical recommendations concerning the identification of homographs are given; the quantity of semantic information is defined. Basic requirements to scientific and technical thesauri are considered. 10 refs.

Akhmerov F. K. Nekotorye semioticheskie voprosy informatiki. «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.», 1971, ser. 2, № 4, 9—14, 39 (In Russian; English Summary).

3. Artandi S. **Computers in information science.** Metuchen Scarecrow Press, 1968.

4. **The relevance of information science to library-school curricula.**

The author suggests that library school curricula should be entirely oriented to information science. Librarians should be trained in information theory, communication patterns, organization of information retrieval systems, etc. These suggestions are based upon the author's belief that research findings of information science and technology are very much relevant to library school curricula.

Artandi Susan. «Amer. Doc.», 1969, 20, № 4, 337—338, (In English).

5. Asnworth W. A. (ed). **Handbook of special librarianship and information work.** 3rd. ed. Aslib., 1967.

6. Atherton P. **Letter to editor.** «Amer. Doc.», 1965, 16, № 2, 126.

7. Avramescu A., Câdea V. **Introducere în documentarea ştiinţifică.** Bucureşti, Acad. RPR, 1960, 519.

8. Balbis Bruno. **El origen de la documentación.** Centro de Documentación e Información de Asuntos Municipales. Doctor Alcibes Greca. Santa Fe, Argentina, 1965.

9. **Social function of information work.** Balek František. Společenská funkce informační činnosti. «Techn. knih.», 1964, № 5, 137—148.

10. Bar-Hillel Yehoshua. **Language and information: selected essays on their theory and application.** Reading, Mass., Addison-Wesley, 1964.

11. **Preparation of a new international dictionary in informatics.**

The 8-language Terminological Dictionary of Scientific Information, issued in 1966, was the first result of the international cooperation among CMEA member countries in the field of informatics terminology. Although a number of substantial critical comments, mostly justified, have been given by experts, positive effect of this initiative of CMEA countries for standardization of the terminology in this field is certain. Later on, supplements in French, English, Serbocroatian, Slovenian, Macedonian and Spanish were compiled. The need for a second edition soon was felt, but the experience shows that this edition cannot be conceived as a replica of the first one, even if it is revised and updated. The problem was discussed by the International Editorial Board which met in Moscow in June 1969. A vocabulary of more than 2,600 terms was compiled for the new dictionary. The information centres of CMEA member countries, Yugoslavia and Cuba started to work on the dictionary in the second half of 1970. The task was to select equivalent terms in the national languages, to vealuate the terms in the vocabulary and, where necessary to supply comments. Serious difficulties had to be faced at this stage due to the differences of approach in choosing the terms, different scopes of concepts, etc. These difficulties were overcome, as was confirmed at the general plenary session of the Editorial Board and the panel of authors of the dictionary, in October 1971 in Moscow. Participants in the session decided

to cancel about 400 outdated, irrelevant and inadequate terms from the initial vocabulary, added some 100 new ones, refined the definitions, and eliminated excessive synonymy. The new «Terminological Dictionary in Informatics» in Russian, Bulgarian, Hungarian, Spanish, Macedonian, German, Polish, Rumanian, Serbocroatian, Slovenian, Slovak and Czech languages, including English equivalent terms, is to appear before the end of 1972. The supervision of the compilation of the dictionary has been taken over from VINITI by the International Centre of Scientific and Technical Information.

Bardún Jozef. Priprava noveho medzinárodneho informatického slovníka. «Techn. knih.», 1972, 16, N 3, 80—83 (In Slovak).

12. Becker J., Hayes R. M. **Information storage and retrieval. Tools, elements, theories.** N. Y., John Wiley and Sons, 1963, 44.

13. Bedford Norton, Onsi Mohamed. **Measuring the value of information — An information theory approach.** «Manag. Serv.», Jan.-Febr., 1966, 15—22.

14. **Essays in terminology of informatics. Classification.** Definitions of terms in informatics are given as belonging to the areas of classification, information languages, and thesauri.

Beling Gerd; Hagen Peter-Tronje. Versuche zur Terminologie in Information und Dokumentation. V: Klassifikation. «Nachr. Dok.», 1973, 24, № 3, 119—126. (In German; English summary).

15. Belzer Jack. **Education in information science.** «J. Amer. Soc. Inform. Sci.», 1970, 21, № 4, 269—273.

16. Bernal J. D. **The transmission of scientific information: a user's analysis.** «Proc. of the Int. Conf. on Sci. Inform., Washington, Nat. Acad. of Sci.», 1959, 77—95.

17. Björkbom C. **The history of the world documentation within the FID.** «Rev. doc.», 1959, N 3, 68—69.

18. **Informatics and bibliography.**

Blek A. Informatika i bibliografija. «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.», 1968. ser. 2, № 9, 3.

19. **Mathematics and informatics: conflicts and connections.**

The author tries to analyze mutual connections between informatics and mathematics. The influence of in-

formatics on mathematics is discussed, in particular the depreciation of some areas of mathematics simultaneously with the development of numerical analysis and simulation methods. The scope and requirements of informatics as concerning its mathematical methods and tools and also resulting difficulties are outlined. The uselessness of the classical theory of algorithms for informatics and the necessity to build up mathematical principles of informatics are pointed out.

Blikle Andrzej. Matematyka a informatika — konflikty i zwiazki. «Informatyka», 1972, 8, № 9, 1—6 (In Polish; English and Russian summaries).

20. Theoretical problems of information, informatics and forecasting of scientific progress.

The role and tasks of the following scientific disciplines are defined: 1) theory of information; 2) semiotics; 3) informatics; 4) history of science; 5) science of science. This is done on the basis of the definition of information given by the author in his earlier papers. The creation of a special research center is proposed to elaborate methodological and theoretical fundamentals of information, to establish methods of forecasting the development and planning of science, to develop the theory of information retrieval languages and systems, to elaborate methods of evaluating the effectiveness of information retrieval systems, to elaborate methods of evaluating the effectiveness of information retrieval systems, etc. 3 refs.

Bocharov M. K. Teoreticheskie voprosy informacii, informatiki i prognozirovanija razvitija nauki. V sb. «Vopr. nauch. prognozir.» Vyp. 8. M., 1969, 31—34 (In Russian).

21. Borko Harold. **Automated language processing.** N. Y., Wiley, 1968.

22. Borko Harold. **The conceptual foundation of information systems.** System Development Corporation, Santa Monica, Calif., 6 May 1965. (Report N SP-2507) (AD-615718).

23. Borko H. **Systems analysis within the field of information sciences.** In: Systems analysis; an approach to information FID/TM tutorial report. Stockholm, Roy. Inst. Techn., 1970.

24. Bourne C. B. **Methods in information handling** New York, John Wiley and Sons, Inc., 1963.

25. Boutry G. A. **L'information scientifique. Un nouveau problème national et international.** Paris, 1969, 18.

26. Boutry G. A. **Quelques aspects des problemes de l'information scientifique.** «Impact sci. et soc.», 1962, № 3, 217—224.

27. Documentation.

The publication gives a review of the present state of librarianship and information work. Alphabetical subject indexing is discussed, and suggestions for improving UDC are given. Abstracting services, special libraries and library service in science and technology are described.

Bradford S. C. 2nd ed. S. l., Univ. Microfilms, 1971, 200 pp. (In English).

28. **Notes on the essence of information.**

The philosophical approach to the category of information draws a distinction between the content of a message and the process of its transmission and processing. The following definition of information is proposed: in philosophical terms, information is a general phenomenon of objective reality which exists in space and time. The forms of its particular manifestations are diverse and undergoing a continuous change. Society cannot exist without information, whatever the society and whatever the forms of information. The process of information transmission presupposes a source and a receiver of information, the two can interchange their functions. Four laws are formulated, based on the analysis of the functions and the philosophical essence of information: (1) information is an indispensable condition of the development of every society. The quantitative changes of information always produce related reverberations in society. A higher developmental stage calls for the adequate growth of information needed by society. Taking into account the existing production relations, the corresponding conclusions are drawn from information available; (2) information is an indispensable condition of social division of labour. The growing scope of the division of labour requires corresponding growth of information; (3) an advanced social system must possess an efficient information system; (4) information is indispensable to the moulding of consciousness. A dialectical relation exists between information, management and the social reproduction process. Separation of information

from management is fraught with negative effects for the process of management. A rapid and purposive development of information science is a sine qua non of further increase in production and management efficiency. 7 refs.

Bradler Reinhard. Bemerkungen über das Wesen der Information. «Informatik», 1971, 18, № 5, 16—18. (In German).

29. **Relations between theory of cognition and informatics.**

Information activities are discussed in cybernetics terms. The activities of a patent office and of the editorial board of a special journal are used as examples to describe the method of optimizing the organization of information service on a national scale on the basis of the theory of cognition and mathematical logic. 7 refs.

Bradler Reinhard. Beziehungen der Erkenntnistheorie zur Informationswissenschaft. «Dok./Inf. Schriftenr. Inst. Dokum., Patentwes. und Recht Techn. Hochsch. Ilmenau», 1968, № 12, 37—48. (In German).

30. Brillouin L. **Science and information theory.** 2nd ed. New York, Acad. Press, 1962.

31. **Bibliography and documentation** (informatics).

Current trends in scientific and technological progress and the need for optimal organization of science and production call for unity and coordination in the activities of information centres, bibliographical services and libraries, and for better utilization of all their potentials. While stressing the features common to both bibliography and documentation, it is equally important to find out exactly what are the differences between them. It is noted that, unlike bibliography, documentation is based only on a quantitative approach to the value of information. Documentation today is a technical discipline while bibliography, even the bibliography of natural and technical sciences, is a social discipline. For that reason, specific for bibliography, in contrast to documentation, are the methods used rather than the object, purpose, or nature of practical activities, or the availability of certain technical facilities.

Briskman M. A. Bibliografija i dokumentalistika (informatika). «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.», 1968, ser. 2, № 1, 3—6. (In Russian; English summary).

32. **Bradford's law and the bibliography of science.**

The law of scattering of publications formulated by Bradford in 1948 was not expressed as a mathematical formula, which prevented its practical application. In the subsequent two decades attempts of such formulation were made, but it was only recently that equations were derived to express this law, which is a particular instance of the distribution known as the Zipf law. The Bradford law is of great importance for solving many problems of functional adequacy and rationalization of library systems. It can be used to compile and analyse bibliographies of science papers. 6 refs.

Brookes B. C. «Nature» (Engl.), 1969, 224, № 5223, 953—956. (In English).

33. **On some terminological problems of information.**

A study in terminology of library work undertaken in Britain is reported. Its aim was to compile a set of terms that would meet the requirements of automated document processing. The set of terms includes the notion of a document and also a number of concepts characterizing the functions of documents, their contents, various forms of processing and library processes. To develop the terminology, some notions of the business routines were used. Important implications of the study are specified. 16 refs.

Budzaniewska Maria Z. Terminologii zagadnień organizacji. Angielskie próby przystosowania terminologii z zakresu organizacji pracy w przedsiębiorstwie do organizacji pracy w bibliotece. «Rocz. bibl. nar.», 1972, 8, 379—395. (In Polish; English summary).

34. Buonocore Domingo. **Ideas generales sobre la documentación.** «Rev. Univ., № 61, Univ. Nac. Litoral». 1964.

35. Burchinal Lee G. **The role of the Federal Government in information systems in education.** «J. Amer. Soc. Inform. Sci.», 1970, 21, № 4, 274—278.

36. **Informatics-information science.**

Various definitions of the information science as adopted in different countries are discussed. Informatics is a name mostly current in socialist countries and applied to designate the information theory and the technology of information services treated as a component of the socialist economy. In English-speaking countries the studies are focused on pragmatic aspects and

information service methods rather than on theory. 35 refs.

Capurro Rafael. Informatik-Information Science-Informationswissenschaft. «Nachr. Dok.», 1973, 24, № 3, 105—108. (In German; English summary).

37. **Information disciplines in modern development.**

The problem of social and scientific information is described and the ways to solve the problem in modern science are pointed out. Scientific information disciplines, their development, state-of-the art and trends towards the synthesis of these disciplines are discussed. Future functions of information specialists are considered.

Cejpek Jiří. Informační obory v současném vývoji. «Čs. inform.», 1973, 15, № 6, 8—19. (In Czech.; English, Russian, German and French summaries).

38. **Is there an information science?**

The concept of «information» is examined from the points of view of philosophy and journalism. Documentation work and its five functions: document source searching, document identification, document content analysis, document reproduction and storage are discussed. The inter-relation between the concepts «information-data transmission-documentation» is investigated. Information and documentation are the two complementing each other aspects of the general process of data transmission. The case for information science is presented.

Cestac Françoise. Existe-t-il une science de l'information? «Informs UFOD», Paris, 1970, 1—17. (In French).

39. Cheery Colin. **La comunicación de la información.** «Endeavour», 1964, № 88, 13—17.

40. **Introduction to documentation theory.**

The paper gives a brief survey of the creation and development of international co-operation in documentation in general and documentation on education in particular. The initial steps by FID (then, Institut International de Bibliographie) are briefly reported. Definitions of terms: document, documentation are given. Bibl. 46 titles.

Chirinos Víctor Manuel. Introducción a la teoría de la documentación. (Univ. Zulia. Fac. humanid. y educ. Centro docum. e inform.). Maracaibo-Venezuela, 1968. 103 p. (In Spanish).

41. **Problems of informatics: subject for discussion.**

Discussing certain major problems of informatics, the author draws a distinction between at least three current views on informatics, that reflect the attitudes of automation and computer engineers, information scientists, and experts in science of science and forecasting, respectively. It is stated that informatics remains an empiric science which must de elevated to a higher theoretical level. Informatics investigates the relations between the information system of science and the information processes taking place within it. Accordingly, three groups of kernel problems are identified: (1) emission of information into the communication system and related aspects of rational processes of knowledge generation, creative processes included; (2) raising information capacities and compression of knowledge; (3) regularities of information dissemination, effective transfer channels and improved reception and perception. The structure of informatics in content terms is presented by a «problem tree» derived by the analysis of the kernel problems. The problem tree helps to visualize research trends and boundaries of informatics viewed as an integrative applied discipline. 8 refs.

Chistjakov V. M. Problemy informatiki. (V porjadke obsuzhdenija). V sb. «Probl. informatiki. Zaochn. seminar. Vyp. 1». Novosibirsk, «Nauka», 1970, 13—23. (In Russian).

42. Cigánik M. **Bemerkungen über die Informationswissenschaft.** Sounderdruck aus-Dokumentation/Information-Vortragsreihe d. Instituts für Dokumentation, Patentwesen und Recht-XI. Internat. Wiss. Koll. d. TH Ilmenau 1966., Diskussionsbeiträge, S. 122—125.

43. **Information collections in science, technology and economics.**

Cigánik M. **Informačné fondy vo vede, technike a ekonomike.** 2. vyd. Martin, Matica slov., 1969, 527 s.

44. **Informatics as a science.**

Based on an analysis of the main concepts, major monographic works in the field of informatics are evaluated and compared. The semantic levels of book titles, chapter headings and section headings are recognized as essential for the selection of the main terms. Interrelations between terms on diagrams are used for interpreting the subject-matter of informatics. 5 refs.

Cigánik Marek. Informatika ako veda. «Knizn. a ved. inform.», 1971, № 2, 57—75. (In Slovak; English, German, and Russian summaries).

45. **A model of optimal control of scientific information flow.**

Cigánik Marek. Model optimalneho ovládania toku vedeckých informácii. «Bibliogr. sb.», 1965, 32—53

46. **Elaboration of a classification system.**

Cigánik M. Odvodenie klasifikačného systému. «Bibliogr. zb.», 1970, 25—79.

47. **Quo vadis information science?**

The paper presents author's evaluation of the concept of information science as a scientific discipline, which was given at a seminar on information science held in Banska Bystrica in May 1970. Reactions to Mr. Vontorčik's views on the author's concept of information science as expounded in his book: Information stores in science, technology and economics (published by «Matica slovenska», Martin, 1969) are given. 28 refs.

Cigánik Marek. Quo vadis informatika? «Knižn. a ved. inform.», 1971, № 1, 24—37. (In Slovak, English, German and Russian summaries).

48. **Establishment and use of information collections in science, technology and economics.**

Cigánik M. Vytváranie a využivanie fondu informácii vo vede, technike a ekonomike. Bratislava, SNTL — SVTL, 1964.

49. **Development of informatics as a science.**

The notions of «information», «data», «knowledge», «informedness», etc. are discussed. «Informatics» and «information science» are synonymous. Informatics is concerned with various information systems. Major areas of informatics are: theoretical informatics, which studies abstract information systems; management informatics, concerned with management information systems; scientific informatics, investigating computer-based information systems; and library informatics, concerned with library systems. A general model of an information system is constructed to elucidate the basic concepts of informatics and communication theory in their interrelation. 16 refs.

Cigánik Marek. Vývoj informatiky ako vedy. «Inform. systémy», 1972, 2, 1—12. (In Slovak; English and Russian summaries).

50. Elsevier's dictionary of library science, information and documentation. In six languages English/American — French — Spanish — Italian — Dutch and German.

The dictionary contains 5,500 terms in informatics, librarianship, information and library services. The terms and definitions are in English, accompanied by equivalents in French, Spanish, Italian, Dutch and German.

Clason W. E. (Compl.) Amsterdam. e. a., Elsevier Sci. Publ. Co.,1973, 616 pp.

51. **Classification Research Group. Classification and information control.** «Libr. Assoc. Res. Pamph.», 1970, № 1.

52. Cleverdon C. W., Mills J., Keen E. M. **Factors determining the performance of indexing systems.** Cranfield Coll. Aeronaut. 1966.

53. **Progress in documentation. Evaluation tests of information retrieval systems.**

Progress in information retrieval system design in the last 20 years is reviewed. Attempts to develop new indexing methods and new indexing languages are considered. A brief description is given of the SMART project., Cranfield I and Cranfield II projects, an electronics and chemistry SDI system, Medlars, and the US Patent Office IR system. It is pointed out that future IR systems can only be efficient if they are predicated on the use of computers. The problems discussed are reduction of information noise, improving retrieval, interaction with the user, retrospective searching, and economic efficiency of an IR system. 40 refs.

Cleverdon Cyril. «J. Doc.», 1970, 26, № 1, 55—67. (In English).

54. Cobians Herbert. **«Qué es la documentación».** «Rev. Univ., № 64. Univ. Nac. del Litoral.», 1965, 259—270.

55. **Conference on training science information specialists.** Atlanta, Ga. Inst. Technol., 1961—62.

56. **Terminology of informatics.**

The Ministry of Industrial and Scientific Development of France has set up, with the support from the Committee for Protection and Enrichment of the French Langu-

age, technological terminology commissions, including the Commission for Informatics Terminology. The first meeting of this Commission was held on October 19, 1970. For more than a year the Commission studied English terms in informatics, examining their various French equivalents that could be substitited for them. Two categories of terms were considered: (1) widely used English terms for which French equivalents are necessary, and (2) terms of a more narrow, special usage intended mostly for informatics specialists. The Commission based its work on the investigations by the French Standards Association, French Technological Terms Commission, and the IBM (France). All terms and definitions were then submitted for discussion and assessment to the French Academy of Sciences. The list of terms and definitions proposed by the Commission is given.

Costa Jean-Paul. Terminologie de l'informatique. «Banque mots», 1972, № 3, 96—100. (In French).

57. Cuadra C. A. **Identifying key contributions to information science.** «Amer. Doc.», 1964, 15, № 4, 289—295.

58. Cuadra C. A. **Introduction.** In: «Annu. Rev. of Inform. Sci. and Techn. Vol. 1», 1966, 1—14.

59. **Current research and development in scientific documentation.** № 1—14, Washington, U. S. Gov. Print. Office, 1957—1966.

60. Davies J. **Letter to the editor.** «Inform. Sci. (Gr. Brit.)», 1967, 1, № 2, 84.

61. De Reuck A., Knight J. (eds.) **Communication in science, documentation and automation.** J. and A. Churchill, 1967.

62. **Foundations of a concept for an education program in information science.**

The education program in information science at the University of Dayton, Ohio, USA, which has a special Department of Information Science, is discussed. The program has three levels — the information technologist (undergraduate level), the information system specialist (master's level), and the information scholar or scientist prepared for research, including fundamental research in information (doctoral level). 2 refs.

Debons Anthony, Otten Klaus. «Amer. Doc.», 1969, 20, № 4, 346—351. (In English).

63. **Documentation and scientific information. Problems and development trends.**

The paper considers the terminological aspect of the concepts of documentation and scientific information. The development of information work is studied as a special field which broadens and deepens traditional bibliographic and reference work in libraries. Main stages of information work (acquisition of sources, processing, etc.) are described. Trends of further development of the theory and practice of information are considered. Connections between the theory of scientific information and other fields of knowledge are shown.

Dembowska Maria. Dokumentacja i informacja naukowa. Zarys problematyki i kierunki rozwoju. Warszawa, Stowarz. bibliotek. pols., 1965, 150s., ill., 45 zl. (In Polish; English, Russian and French summaries).

64. Diemer A. **Informationswissenschaft.** «Nachr. Dok.», 1971, 22 № 3, 105—113.

65. **The role of the information scientist.**

The information system structure, the relationships between information science and computer science, the current status of information retrieval, and its role in the information systems are considered. Information science is defined as «the science which investigates the properties and behaviour of information, the forces governing the flow of information, and means of processing information for optimum accessibility and usability. The processes include the origination, dissemination, collection, organization, storage, retrieval, interpretation, and use of information». The concepts of pure and applied information science are introduced. An information system consists of a store for documents, and an index which provides access to this store. The store should be characterized by stability and the index, by flexibility. Since the index consists of symbol strings, its manipulation is best performed by computer. Classification systems are inconvenient for use in the store because of multiple relationships among various fields of science and technology. Coordinate indexing and new techniques in machine indexing offer great promise for the future. The Information Science curriculum at the Georgia Institute of Technology (1965) is given. Some notions of semiotics as applied to information science are presented. 9 ills., 2 tabs., 6 refs.

Dolan F. T. «Int. J. Man-Mach. Stud.», 1969, 1, N 1, 39—50 (In Englich).

66. Donker Duyvis F. **Die Enstehung des Wortes «Dokumentation» in Namen der FID.** «Rev. doc.», 1959, 26, № 1, 15—16.

67. Donohue J. C. **Librarianship and the science of information.** «Amer. Doc.», 1966, 17, № 3, 120—123.

68. **Comments on «Fundamentals of scientific information».** A. I. Mikhajlov, A. I. Chernyj, R. S. Giljarevskij. Dorfman Ja. G. Recenzija na knigu A. I. Mikhajlova, A. I. Chernogo, R. S. Giljarevskogo «Osnovy nauchnoj informacii». M., «Nauka», 1965, 655 s. «Nauch.-tekhn. inform. Sb. Vses. in-t nauch.-tekhn. inform.», 1966, № 7, 46—47.

69. Dreyfus Ph. **L'informatique.** «Gestion», 1962, 5, Juin, 240—241.

70. **Information science-librarianship-information and documentation science. Remarks on a conception advanced by Josef Koblitz.**

The article discusses the interrelation of information science, librarianship, and information and documentation science, with a critical analysis of earlier pertinent concepts. 38 refs.

Dube Werner. Informationswissenschaft — Bibliothekswissenschaft — Informations- und Dokumentationswissenschaft. Bemerkungen zu einer Konzeption von Josef Koblitz. «Zbl. Bibliotheksw.», 1971, 85, № 6, 336—347. (In German; English, French, and Russian summaries).

71. **On the definition of the concepts «juridical informatics» and «juridical information».**

So far nobody has attempted to define the relationship of the concepts of «juridical informatics» and «juridical information». Indeed, the interrelation of the general concepts «informatics» and «information» remains also unclear. Juridical informatics deals with: (1) theoretical studies of the principles of data processing; (2) the process of data processing; and (3) information law. Juridical information is a special kind of documents (law documents, acts, juridical literature), called also «juridical documentation». The functioning of juridical information is similar to the process of information functioning in general.

Eberle Carl Eugen, Garstka Hansjürgen, Köth Ingeborg. Zur Definition der Begriffe Rechtsinformatik und Rechtsinformation. «Nachr. Dok.», 1971, 22, № 5, 215. (In German).

72. **Key papers in information science.**

The paper is a review of 19 major papers in information science that appeared in the past decade. (by Borko, Otten, Debons, Shera). These papers do not represent aspects of truly permanent value because of the rapid growth of the information science and the fast accumulation of vast stores of new data. The arbitrary selection of papers and the lack of any general critical evaluation rules out the book as a reliable aid in information science.

Ed. Elias A. W. S. l., Amer. Soc. Inform. Sci., 1971, 223 p. Rev. Farradane J. «Program News Comput. Libr.», 1972, 6, № 1, 91—92. (In English).

73. Ernst R. L., Yovits M. C. **Information Science and Decision-Making.** Presented at the Boyd Conference on Decision-Making Aids, The Ohio Univ., Columbus, Ohio, April 1969.

74. Fairthorne R. A. **Morphology of information flow.** «J. Assoc. Comput. Mach.», 1967, 14, 710—719.

75. Fairthorne R. A. **Towards information retrieval.** Butterworth, 1961.

76. Fairthorne R. A. **«Use» and «mention» in the information sciences.** In: Symposium on education for information science, Warrenton, Va, 1965. Washington, D. C., Spartan Books, 1965, 9—12.

77. **Professional aspects of information science and technology.**

Discussions on the interrelation between the new information science and librarianship continue, and the widening use of the newer term «informatics» is adding to the confusion. In Britain the term «information science» has been used to cover both theoretical and practical aspects of information handling. The term «information science» was first used as a suitable title to express the contents of the courses started in 1961, leading to the examinations for the Certificate of the Institute of Information Scientists in Great Britain. Later, similar courses have been introduced at a number of educational institutions. In Europe, the field of study has been more generally called «documentation» and, with some excep-

tions, has been closer to special librarianship. The definition of information science in the United States continues to be a subject of lively discussion. The treatment of the problem in the USSR is also considered. The terms «information science» and «informatics» are compared. The need is stressed for further development of theoretical aspects of information science, based on thorough scientific research. 42 refs.

Farradane J. «Annu. Rev. Inform. Sci. and Technol. Vol. 6». Chicago, 1971, 399—410. (In English).

78. **Progress in documentation. Training for information science.**

Differences are considered in the methods for training information specialists in Britain and the United States. In Britain, this is commonly reduced to a mere extension of library activities without a clear distinction between library work and information. In the United States, there is a sharp division between librarianship and information, the latter quickly turning into an industry. A brief survey is made of training curricula in various countries. There is a lack of qualified teachers and approaches to the quantity and quality of curricula and the lengths of training courses are different. The initial scientific background and specialization of the trainees are an important factor.

Farradane J. «J. Doc.», 1970, 26, № 3, 261—265. (In English).

79. Farradane J. E. **Report on research on information retrieval by relational indexing.** City Univ., 1968.

80. **The need for a discussion on the concept of information.**

The need for a discussion among specialists in various fields of knowledge in order to work out a common definition of information is stressed. A table of definitions of information, message, and signal as suggested so far by various authors is presented.

Feitscher Wolfgang, Kirchhöfer Dieter. Diskussionsbeitrag zum Informationsbegriff. «ZIID—Z.», 1966, 13, № 5, 155—156. (In German).

81. **The scope and goals of information science and engineering.**

Information science, technology and practice (ISTP) are concerned with the knowledge and actions necessary

for efficient human communication. There is no law to forbid the information specialist to participate in the communication he hediates; yet, if he does so, he outsteps the scope of ISTP. Today ISTP is an amalgamation of techniques, rather than the sum total of specialized kinds of activity developed on the basis of some general principles.

Fairthorne R. Ob'em i celi informacionnoj nauki i tekhniki. /Transl. from English/. V sb. «Teor. probl. inform.» M., Vses. in-t nauch. i tekhn. inform., 1968, 26—34. (In Russian).

82. **Progress in documentation. «Informatics».**

The paper is a review of major current developments in production, organization, processing, searching and dissemination of scientific and technical information. Theoretical aspects of the problems covered by informatics, viewed as a new scientific discipline in its own right, are considered. The approaches to selecting the name for this discipline and to definition of the place it occupies in regard to other sciences and the particular problems it is to solve, as advocated by various authors, are analyzed. Particular attention is given to information retrieval, linguistic problems of informatics, classifications, sociological aspect of sci-tech information transfer, types of information services and their organizational patterns. 12 refs.

Foskett D. J. «J. Doc.», 1970, 26, № 4, 340—369. (In English).

83. Foskett D. J. **The subject approach to information.** Bingley, 1969.

84. **Information science as an emergent discipline: educational implications.**

Information science is a discipline formed at the crossroads of librarianship, new sciences dealing with computers and modern means of communication, and such sciences as phsychology and linguistics. Tasks to be solved by information work are stated.

Foskett D. J. «J. Librarianship», 1973, 5, № 3, 161—174. (In English).

85. Freeman L. **Information and the language sciences.** Elsevier, 1968.

86. Frühauf Hans. **Information, Informations-**

verarbeitung, Informationsübertragung im Blickfeld der Kybernetik. «Wiss. und Fortschr.», 1966, 8, 355—362.

87. **Information, documentation and cybernetics.**

The desirable unification in the use of the terms and concepts of «communication», «documentation» and «information» is so far lacking. The author proposes a scheme of definitions aimed toward finding a unique criterion. Communication is regarded as the main concept that refers to a finite system providing interaction between the transmitting and receiving components. The three main aspects of communication are: transmission — a physical process of the transfer of signals through a certain channel; information — the messages those signals convey; and informational effect — the change of state resulting from the transmission. Various approaches to the concept of information are discussed as well as its various relationships including that to cybernetics and diverse interpretation of the term «informatics». 30 refs.

García de Miranda Netto Antonio. Informaçao, documentaçao e cibernética. «Informatica. Semin.», Rio de Janeiro, 19—21 nov. 1968. Rio de Janeiro, Inst. brasil. bibliogr. e doc., 1969, 21—38. (In Portuguese).

88. **Document analysis and linguistic theory.**

The applications of linguistic results in informatics are reviewed. Analysis of information languages as metalanguages is suggested as the mot efficacious mode of these applications. The use of n-place predicates to convey syntactic and semantic relations is the basis of these linguistic applications. 103 refs.

Gardin Jean-Claude. «J. Doc.», 1973, 29, № 2, 137—168. (In English).

89. Garvey W. D., Griffith B. C. **Scientific communication as a social system.** «Science», 1967, 157, 1011—1016.

90. **Science communications and some problems of informatics.**

The paper was given at the CMEA international symposium «Theoretical basis of information» held in Moscow on 9—13 June 1970. A general concept of science communication processes is presented, defining informatics as a social science investigating the structure and general properties of scientific information, as well as the general law-governed regularities of science communication. The relations tying informatics with other disciplines are elucidated. Possible approaches to the problem of analytical reviews, factographic retrieval and user needs studies are highlighted. By encompassing all information transfer processes within the scope of the concept of science communication an approach is made to the study of the regularities of recording, transmission and generation of science information. The «informal» science communications have a major role to play, and it is essential to study them for understanding the totality of laws governing science information activities. The inclusion of all science communication processes into the subject of informatics provides a clearer definition of its scope and boundary lines with the allied fields and sciences. 20 refs.

Giljarevskij R. S., Chernyj A. I. Nauchnaja kommunikacija i nekotorye problemy informatiki. (Mezhdunar. simpozium stran-chlenov SEV. «Teor. osnovy inform.» Moskva, 9—13 ijunja 1970). M., VINITI, 1970, 40 s. (In Russian).

91. **Scientific communication and some problems of informatics.**

The vital aspects of informatics that have practical implications are discussed, especially from the standpoint of further development. The processes studied by informatics are the processes of scientific communication. The capabilities of «informal» communication channels are analysed and their role in information processes is examined. The functions of «formal» channels, and specifically, of the scientific documents, are established. The concept of scientific information is investigated. The epithet «scientific» stands to specify the nature, quality of information, which differs from «non-scientific» information in that respect. Informatics is concerned with the generalizable properties of scientific information and the regularities of the scientific communication processes. The following aspects are discussed: surveys and analytical information; factographic information retrieval systems and their difference from document-based systems; problems and importance of the study of information requests. 23 refs.

Giljarevszkij R. S., Czernüj A. I. Tudomanyos kommunikáció és az informatika néhány problémája. «Tud.

tájék. elmélete és gyakorl.», 1972, № 19, 115—117, 169, 170, 181. (In Hungarian; English, German and Russian summaries).

92. **Does documentary informatics exist?**

The division of information into scientific and managerial is not justified. Problems of organization of documentary information flows are discussed, which permit to supply users with scientific and managerial information relevant to correctly stated requests. The importance of solving the problem of documentary information follows from the fact that computers are widely used in information centres and libraries and that fully automated libraries are being set up.

Giroire J. Existe-t-il une informatique documentaire? «Etud. et realis.», 1972, № 135, 87—90. (In French).

93. **The relationship of information science to librarianship — problems and scientific training.**

The main function of librarianship is defined as knowledge transfer, whereas the function of information science is research and development towards results later to be used by professional librarians. Research in information science is indispensable to the development of librarianship.

Giuliano Vincent E. «Amer. Doc.», 1969, 20, № 4, 344—345. (In English).

94. **Information science: discipline or disappearance.**

The origin of information science is discussed. The final goal of the discipline is to gain an integrated approach to various phenomena that are liable to analysis in information terms. The scope of the discipline must encompass the elaboration of basic principles of communication, so that the study into the properties of the communication processes is its Task Number One. 4 refs.

Goffman William. «Aslib Proc.», 1970, 22, № 12, 589—595. Discuss., 595—596. (In English).

95. **On terminology in the field of informatics and information work.**

The standardization of terminology in the field of information theory and practice is necessary. New definitions of some of the usual terms are given, other definitions are refined (subject retrieval, primary and secondary document, primary and secondary information). Reasons for the introduction of termssources of general technical information and specialized and narrowly specialized disciplines are given. The possibility of giving exact definitions of the types of reference files is discussed.

Gol'dgamer G. I. O terminologii v oblasti informatiki i informacionnoi dejatel'nosti. «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.», 1971, ser. 1, № 6, 5—6, 37. (In Russian; English summary).

96. Gorn S. **The computer and information sciences and the community of disciplines.** «Behav. Sci.», 1967, 12, № 6, 433—452.

97. **Informatics as a science.**

The general characteristics of science, applied science, and technology are defined. The exponential growth of knowledge, with the rapid emergence of ever new professions, is discussed. Amount of knowledge can be measured in terms of the volume of publications in informatics and the growth rate of this volume. Arguments are offered justifying the notion of informatics as a science in its own right. Close links of informatics with mathematics, electronics, linguistics, and management science are emphasized.

Gotlieb Calvin C. «Schriftenr. Techn. Hochsch. Wien», 1971, 1, 54—62. (In English).

98. Grolier E. **Formation et recherche en science de l'information. Tours,** 1971. (Prospectus for a symposium held at Institut Universitaires de Technologie, Tours).

99. Grolier E. De. **Recent research trends in the field of information retrieval languages.** In: Subject retrieval in the seventies. Westport, Conn., Greenwood Press, 1972.

100. **Informatics, communication, dialogue.**

Informatics — in the broadest sense — is a science that deals with the human personality utilizing information. Its major tasks include: the elaboration of the typology of homo informationicus who uses information for the transformation and development of his spiritual world, the study of communicative relations, particularly the transmission of scientific information. Dialogue has an important part to play in communication since it facilitates exchange of knowledge and ideas and an appropriate shaping of these. Exploration of the communication process and its human aspects is indispensable in studying the essence and methods of information work. Infor-

matics is intrinsically connected with communication theory. For defining the place of informatics among the other sciences and investigating its structure and methods one has regularly to disclose the isomorphic features that link up informatics with other sciences (pedagogics, psychology, semantics, and others).

Györe Pál. Informatika, kommunikáció, dialógus. «Tud. és müsz. tájékoztatás», 1969, 16, № 4, 245—257. (In Hungarian; English, Russian and German summaries).

101. **Informatics, communication, dialogue.**

Informatics is a branch of science dealing with the man making use of information. Its primary tasks include (i) shaping a typology of homo informationicus who uses information to transform and to develop his intellectual world and (ii) the examination of communicative relations with particular view to disclosing information of a scientific content. Dialogue, which plays an outstanding role in communication, makes it possible for the participants to share and shape each other's thoughts, ideas and knowledge. The importance is emphasized of studying those questions of communication processes which are deeply rooted in personality and affect the intellectual existence of Man. Informatics and communication theory are closely related. The isomorphic features assimilating informatics with such specialized disciplines as pedagogy, psychology, semanitics, cybernetics, etc, must be explored. 30 refs.

Györe Pál. Informatika, kommunikáció, dialógus. Megjegyzések Szentimihályi János tanulmányához. «Tud. tájék. elmélete és gyakorl.», 1972, № 19, 51—60, 161, 170, 179. (In Hungarian; English, German and Russian summaries).

102. **Introduction to science-information work.**

The publication deals with major problems of scientific information work. Sources of information, mechanization of information processes, information search and retrieval are discussed. Attention is paid to functions of information services and to methods of scientific information work.

Hanson C. W. London, Aslib, 1971. 199 pp., ill. (In English).

103. Harmon G. **Information science as an integrative discipline.** In: Co-operating information societies. «Proc. Amer. Soc. for Inform. Sci.», 1969, 6, 459—462.

104. **On the evolution of information science.**

The emergence and development of information science within a wider disciplinary framework is studied. This process was foreshadowed by improvements of the methods of information searching and the development of sciences dealing with various aspects of communication. The full maturity of information science is predicted for the early 1990s. 33 refs.

Harmon Glynn. «J. Amer. Soc. Inform. Sci.», 1971, 22, № 4, 235—241. (In English).

105. **Education in information science.**

The paper deals with various approaches to education in information science. The term «a course in information science» is defined in many dissimilar ways in different U. S. educational establishments for library, technical, medical and other training. Thus, library schools believe that they have an information science programme if they have added one or two courses of lectures on library data processing. Engineering schools have identified information science with Shannon's information theory. In this connection, the terms «information», «information system» and «information science» are discussed and defined. The share of a course in computers and automatic information systems within the entire programme for information science is specified. The fundamentals of four types of curricula in information science with account of their orientation are given.

Hayes R. M. «Amer. Doc.», 1969, 20, № 4, 362—365. (In English).

106. Hayes R. M. **Information science in librarianship.** «Libri», 1969, 19, № 3, 216—236.

107. Heilprin L. B. **American Documentation Institute Committee on Organization of Information.** Report for 1962—63. «Amer. Doc.», 1964, 15, № 4, 274—288.

108. Heilprin L. B. **On the information problem ahead.** «Amer. Doc.», 1961, 12, № 1, 6—14.

109. Heilprin L. B. **Toward a definition of information science.** In: Automation and scientific communication. 26th Annu. Meet. of Amer. Doc. Inst., 1963, 239—242.

110. **How to win the pentathlon-unifying theories of information science.**

A curriculum for information science should aim at unifying separate components of information science rather than standardizing the subject matter. The techniques used to attack systems-design problems have contributed towards the development of information retrieval theory. Standardization is important for terminology and thus for regulating the theory.

Hillman Donald J. «Amer. Doc.», 1969, 20, № 4, 335—336. (In English).

111. **Terminology of library and information science: a selective glossary.**

The glossary is largely experimental, intended for the students of the Columbia University as an aid to a course delivered there. This explains the specificity of the glossary as a handbook claiming no exhaustivity of description. The terms given are mainly from indexing (both cataloguing and computerized coordinate). As a tentative edition, it includes some terms which may later be deleted.

Hines Theodore C., Harris Jessica L. Prelim. Ed. Sch. Libr. Serv. New York, Columbia Univ., 1971, 45 pp. Rev. Farradane J. «J. Doc.», 1971, 27, № 3, 228—229 (In English).

112. **Remarks on the Russian terminology of the dictionary of informatics.**

The author analyses the principles underlying the formation of scientific terminology and existing different definitions of the concept of «term». The terms of UDC included in the «Terminological Dictionary for Scientific Information» (1966) are reviewed. The ambiguity of some of the terms is noted.

Harnačkova Eleonora. Poznámky k ruskej terminológii v terminologickom slovniku z oblasti vedeckých informácii. «Pamätnica Ústr. ekon. knižn.». Bratislava, 1970, 391—404. (In Slovak; English, German and Russian summaries).

113. **Information science: its ends, means and opportunities.**

There are several definitions of information science which differ from one another in this or that particular detail. An attempt is made to give a precise formulation

to the interpretations of the term and to analyze the meaning of its derivative notions. Information science is described as the body of knowledge covering theoretical and practical aspects of identifying and satisfying information needs, including processes which occur within a human mind when a problem and data useful for its solution are brought into productive union. The concept of «information market research» is introduced as an identification and definition of user information needs. The authors believe that in our time the most urgent tasks of information science are (1) to provide the methodology for identification and definition of needs for new knowledge, and the principles of classification of information requirements and users; and (2) to develop theoretical aspects of information transfer.

Hoshovsky Alexander G., Massey Robert J. «Proc. Amer. Soc. Inform. Sci. Annu. Meet. Vol. 5». New. York, Greenwood Publ. Corp., 1968, 47—55. (In English).

114. Hotz G. **Gesellschaft für Informatik.** «Elek. Rechenanlag», 1970, 12, № 2, 55.

115. **An analysis of information science programs.**

The paper presents the results of analysis of information science curricula and courses of 57 U. S. institutions of higher education. The present state of information science as an instructional area is examined. The interaction between information science and related disciplines is identified. The structure of the curricula is analysed. The paper does not contain final conclusions, and is an informal report made for the benefit of the ASIS Curriculum Committee Workshop.

Hoyt Ronald H. «Amer. Doc.», 1969, 20, № 4, 358—361. (In English).

116. **Information and informatics.**

The concepts of «information», «informatics» and «computer engineering» are defined and discussed. Some computer applications in informatics are considered.

Information et informatique. «Pétrole-progr.», 1970, № 83, 3. (In French).

117. **Information sciences:** 1967. Washington, D. C., Air Force Office Sci. Res., 1967. (AIOSR 68—0006).

118. Isakovic D. **La documentologie.** «Rev. int. doc.», 1965, 32, № 4, 152—153.

119. Jackson E. B. **Inside documentation.** «Spec. Libr.», 1954, 45, № 4, 151.

120. Jansen W. M. J. **Het begrip documentatie.** «Bibliotheekleven», 45, № 10, 348—352.

121. **Is informatics an independent scientific discipline or technical work with information sources. Je informatika samostatnou vědeckou disciplinou, nebo pouze technikou práce s prameny informací?** (Referat přednesený na semináři Zentralle Leitung für Gesellschaftswissenschaftliche Information und Dokumentation DAV v Berlině ve dnech 14—16. 11.1967). «Věd. inform. ČSAV», 1967, 4, № 4, 2—8.

122. **Information work and informatics.**

On the basis of the Marxist-Leninist theory of cognition and cybernetics, the concept of information is considered, and the problems of the structure and the properties of scientific information and of the theory of scientific-information activity, which constitute the subject of informatics, are discussed.

Jedziny Gert. «Informatik», 1969, 16, № 3, 3—8. (In German; English and Russian summary).

123. Juarroz Roberto. **Documentación.** Consejo Nacional de Investigaciones Científicas y Técnicas, Buenos Aires, 1966.

124. Kahn Herman, Wiener Anthony J. **The year 2000.** New York, McMillan Co., 1967.

125. **Types and properties of information.**

The concept of information is differently interpreted in different fields. Four types of information are distinguished: elementary, biological, semantic and machine-type. The peculiarities and properties of each type of information are discussed in terms of information science.

Kancleris A. Informacijos rušys ir savybes. «Bibliotekų darbas», 1969, № 9, 17—19. (In Lithuanian).

126. Kent A. **Textbook on mechanized information retrieval.** New York, Intersci. Publ., Inc., 1963.

127. **The Encyclopedia of Library and Information Science: is ELIS worthy of the name?—«Yes!».**

The editor of the Encyclopedia gives arguments in favour of the Encyclopedia being worthy of its name. The arguments are based on relevant information samples from the publication.

Kent Allen. «Wilson Libr. Bull.», 1973, 47, № 7, 602—604. (In English).

128. **Informatics in librarianship.**

The definitions of informatics are discussed with a special reference to the interrelations of informatics and librarianship. A group of interrelated terms are considered (data, information, knowledge, etc.), presenting the approaches to the definition of informatics and various theoretical concepts regarding the subject of informatics. Information centres and libraries are characterized as objects of study for informatics, showing the latter's role in library education. Different programs in the field are analysed, outlining possible syllabi for library schools — in data processing and information system analysis. 14 refs.

Kheiz Robert M. Informatika v bibliotechnom dele. «Prof. obraz. bibliotekarej. 2» M., 1971, 138—175 (In Russian).

129. **Cybernetics and documentalistics. Mechanization of the process of information search, storage and retrieval.** Kibernetika i dokumentalistika. Mekhanizacija processa nakhozhdenija, khranenija i poiska nauchnoj informacii M., «Nauka», 1966, 170 s.

130. Kitagawa T. **Information science and its connections with statistics.** Fukuoka, Kyushu Univ. 1968.

131. **Information science unlimited? ... A position paper.**

The development of curricula for information science for U. S. higher education institutions necessarily involves the delimitation of the subject matter. Starting with the ASIS definition of information science, an analysis is made of the rationale of current thinking relevant to the conceptual boundaries and intellectual content of the field. The following segments are distinguished in information science: conceptualization, storage/transmission and utilization.

Klempner Irving M. «Amer. Doc.», 1969, 20, № 4, 339—343. (In English).

132. Klempner Irving M. A unified curriculum for information science. «Coll. and Res. Libr.», 1969, 30, № 4, 335—341.

133. **Library science and information-documentation: distinctive and common features.**

Factors that permit delimitation between library and information activities (the essence of these two kinds of work, their purposes and specifics). A survey of activities of libraries and information agencies. Terms used to designate a new field of knowledge — informatics.

Koblitz J. Bibliotechnoe delo i informacija-dokumentacija: otlichitel'nye i obshchie cherty. (Transl. from German). V sb. «Teor. probl. inform.». M., Vses. in-t nauch. i tekhn. inform., 1968, 128—151. (In Russian).

134. Koblitz J. **Dokumentation und Information. Eine terminologische Untersuchung.** «Dokumentation», 1959, 6, № 1, 3—10.

135. **The subject of information and documentation, information science and informatics.**

The article discusses main definitions pertaining to the subject of information and documentation work, information science and informatics. The author draws from his analysis of the definitions the conclusion that the term «informatics» as suggested by A. I. Mikhailov et al. would not be fit for use in the German Democratic Republic and that the term «information science» would be preferable. 19 refs.

Koblitz Josef. Der Gegenstand der Informations- und Dokumentationswissenschaft, Informationswissenschaft und Informatik. «Informatik», 1970, 17 № 3, 22—26. (In German).

136. Koblitz Josef. **Die ideale Partnerschaft von Bibliothekswesen und Dokumentation und Information.** In: Buch—Bibliothek—Leser. Festschrift für Horst Kunze. Berlin, 1969, 115 S.

137. **On the concept of information.**

The concept of information is interpreted in conjunction with the latest studies in information science. 14 refs.

Koblitz Josef. Zum Informationsbegriff. «ZIID — Z.» 1968, 14, № 3, 92—94 (In German).

138. **The place of library science and information and documentation science within informatics.**

The library science is treated as a part of informatics, and librarianship as a specialized information activity; from this viewpoint, the subjects, methods, interrelationships, and common and distinctive features of the two

are defined. Much attention is given to the terminological aspects.

Koblitz Josef. Die Stellung der Bibliothekswissenschaft und der Informations- und Dokumentationswissenschaft in der Informationswissenschaft. «Zbl. Bibliothekswesen», 1969, 83, № 12, 689—733. (In German; English, French and Russian summaries).

139. Koblitz Josef. **Thesen zum Wesen der Information und Dokumentation und der Informations- und Dokumentationswissenschaft.** 2. Entwurf. Berlin: Institut für Bibliothekswissenschaft und wissenschaftliche Information der Humboldt Universität zu Berlin, 1968, 8 S, 4 S. Anl. (Manuskr.).

140. Koblitz Josef. **Das Verhältnis von Bibliothekswesen und Information/Dokumentation zueinander.** Berlin, Institut für Bibliothekswissenschaft und wissenschaftliche Information der Humboldt—Universität zu Berlin. 1967, 9 S. (Manuskr.).

141. **On the status of information science.**

Information science is an emerging discipline. It possesses the following properties essential for any scientific discipline: a specific goal, subject of study, factual data organization, means and history. However, it stands in want of a method of its own. The designations of this discipline based on the term of either «information» or «document» (information science, documentation) are inadequate.

Koblitz Josef. Zum Wesen und Entwicklungsstand der Informations- und Dokumentationswissenschaft. «ZIID—Z.», 1968, 15, № 4, 151—156. (In German; Russian, English and French summaries).

142. Koblitz J. **Das Wesen der Informations- und Documentationswissenschaft.** Berlin, 1968, Kézirat. 29 S.

143. Kochen M. **Some problems in information science.** New—York, Scarecrow Press, 1965.

144. Kochen M. **Stability in the growth of knowledge.** «Amer. Doc.», 1969, 20, № 3, 186—197.

145. Kondakov I. P. **Library and documentation.** Report at 32d Session of IFLA. The Hague, 1966, 10 pp.

146. **Scientific and technical information.**

The paper consisting of two sections, deals with the objectives and processes of study into the major aspects of scientific and technical information; papers discussed

at the Japanese scientific and technical conferences are reviewed; data are given on primary and secondary documents disseminated among users, activities of libraries and data processing centres are described. Information systems and evaluation aspects are also considered.

Kotani Masao, Cotuka Haruo. «Dokumentêsyon kenkyû», 1972, 22, № 6, 183—198. (In Japanese).

147. **On the definition of the subject of patent information science.**

In conjunction with the unified information network under construction in the USSR, the study of the essence, place and functions of patent information within the future network acquires special importance. The definition of patent informatics and its subject is given. 14 refs.

Kravec L. G. K opredeleniju predmeta patentnoj informacii. «Vopr. izobretatel'stva», 1971, № 10, 25—29. (In Russian).

148. **Terminology dictionary in scientific information.**

The eight-language dictionary of scientific information terminology published by VINITI in 1966 (507 pages) is reviewed, with, a special consideration for Polish terms included in the dictionary.

Krygier Barbara. Słownik terminologiczny informacji naukowej. «Biul. Osrod. dokum. i inform. nauk. PAN», 1967, № 2, 111—115. (In Polish).

149. Kunze H., Rätz K. **Bibliothek—Dokumentation—Information.** «ZIID—Z.», 1965, № 1, 13—16.

150. **Theoretical basis of informatics at an international symposium.**

The article reports on the International symposium of CMEA countries on «Theoretical Foundations of Informatics», Moscow, 1970, and gives some details of 48 papers on theoretical fundamentals of information science presented at the Symposium.

Kuznecov O. Teoreticheskie osnovy informatiki na mezhdunarodnom simpoziume. «Bibliotekar'», 1970, № 10, 61—63. (In Russian).

151. **Fundamentals of practical information and documentation.**

The book under review describes the structure and the broad scope of information and allied sciences: library science, applied mathematics, etc.

Laisiepen Klaus; Lutterbeck Ernst; Mayer—Uhlenried Karl—Heinrich. Grundlagen der praktischen Information und Dokumentation, Eine Einführung. e. a. Frankfurt/M Verl. Dok. 1972, XVIII, 652 S., ill. Rev. by Beck Helmut. «Zbl. Bibliotheksw.», 1973, 87, № 2, 101—106. (In German).

152. **Communication theory and scientific information.** Lamser W. Teorie komunikace a vedecke informace. «Metod. a techn. inform.», 1968, 10, № 5, 2—12.

153. **Informatics as a science, or the science of informatics.**

The following questions are discussed: is there a science of informatics? What is the science of informatics? Who needs a science of informatics? How do we teach the science of informatics? No clearcut and unambiguous answers are given to these questions. The author maintains that there are no pure sciences, but only applied sciences. The notion of informatics is associated with mechanized processing of information. The science of informatics is explained as a method of cognition which permits to create systems in the information field, within which it is possible to assess relevance, acceptability, utility, profitability and value of actions in informatics.

Laski J. G. «Schriftenr. Techn. Hochsch. Wien», 1971, 1, 47—53. (In English).

154. Lasso de la Vega Javier. **La documentación.** Cómo se hace una tesis doctoral. Madrid, 1958, 332—476.

155. Lasso de la Vega Javier. **La documentación en España.** «Bol. Unesco bibl.», 1963, № 3.

156. Lasso de la Vega Javier. **Manual de documentación.** Barcelona, Editorial Labor, S. A., 1969.

157. **Modern documentation on special literature.** Lázár P. A korszerü szakirodalmi dokumentáció. 13 p. Telsóokt. Jegyzetellátó, 1962, 190 p. (Mérnöki Továbbképzó Intézet 4046).

158. **«Documentary informatics»: a subject of learning.**

«Documentary informatics» is defined as a new scientific discipline. Practical activities in the field, and training of information staff and users are discussed. The author recommends to enter the new discipline on the higher-learning syllabi in Rumania. 25 refs.

Lăzărescu Georgeta. Informatica documentară-obiect de învățământ. «Stud. şi cerc. doc.», 1970, 12, № 4, 325—338. (In Rumanian; English, French and Russian summaries).

159. **Advances in the science of terms: a symposium on «Place of terminology in the system of contemporary sciences».**

The paper is a report at the symposium on «Place of terminology in the system of contemporary sciences» held at the Moscow University, December 24—27, 1969. A brief review is given of reports and communications concerned with theoretical and practical aspects of terminological work: principles of organization of this work, logico-gnosiological and linguistic aspects of creation of terms and term systems, relations of terminology to semiotics, informatics, documentation science, the science of science, principles of and experience in compilation of terminological dictionaries, teaching of the fundamentals of terminology to various categories of students.

Lejchik V. M. Novoe v nauke i terminakh. (S simpoziuma «Mesto terminologii v sisteme sovremennykh nauk»). «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekn. inform.» 1970, ser. 1, № 6, 29—32, 38. (In Russian; English summary).

160. **ISO/TC-46 «Documentation» Committee (organization, activities, problems).**

Major trends and problems in the activities of the ISO/TC-46 «Documentation» Committee and prospects for international co-operation are described. A progress report is given on the work of subcommittees and working groups (within the Committee), such as draft recommendations for standardization and suggestions for contributions to be made by individual ISO countries and international organizations. Poland's share in the Committee's activities and Polish standards are described. The results are reported of work so far performed in the abbreviation of titles of periodicals and other publications, in information terminology, etc.

Leska Maria. Komitet ISO/TC-46 «Dokumentacja» (orgaizacja, dzialalnosc. problematyka). «Aktual. probl. inform. i dok.», 1970, 15, № 3, 17—23. (In Polish; English, French and Russian summaries).

161. **Thesaurus of information science.**

The aim of the thesaurus is to standardize the terminology so as to make it exact and to enable the retrieval of information sources. Some definitions of importance for the thesaurus are given. The methodology of thesauri building is discussed, including rules for the selection of terminology, establishing the area covered by the thesaurus, selection and definition of the descriptors. The main parts of the thesaurus are specified. The use of the thesaurus by authors and editors of primary documents, as well as by information service officers preparing secondary documents, will enable computer-based specification of the documents' contents without prejudice to the original concepts as formulated by the authors of the documents.

Leska Maria; Leski Kazimierz. Tezaurus informacji naukowej. «Aktual. probl. inform. i dok.», 1972, 17, № 3, 9—13. (In Polish; English, French and Russian summaries).

162. **Thesaurus of information science.**

The thesaurus is in three parts: (1) descriptive part including the method for thesaurus construction and use of manual; (2) hierarchical-semantic system of descriptors; and (3) alphabetic system of descriptors including broader contexts for the individual descriptors and their interdependence. The thesaurus covers the field of scientific information plus a group of related concepts that are used in information theory and practice.

Leska Maria; Leski Kazimierz. Tezaurus informacji naukowej. «Pr. stud. przyczyn. CIINTE», 1972, № 1, 337 S., il. (In Polish).

163. **On the subject and essence of the information science.**

Information science should embrace all problems of information and proceed from dialectical materialism. The need for exploration of social information in specific fields is emphasized. Various names for the information science are discussed. 13 refs.

Leupolt Martin. Zum Gegenstand und Wesen der Informationswissenschaft. «Informatik», 1972, 19, № 5, 7—10. (In German; English, French and Russian summaries).

164. Lichtenthat Sigrido. **Qué es la teoría de la información.** Centro Nacional de Documentación e Información Educativa. Buenos Aires, 1967.

165. Liebaers Herman. **Les bibliotheques et la documentation.** Point de vue européen. Communication présentele a la 32e session du Conseil général de la FIAB. La Hage, septembre 1966. «Libri», 1966, № 3, 205—210.

166. Loosjes Th. P. **Documentation van weterschappelijk literatuur.** Amsterdam, 1957, XVI, 184 s.

167. **Information sciences and informatics: an essay of discrimination.**

The notions of «information sciences» and «informatics» are defined. The author advocates the possibility and necessity of a clearcut delimitation of information sciences from informatics. The absence of such delimitation leads to undesirable consequences for science, industry and the socio-political sphere. Informatics is defined as a «machine» science, a mathematical, natural/scientific and technical discipline. Its object is the computer. Informatics makes use of such disciplines as linguistics, semiotics, neurophysiology and cybernetics and is closely related with them. As to information sciences, they are based primarily on social motivations, and are mostly humanitarian and social/scientific disciplines; they strive to diminish uncertainty and to explore the information processes and information systems that are of a non-physical character. They must be empiric sciences, that may use mathematical and natural/scientific methods and facilities. The information sciences are associated with a number of disciplines, including informatics. The introduction of the term «informatics» in the Federal Republic of Germany in 1967/1968 to denote the concept of «computer science» was certainly overhasty, as back in 1966 this term was assigned in the USSR, and hence in other CMEA countries, to the branch of knowledge which is denoted in the Federal Republic of Germany by the term «information and documentation»; as to the term «informatorics» introduced adout that time, it had poor chances of survival. An upshot of this terminological mistake is the frequent confusion between «informatics» and «information science». 9 refs.

Lutterbeck Ernst. Informationswisseschaften und Informatik. Versuch einer Abgrenzung. «Dokum. und Inform. Weg Informationszeitalter», Frankfurt/M., 1971, 35—42. (In German).

168. Lutterbeck Ernst. **Über den Beitrag der Dokumentation zur Einheit der Wissenschaften.** Gedanken im Anschluss an den Weinberg—Bericht. «Nachr. Dok.», 1966, № 4, 111—118.

169. **The present state-of-the-art in informatics terminology.**

The need for normalizing the terminology of information science is emphasized. The requirements to be met by the terminology system are specified. 1 ref.

Lutterbeck Ernst. Uberblick über die derzeitige Situation auf dem Gebiet der Terminologie der Dokumentation. «Nachr. Dok.», 1969, 20, № 2, 52. (In German).

170. **New frontiers in bibliography. Problems of bibliographic theory.**

The article is the closing instalment of a series of papers on bibliographic development, and of the relationships of the bibliography to other disciplines, informatics included. Informatics does not detract from the importance of bibliography, as it was believed some 10 or 15 years ago. Informatics proposed new techniques for information presentation (coordinate indexing, peek-a-boo, citation indexes) which can be applied in bibliography work. The interactions of informatics and bibliography are indispensable for bringing the bibliographic thinking closer to the present-day science, especially the exact sciences. A new definition of bibliography is suggested: «bibliography is a science of bibliographic information which is necessary for the community effectively using its printing facilities, a science of the properties and regularities of the dynamics, production methods and utilization of that information».

Lyrovas V. Senas mokslas naujose pozicijose. (Bibliografijos teorijos klausimai). «Biblioteku darbas», 1971, № 10, 16—17. (In Lithuanian).

171. Mack J. D. **A national policy for the information sciences.** «Amer. Doc.», 1963, 14, № 4, 275.

172. Mack J. D., Taylor R. S. **A system of documentation terminology.** In: J. H. Shera, A. Kent, J. W. Perry (eds). Documentation in action N. Y., Reinhold Publ. Co., 1956, 20.

173. McKay D. M. **Information, mechanism and meaning.** Cambridge, Mass., MIT Press, 1969.

174. **Information systems.**

Information amount and varieties increase with time in every organization, and this is accompanied by the growth of close contacts between various types of information. Information importance and terminology are becoming the major problems confronting information science. Giving a general concept of information system, the author underlines that it functions according to the same regularities as other dynamic systems. The difference between data and information is discussed. Practical problems to be solved within the framework of an information system are analyzed. The procedure of information system development in an organization is outlined.

Marjanovic Slavko. Sistemi informacija. «Tehnika», 1972, 27, № 2, «Organiz. rada», 22, № 2, 398—400. (In Serbocroatian; French summary).

175. McDonough A. M. **Information economics and management systems.** New York, McGraw Hill Book Co., 1963.

176. Meadow Charles T. **The analysis of information systems: an introduction to information retrieval.** N. Y., Wiley, 1967.

177. **Information sciences vs. automatic data processing.**

The basic notions used in information science and in automated data processing are defined. The relationships of these two fields are explained, an attempt at identifying the hierarchical structures of the concepts and disciplines constituting them is made. A training program integrating the studies in informatics and in automated data processing is proposed.

Menda Eduardo. Ciencias de la información y de la computación. «Semin. lat.-amer. prepar. cientistas inform., México, 1972». Rio de Janeiro, 1972, 181—186. (In Spanish).

178. **Documentary informatics — a new science.**

The survey opens a series of articles under the common title «Documentary Informatics — A New Science», that will expound the basic ideas of the course in «Present-day Scientific. Technical and Economic Methods of Documentary Informatics». The main concepts of cybernetics are discussed, as are C. Shannon's theory of information, R. Carnap's and J. Bar-Hillel's semantic information theory. Informatics is explained as a consequence of a cybernetic approach to phenomena. The subject of informatics is defined, stressing its connections with Boolean algebra, mathematical information theory, semantic information theory, mathematical linguistics, etc. 17 refs.

Mendelovici Marisu. «Probl. inform. şi doc.», 1972, 6, № 8, 5—25. (In English and Rumanian).

179. Meredith G. P. **Instruments of communication: an essay on scientific writing.** Pergamon Press, 1966.

180. **Informatics as a scientific discipline.**

The origin, scope, methods, and place of informatics in the overall system of scientific knowledge, as well as its relationships with other disciplines are considered.

Merta A. Informatika kak nauchnaja disciplina/Trans. from Czech./V sb. «Teor. probl. inform.». M., Vses. in-t nauch. i tekhn. inform., 1968, 35—44. (In Russian).

181. **Informatics as a scientific discipline.**

Theoretical informatics is defined as a new scientific field of an interdisciplinary nature. The sphere of informatics is extended to cover a broad field as regards the content of the processes examined and the scope of these processes (origin, generation and use of information). The content of informatics is analysed. Informatics is a social science, as it deals with social relations. The social function of information activities is represented by a model. Relations of informatics to mathematics, mathematical logic, linguistics, semiotics, cybernetics, mathematical information theory, the engineering sciences engaged in producing and developing technical devices for informatics, and to system engineering are specified.

Merta Augustin. Az informatika mint tudomanyos disziplina. «Tud. tájek. elmélete és gyakorl.», 1972, № 19, 24—31, 158, 167, 176. (In Hungarian; English, German and Russian summaries).

182. **Is informatics a science or merely an art of information processing?**

The different names used to designate the newly-emerged branch of knowledge are cited: informatics, information science, informatology, documentation science, theory of scientific information, and the semantic information theory. The factors which have brought it about are indicated. Informatics, like any other science, includes

experimental and practical aspects. The building up of the «theoretical informatics» will need joint efforts of mathematicians, logicians, cyberneticians, linguists and other specialists. The author concludes that theoretical informatics is a scientific discipline. He proceeds to consider what problems are to be solved by this science, what methods it must use and what place it occupies among other sciences. An appropriate information system can be developed for any science, but it must be based on the general principles of the theory of informatics.

Merta Augustin. Je informatika vědeckou disciplínou, nebo pouze technikou práce s prameny informací? «Metod. a techn. inform.», 1968, 10, № 9, 1—12. (In Czech).

183. **Definition of theoretical informatics as a new «synthetic» interdisciplinary science.**

The paper was given at the CMEA international symposium «Theoretical Basis of Information» held in Moscow on 9—13 June 1970. The subject of informatics is defined and its place in the system of sciences outlined. The paper has been previously printed in the collection «Theoretical Problems of Informatics. FID 435». Moscow, VINITI, 1968, 35—44. (In Russian).

Merta A. Opredelenie teoreticheskoj informatiki kak novoj nauchnoj otrasli sinteticheskogo mezhdisciplinarnogo kharaktera. (Mezhdunar. simpozium stran-chlenov SEV. «Teor. osnovy inform.», Moskva, 9—13 ijunja 1970). M., VINITI, 1970, 11s (In Russian).

184. **Social aspects of the transfer of subject-oriented information.**

Merta A. Společenské aspekty komunikace odborných informací. Praha, UVTEI, 1970, 209 s.

185. **Fundamentals of informatics.**

The book by A. I. Mikhailov, Director of VINITI, and his two co-authors, A. I. Chernyi and R. S. Giljarevskij is described as a pioneering attempt at a broad survey of new science, embracing its theoretical and practical problems and their possible solutions. The book has a lot of scientific data on various documentation and information matters. The chapters are as follows: subject and method of informatics; documentary sources of scientific information; analytico-synthetic processing of documents; information retrieval systems; conventional information retrieval languages; and descriptor languages. The book

has already gone through two editions in Russian. This is the first German edition, produced by a team of translators in the GDR and published under a license by the GDR State Publishing House. Naturally, the rapid progress of the information science made it impossible to include the latest developments, particularly concerning computer applications. This notwithstanding, the book is competent and thorough-going, and it will be found a valuable aid by all those interested in informatics.

Michajlov A. I., Cernyi A. I., Giljarevskij R. S. Grundlagen der wissenschaftlichen Dokumentation und Information. Opladen, Westdtsch. Verl., 1970, XXIV, 634 S., 66 DM. (In German). Rév. Wagner G. «Meth. Inform. Med.». 1971, 10, № 1. 72. (In German).

186. Michajlov A. I., Cernyj A. I., Giljarevskij R. S. **Informatik.** Grundlagen. Bd. 1.0.0. 1970, 32—41.

187. **Informatics — a new scientific discipline. Subject, methods, and relations to other sciences.**

The authors deal with a new scientific discipline, investigating into the structure and specialities of scientific information, as well as the principles, theory, history, methodology and organozation of scientific information work. They give definitions of important technical terms closely connected with the concept «informatics», and deal with its subject, methods, and relations to semiotics, psychology, and librarianship.

Michajlov A. I., Cernyj A. I., Giljarevskij R. S. Informatik — eine neue wissenschaftliche Disziplin. Gegenstand, Methoden und Beziehungen zu anderen Wissenschaften. «Informatik» (früher: «ZIID — Zeitschrift»), 1969, 16, № 1, 5—11. (In German; English and Russian summaries).

188. **Informatics: a new term for the theory of scientific information.**

Terms pertaining to the field of scientific information are analysed and defined: documentation, information, scientific information, documentology, informatology, etc. Historical highlights on such terms as documentation, scientific information and informatics are given. Interpretations and definitions of these terms as offered by various world scholars and organizations are quoted. Specifically, FID program defined «documentation» as gathering, storage, classification, selection, dissemination and

utilization of all kinds of information. M. Taube defines the term «documentation» as denoting the totality of activities implemented in the course of special information transfer. Documentation thus embraces all library activities. Since 1957, the National Science Foundation (USA) has been issuing semi-annual analytical reviews «Current Research and Development in Scientific Documentation». The term «scientific documentation» is used in the title of the fundamental monography by A. Avramescu and V. Cendea «Introduction to Scientific Documentation». Beginning with the 1940s, English and American authors have been using the term «scientific information» along with the term «documentation». In 1948, a conference was held in London under the title «International Conference on Scientific Information», and in 1958 in Washington — «International Conference on Problems of Scientific Information». J. Koblitz defines «documentation» as covering only processing of the documents' contents. He suggests that the term «documentation» should be used to designate the assessment of a document's utility, its processing and classification, whereas «information» includes storage, retrieval and dissemination of documents. The term «theory of scientific information» which is rather popular, can be treated as synonymous with «documentation». In Soviet literature the branch of science dealing with documentary sources of scientific information is often denoted with the term «documentalistics». This usage has two shortcomings: (1) «documentalistics» suggests an emphasis on documents although the main goal of the discipline is to establish its structure and principal characteristics, (2) «documentalistics» is a derivative of «documentalist», and it is always better to derive the name of a profession from the name of a science than the other way round. Since the 1960s, the term «scientific information» has become more widespread the world over. This term is an adequate name for the scientific discipline studying the methods and means of collection, storage, retrieval and dissemination of scientific information. In the same period, US authors introduced the term «informatology» as a name for the activity and study of the inner process of information embracing the intuitive and algorithmic methods of computer applications as an aid to human intellect. The latest

term in the series in «informatics», and it appears to be most adequate to the designation of the tasks and functions of the new discipline. Interpretations of the terms «information», «scientific information», «scientific information activity», «informatics», «information scientist», and «information officer» and given. The terminological system proposed is not viewed as fixed for ever. Use of more refined and semanticized terminology in the informational domain will urge further crystallization of informatics as a new scientific discipline. 39 refs.

Mijailov A. I., Chernyi A. I., Gilyarevskii R. S. Informática: Un neuvo nombre para la teoría de la información científica. «Inform. bibl. Cent. doc. ped.», 1972, v. 3, № 9, 6—16. (In Spanish).

189. Mikhailov A. I. **Informatics: a scientific discipline.** Moscow, Institute of Scientific Information, 1967, 7 p., mimeog. (Communicaçao apresentada ao 3° Congresso Internacional de Documentaçao, Toquio, 1967).

190. Mikhailov A. I., Chernyi A. I., Giljarevskij R. S. [**Informatics-new name for the theory of scientific communication**] «Nauch.-tekhn. inform. Sb. Vses. in-t nauch i tekhn. inform.» 1966, № 12, 35—39. (Engl. transl. in FID News Bull., 1967, 17, 70—74).

191. **Informatics: its scope and methods.**

The paper is a part of a volume of original articles on theoretical problems of information science, published by the FID/RI Committee. Against the background of the present stage of scientific and technological development, the paper depicts the institution of informatics as a scientific discipline and specifies its subject scope, objectives and relationships with other disciplines, including semiotics, psychology and library science.

Mikhajlov A. I., Chernyi A. I., Giljarevskij R. S. Informatika: eje predmet i metody. V sb. «Teoret. probl. inform.». M., Vses. in-t nauch. i tekhn. inform., 1968. (In Russian).

192. **Informatics: a new name for scientific information theory.**

The article discusses the question of finding a name for the new discipline dealing with the structure and characteristics of scientific information and patterns, structure, history, methodology, and organization of information activities. It is proposed that the new discipline be na-

med «informatics». A detailed critical analysis is made of other terms used to denote the same concept. The article also provides definitions of basic terms related to the concept of informatics (information, scientific information, scientific information activities, informator, informatician). Although the preposed system of terms calls for certain changes in the now accepted nomenclature, such changes are necessary, for the creation and the use of precise and unambiguous terminology in the field of informatics will promote further development of this important discipline.

Mikhajlov A. I., Chernyj A. I., Giljarevskij R. S. Informatika — novoe nazvanie nauchnoj informacii. «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.», 1966, № 12, 35—39. (In Russian).

193. **Fundamentals of informatics.**

Informatics in a new dicsipline concerned with the structures and properties of scientific information and with the laws, theory, history, organization and methods of information activities. The authors define the scope and method of informatics, characterize various kinds of documents as information sources, outline analytical and synthetic document processing techniques, set forth the essential principles of information retrieval, its mechanization and automation, and highlight the present-day rapid document copyng and reproduction techniques. Special consideration is given to the organizational aspects of information activity in the USSR and abroad. The first edition of the book, which appeared under the title «Fundamentals of Scientific Information» in 1965, has elicited lively response both in the Soviet and foreign press. The present revised edition carries new factual material. Some of the chapters have been completely revised.

Mikhajlov A. I., Chernyj A. I., Giljarevskij R. S. Osnovy informatiki. Izd. 2-e, pererabot. i dop. M., «Nauka», 1968, 756 s., il., 3 r. 45 k. (In Russian).

194. Mikhailov A. I., Gilyarevskii R. S. **Guide for an introductory course of informatics/documentation.** Paris, Unesco, 1970.

195. **Theory of scientific information — a new separate scientific discipline.**

The concept of information is defined and the regions of the creation of the theory of scientific information — a new scientific discipline are given. The objectives and the subject of this scientific discipline are described. The main practical task of the theory of scientific information is to contribute to the elaboration of the most rational forms of scientific information work, its mechanisation and automation. The relation of the theory of scientific information to other fields of knowledge and information practice is discussed.

Mikhajlov A. I., Polushkin V. A. Teorija nauchnoj informaci—novaja samostojatel'naja nauchnaja disciplina. «Nauch.-tekhn. inform., Sb. Vses. in-t nauch. i tekhn. inform.», 1963, № 3, 3—5.

196. Mohrhardt Foster E. **Librarianship and documentation: relationships in the United States.** A paper presented at the 32nd Session of the IFLA General Council, The Hague, September 1966. «Libri», 1966, № 3, 211—215.

197. Mooers C. N. **The educational challenge of information science.** In: Automation and scientific communication. 26th Ann. Meet. of the Amer Doc. Inst., 1963, 127.

198. Mooers C. N. **The next twenty years in information retrieval.** «Amer. Doc.», 1960, 11, № 3, 229—236.

199. Morhard Toster E. **Documentation. a synthetic science.** «Wilson Libr. Bull.», 1964, 38, № 9, 743—744.

200. **A general model of information transfer: theme paper 1968 annual convention.**

The data transmission process can be presented in the form of a cyclic diagram. Information is transmitted to the user via a number of channels. The cycle is closed by the feedback line from the user to the point of information origination. The authors consider the channels (of primary and secondary documents, archives and information centres) and the problems of fiunctional efficiency of information service. 10 refs.

Murdock John W., Liston David, Jr. «Amer. Doc.», 1967, 18, № 4, 197—208. (In English).

201. **Terminological dictionary in informatics.**

Terminological dictionaries in the information field published by VINITI since 1966 are briefly reviewed. The

large-scale preparatory work of the Editorial Board at the International Centre of Scientific and Technical Information (Moscow) in 1972 on the 13-language terminological dictionary in informatics is outlined. The structure of the future dictionary which will include some 3,000 terms in informatics and the border disciplines (logic, linguistics, patent science, semiotics, etc.) is described. The dictionary will contain alphabetic lists of equivalent terms in 13 languages and will reflect the present state-of-the-art in informatics terminology in the CMEA countries. Its objective is to promote the unification in terminology of informatics. The dictionary can be useful as an aid to translators in the field of theory and practice of information and as a starting point for compiling mono- and multilingual thesauri in informatics.

Nálevkova M., Kofnovec L., Simandl D. Terminologický slovnik informatiky. «Čs. inform.», 1972, 14, № 2, 41—45 (In Czech).

202. **Terminology of informatics.**

Problems of informatics terminology are considered. The need is stressed for a concerted effort in the field of terminology including international cooperation. Prospects for this work are discussed, and various handbooks on terminology and individual documents associated with information terminology are analyzed. 5 refs.

Nálevková Marta. Terminologie informatiky. «Čs. inform.», 1972, 14, № 6, 9—15. (In Czech; English, German, French and Russian summaries.).

203. **«Scientific information» (Problems of Soviet science).**

«Nauchnaja informacija» (Voprosy sovetskoj nauki). Red. A. I. Mikhajlova. Izd. 2. M., VINITI, 1963, 22 s.

204. **Scientific symposium «Semiotic problems of languages of science, terminology and informatics», in two parts.** Part 1. Abstracts and annotations. Dec. 1971.

The publication was prepared by the Group on Semiotics of the Philosophy Faculty of Moscow University, and it reviews some 190 papers presented at the symposium nuation of the symposium «Place of terminology in the which was, according to the problems discussed, a contisystem of modern sciences» organised by the same Group in December 1969. The Symposium dealt with the following major problems: the typology of languages of science; terminology; informatics; and methodological aspects of studying languages of science, terminology and information retrieval languages at University level and at a research center.

Nauchnyj simpozium «Semioticheskie problemy jazykov nauki, terminologii i informatiki» v 2 chastjakh. Ch. 1. Materialy simpoz.-ref. i annotacii, dek. 1971 g. (Mosk. un-t. Filol. fok. Probl. gruppa po semiotike). M., Mosk. un-t, 1971. 308 s., il. (In Russian).

205. **Informatics: a new science.**

The history of the term «informatics» is traced, discussing the concept of «information», relationships of matter and energy to information and the computer aspects (the concepts of «hardware» and «software»); the place of informatics in the system of sciences in defined.

Nickel Karl. Informatik — eine neue Wissenschaft. «Fridericana. Z. Univ. Karlsruhe», 1970, № 6, 23—28. (In German).

206. Proceedings of the American Society for Information Science. Vol. 8. 34th Annual Meet. Nov. 7—11, 1971.

The proceedings under review deal with research and development in information science. A broad range of problems related to this field are considered, concentrating on communication aspects of decision making. The need is emphasized for continual training of information specialists. The publication consists of 17 sections (56 papers) and has author, subject and organization indexes. The book is of interest to those concerned with automated information system design and operation.

Ed. North J. B. Westport, Greenwood, 1971. 413 pp. (In English). Rev. by Kakunin L. A. «Novye knigi za rubezhom», 1973, B, № 5, 87—92. (In Russian).

207. **Interrelation of book science and library science.**

The authors object to definitions of library science as being a chapter of book science. A historical survey is made of the conceptions of library science and book science. The evolution of the concepts of the subject of book science is explained by the changes in the functions of the libraries and the shift of the gravity centre from book storage to readers' servicing. Definitions of library science and its subject, given in the 1950s and 1960s, are cited. 10 refs.

Oleneva Z. P., Skorokhod J. A. K voprosu o vzaimootnoshenii knigovedenija i bibliotekovedenija. «Sb. statej i materijalov B-ki AN SSSR po knigoved.», 1970, 2, 241—249. (In Russian).

208. Otlet P. **L'organisation rationnelle de l'information et de la documentation en matiere economique.** Bruxelles, 1905.

209. **Towards a metascience of information.**

The paper discusses the subject field of information science and its objectives. The attributes of information are manifested in a multitude of forms (knowledge, news, etc.); it is described in abstract and analytical presentation, disregarding the other aspects, in particular, the tion are all kinds of transformations executed according to certain regularities. The totality of these operations can be executed by standard electronic computer which can perform a limited number of elementary logical operations. The fundamental nature of information and information processing derives from the nature of certain operations on information. Information is viewed as resulting from a stochastic process of choosing among a number of alternatives: therefore, the measured quantity is called «selective information». The theory of information is thus concerned with only one aspect of information, disregarding the other saspects, in particular, the semantic one. The common concept of information is qualitative and it may differ from the concept of selective information as much as the concept of semantic information does. Information techniques promoted the development of new mathematical disciplines: coding theory, finite state machines, etc. The concept of a metascience and its functions are examined. It is suggested that information and operations on information are phenomena, the principles of which provide the basis for a metascience of information (informatology). The need for a metascience of information is argumented. The problems are stated which are to be explored by the metascience of information, and the relations of this metascience with other disciplines are analysed. 3 refs.

Otten Klaus, Debons Anthony. «J. Amer. Soc. Inform. Sci.», 1970, 21, № 1, 89—94. (In English).

210. **Outline of a long-term policy of the International Federation for Documentation.** FID publ. 325. The Hague, FID, 1960, 9

211. **Management information system and documentation.**

The paper presents the concept of Management Information System (MIS) as a distinct subject. It explores the similarities and differences between the subjects of documentation and MIS. The subject of MIS is shown to form a logical extension of the discipline of documentation. Additional topics which must be studied to make a documentalist a MIS specialist are detailed in the form of a suggested curriculum

Parthasarathy V. V. «Ann. Libr. Sci. and Doc.», 1971, 18, № 4, 153—166. (In English).

212. **Dynamics of scientific and technical information.**

The paper considers the relations among the notions of knowledge, news and information. Scientific and technical information is connected with continuation of professional training and it cannot be separated from scientific, political and social knowledge. Comparative study of information needs is made simultaneously with finding out, between these needs, on the one hand, and fields of science, nature of work, qualification, knowledge of languages, etc., on the other. Possibilities of practical application of results received in planning and organising information work are considered.

Patek Ferens. A müszaki-tudományos tájékoztatás dinamikája. «Országos müsz. könyvtár és dokum. közp. módszert kiadv.», 1966, № 23, 118, l., ill. (In Hungarian; English, Russian and German summaries).

213. **Communication versus information.**

Three types of communication are distinguished. The first of these is sending a message from a source to an audience, called Aristotelian-Shannon-Wiener model. The remaining two are consultation and information searching, differing from the first one by that the initiative of the communication process belongs to the receiver and not the source. The gnosiological principles of each of these communication types are characterized, describing the analysis techniques that can be used for studying them. A scheme of a generalized communication model is given. 11 refs.

Penland Patrick R. «Proc. Amec. Soc. Inform. Sci. Vol. 6». Washington, 1969, 477—484. (In English).

214. **Essence and objectives of scientific information.**

Informatics is defined as a scientific discipline in its own right engaged in the study of the information work, its theory, history, methods and organization. The concept of scientific information activity is explained and its main objectives are set forth.

Petrova St. Seshnost i zadachi na nauchnata informacija. Bibliotekar», 1969, 16, № 7—8, 64—67. (In Bulgarian).

215. **Pietsch E. Grundfragen der Documentation. Dortmund.** 1954, 27S. Sonderdruck aus Heft 14 der «Schriftenreiche der Arbeitsgemeinschaft für Rationalisierung der Landes Nordrhein-Westfalen.»

216. **Valuable aid in patent documentation and information.**

The paper describes the text book entitled «Patent documentation and patent information», issue 1 «Patentnaja dokumentacija i patentnaya informacija», vyp. 1, M., CNIIPI, 1969, 260 s. Avt.: R. P. Vcherashnij, L. G. Kravec, G. F. Serkh, E. M. Furman. The general assessment of the paper is laudatory. The reviewer notes that a combination of the scientific approach to the subject with a popular style of presentation makes the book accessible not only to patent experts, but also to broad circles of engineers, technicians, inventors, information officers and librarians. Naturally, there are some drawbacks, notably, when preparing a second edition the authors would do well to give a more detailed exposition of the subject scope of their course and the conceptual system of the field of patent documentation and information.

Pluzhnik A. I. Cennoe posobie po patentnoj dokumentacii i patentnoj informacii. «Nauch., i tekhn. b-ki SSSR», 1971, № 3, 95, 40—42. (In Russian).

217. **Defining the concept of information.**

Polushkin V. A. K opredeleniju ponjatija «informacija». «Nauchn.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.»

218. **Concerning the definition of information.**

Two approaches to the concept of information are considered, one as defined in the mathematical information theory and the other as conceived in informatics. Information is defined as the content of relations between interacting material objects which manifests itself in the change of the latter's states. Major tasks and scope of informatics are indicated. A classification of types of information is given. It is noted that the successful development of information work, including mechanization and automation of information processes, heavily depends on a detailed study of the essence of information, and on formulating the laws governing its, generation, presentation, processing, and transmission.

Polushkin V. A. K voprosu ob opredelenii informacii. V sb. «Jazyk i myshlenie», M., «Nauka», 1967, 266—274. (In Russian).

219. **Information barriers and their quantitative description.**

A definition is given of the information barrier concept which is introduced. A method is suggested for the quantitative evaluation of information barrier levels, permitting comparative appraisals of the use of world scientific literature by various research communities. Examples for rating information barrier levels are given, applicable to informatics. 2 refs.

Polushkin V. A., Zhdanova G. S. Informacionnye bar'ery i ich kolichestvennaja kharakteristika. «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.», 1970, ser. 2, № 7, 3—6, 39. (In Russian; English summary).

220. **Documentation and information.**

Polzovics I. Dokumentáció és információ. «Magy. könyvszemle», 1959, № 4, 326—332.

221. Polzovics I. **Einige Betrachtungen zur Begriffsbestinnung der Termini Dokumentaion und Information.** «Dokumentation», 1959, 6, № 6, 171.

222. **The role of terminology normalization in strengthening information and documentation on an international scale.**

Terminology is defined as the totality of special expressions used in a certain field of knowledge including the definitions of the content of these expressions (terms). The following aspects are discussed: development of terminology and its normalization, terminological problems of informatics, terminological glossaries in the field of informatics and related areas, standards in

terminology of informatics and allied fields, papers on standardization in terminology on a worldwide scale.

Polzovics I. Rol' ustanovlenija terminologii v mezhdunarodnom ukreplenii discipliny dokumentacii-informacii. (Mezhdunar. simpozium stran-chlenov SEV. «Teor. osnovy inform.», Moskva, 9—13 ijunja 1970). M., VINITI, 1970, 29 s. (In Russian).

223. **Unified terminology helps documentation and information to develop into an internationally accepted discipline.**

The factors hampering the ordering of the concepts of the «documentation and information» sphere are discussed. The shaping of «informatics» as a discipline in its own right is examined. The author suggests that information science should be called the «literature informatics» to distinguish it from the general informatics now in the process of formation and also from «branch-type» informatics. The domain or content of this discipline must be autochtonous, instead of containing the repetition of concepts and rules pertaining to o ther branches of science and scholarship. It is feasible to prepare the terminology of «literature informatics» in a systematic manner by means of a hierarchical tree of concepts which will support this complex and intricate discipline. 47 refs.

Polzovics Ivan. A terminológia rendezésének s enek szerepe a dokumentáció-információ disziplinájának nemzetközi megerösítésében. «Tud. tájek. elmélete és gyakorl.», 1972, № 19, 94—114, 167, 171, 180. (In Hungarian; English, German and Russian summaries).

224. **Problems of information science.** Moscow, All-Union Inst. Sci. and Techn. Inform., FID 478. 1972, 240 pp.

225. **Representation of term meaning in the information system of the Institute of Cybernetics, Ukrainian Academy of Sciences.**

Matching terms is crucial for information search and retrieval problems, specifically for the determination of the criterion of relevance. The meaning of a term can be represented by the system of its relations to other terms and words of the language at text level or at vocabulary level. The paper deals with the latter aspect of semantic representation. The system of inherent (constant) relations of a given term to other terms and words is assumed to be recorded in the dictionary definition of this

term. Thus, the objects of comparison are term definitions. Comparison necessarily implies segmentation of the objects compared (except for the case of complete identity of the objects). Thus, definitions are to be segmented. A formal procedure for the segmentation of a definition and for the construction of a semantic tree representing a term's meaning is given. Term meanings are compared for evaluation of their semantic proximitv. The depth of relationship is limited by the system of basic elementary units used. Elementary semantic units are not defined generally, but for a particular system of semantic units (here, terms of a specialized vocabulary). Evidently, comparison of term meanings implies their reduction to elementary semantic units.

Pshenichnaja L. E. Predstavlenie znachnejia termina v informacionno-poiskovoj sisteme Instituta kibernetiki AN USSR. Postroenie semanticheskogo dereva opredelenij terminov. «Nauch.-tekhn. inform. Sb Vses. in-t nauch. i tekhn. inform.», 1967, ser. 2, № 8, 12—16. (In Russian).

226. **Interrelation of informatics with technical and social sciences and with standardization.**

Three problems are discussed: impacts of technical and social disciplines on the subject-matter and methods of informatics; application of the methods of informatics to organizing information activities in social and technical sciences and standardization of scientific information work. 5 refs.

Reznikovskaja G. I. O vzaimosvjazi informatikiki s tekhnicheskimi i obshchestvennymi naukami i so standartizaciei. V sb. «Vzaimosvjaz' tekhn. i obschestv. nauk.», L., 1972, 248—253. (In Russian).

227. **From bibliography to information science: history and position.**

The paper reviews the international development of bibliography: the creation of the International Institute of Bibliography, the development of the UDC, the World Congress on Universal Documentation in 1937 in Paris, etc. Definition of terms and concepts of scientific and technical information, information science and informatics are given.

Ribeiro Zaher Celia, Espanha Gomes Hagar. Da bibliografia a ciência da informaçao: um histórico e uma

posição. «Cienc. inform.», 1972, 1, № 1, 5—7. (In Portuguese; English summary).

228. **Informatics, or scientific documentation and information. Comments on the German edition of «Fundamentals of Informatics» A. I. Mikhajlov, A. I. Cernyi, R. S. Giliarevskij.**

The German translation of the book «Fundamentals of Informatics» by A. I. Mikhajlov, A. I. Cernyj und R. S. Giljarevskij, prepared in the GDR by a group of scientists headed by Horst Rappich is reviewed. The titles of the first edition of the book («Fundamentals of Scientific Information») and of the second edition («Fundamentals of Informatics») are compared with the German equivalent term («Scientific Documentation and Information»). The book structure is analysed emphasizing its broad subject scope and a thorough-going reflection of Soviet and world practices of information activities. Special attention is given to the chapter «Analyti co-synthetic Processing of Documents» and to the chapters dealing with the theory of information retrieval systems. 9 refs.

Richter Erich. Informatik oder wissenschaftlicke Dokumentation und Information. (Bemerkungen zur deustchen Ausgabe des Buches «Osnovy informatiki» von A. I. Michajlov, A. I. Cernyi und R. S. Giljarevskij). «Dok. Fachbibl. Werksbücher.», 1971, 19, № 5, 177—180. (In German).

229. **The place of library science.**

The paper defines the subject of library science and its main goal as resulting from the discussions at the second conference of higher library schools in 1962. The changes that have occurred since the conference are depicted. A detailed analysis is made of a paper on the place of library science and information and documentation science within the framework of the information science (J. Koblitz «Die Stellung der Bibliotheks-wissenschaft und der Information und Informations- und Dokumentationswissenschaft in der Informationswissenschaft). The main postulates set forth in the paper are critically analysed.

Roloff Heinrich. Zum Standort der Bibliothekswissenschaft. «Zbl Bibliotheksw.», 1970, 84, № 10, 595--602. (In German).

230. **The Encyclopedia of Library and Information Science: is ELIS worthy of the name? — «No!».**

An analysis of the recently published «Encyclopedia of Library and Information Science» has revealed its serious shortcomings. The stated fields of competence of many of the writers seem to bear little relationship to the subjects with which they deal in the encyclopedia; in some cacles there is much irrelevant detail, while in others important matters have been neglected; the bibliographies and cross-references are inaccurate; there are examples of writing that not befit the scholarly level of most of the contributors. 2 refs.

Rosenberg Louise, Detlefsen Gay. «Wilson Libr. Bull.», 1973, 47, № 7, 598—601. (In English).

231. **General categories in the theory and methodology of bibliography.**

The relationship of bibliography to the general evolution of science as well as the use of the logical and phenomenological methods in bibliography are discussed. Even in the process of bibliographic description, a bibliographical analysis of the documented fact is made, the essence of the document is determined, the document is identified, the basic characteristics of the source as a whole are abstracted and generalized; etc. Bibliographic descriptions are synthesized and systematized into larger structures and systems (all kinds of bibliographic listings, differing according to their purpose). Since causal relations can be observed in this case, one can regard bibliography as a metasystem. Bibliography, being concerned with the registration of all written sources belongs to the scope of the humanities. Based on a historical study, the relations of bibliography to the allied fields — cataloguing, history of literature and informatics, are analysed. 19 refs.

Ruttkayová Katarina. Všeobecné kategórie v teorii a metodológii bibliografie. «Bibliogr. čas.», 1970, 3, № 1, 5—21. (In Slovak; English, German and Russian summaries).

232. Sabor Josefa, Juarroz Roberto. **Bibliotecologia y Documentación** «Bol. Asoc. Exalum. Esc. Nac. Bibl.», 1966, № 4—6.

233. Salton Gerald A. **Automatic information organization and retrieval.** N. Y., McGraw-Hill, 1968.

234. **Mathematical informatics: subject for discussion.**

The purpose of the paper is to try to visualize information systems of the future. Main definitions and terms are given describing the system design principles, languages, information system dynamics, etc. Future information retrieval systems are to have only one representation stage — the so-called ideal one-stage information systems using sets of search patterns to describe facts and phenomena. The concept is not a real operating model but a background for building such models. The task of producing the necessary output conforming to a given input and state of the information system can be restated in terms of the optimum control theory. 11 refs.

Samkov L. M. Matematicheskaja informatika. (V porjadke obsuzhdenija). V. sb. «Probl. inform. Zaochn. seminar. Vyp. 1». Novosibirsk, «Nauka», 1970, 52—65. (In Russian).

235. Sanchez Beida Luis. **El documentalismo: cuestiones de principio.** «Bol. Dir. Gen. Arch. y Bibl.», 1962, 76—78.

236. **Introduction to information science.**

The book is a compilation of 66 articles by well-known information experts from various countries of the world. The main emphasis is on work of a theoretical and experimental nature rather than on practical applications. The book is intended as a sourcebook for students not only in information science, librarianship and computer science but also in linguistics, logic, systems engineering, psychology, cybernetics, etc. The book is a useful educational text for learning and teaching, and it gives a clear indication of an overall framework, structure and connections in the field of information science.

Compl. and ed. Saracevic Tefko. New York-London, R. R. Bowker Co., 1970, xxiv, 751 pp., ill. (In English).

237. **Major problems of information theory and practice.**

The concepts of «information», «scientific information», «documentary information» are discussed in the general context of the problem of the typology of information. The author tries to outline the boundaries of scientific information work and to define its relationships to bibliography, librarianship, research, etc. The status of informatics as a science in its own right is discussed, dwelling on the organization of scientific information on

the national, regional and international scale. The survey winds up with a detailed description of the integrated scientific and technico-economic information network in Bulgaria. 62 refs.

Savova Elena. Osnovni problemi na nauchnata informacija. «Izv. Centr. B-ka Belg. AN», 1970, 6, 25—66. (In Bulgarian; French and Russian summaries).

238. Scheele M. **Wissenshaftliche Dokumentation.** Schlitz/Hessen, Scheele, 1967.

239. **Terminology in information theory and practice. Coordination meeting in Budapest on international cooperation.**

The article gives an abridged version of the resolution passed at the meeting on information terminology held in February 26—27, 1973. The meeting was organized jointly by ISO, FID and IFLA.

Schewe Wolfgang H. U. Terminologie der Information und Dokumentation, Koordinationssitzung über internationale Zusammenarbeit in Budapest. «Nachr. Dok.», 1973, 24, № 3, 128. (In German).

240. **Information science: some questions and answers.**

The paper defines information science as a discipline which investigates the properties and behavior of information, the forces governing the flow of information, and the means of processing information for optimum accessibility and usability. Information scientist is a person who studies and develops the science of information and devises new approaches to the information problems. The author considers library science a part of the much broader field of information science. Training of information scientists should be done in Departments of Information Science of Universities with 4-year courses leading to a degree.

Schlueter R. A. «Amer. Doc.», 1969, 20, № 4, 366—368. (In English).

241. Schmidt Werner. **Die Bibliotheken und die Information.** Bericht von der e. Jahreshauptversammlung des Deutschen Bibliotheksverbandes. «Zbl. Bibliotheksw.», 1966, 80, 521—534.

242. **On a definition of «Informatics».**

Definitions of informatics are quoted. The definition suggested by the author is «science of design, functioning and structures of information systems». When developing

technological facilities and the software, people are apt to lose sight of the user. The accent should, therefore, be on the user needs as being solved with the aid of technical facilities under development. 10 refs.

Schmitz P. Zum Standpunkt einer anwendungsorientierten Informatik. «Angew. Inform.», 1973, 15, № 1, 3—6. (In German; English summary).

243. **Journal in informatics reflects the progress in this science in the German Democratic Republic.**

The change in the title of «Informatik. Theorie und Praxis der wissenschaftlich-technischen Information» is discussed. The new and the former titles are compared, and the article indicates what subjects played major role at various phases of the development of science.

Schmoll Georg. Die Entwicklung der Information und Dokumentation in der DDR im Spiegel ihrer Fachzeitschrift. «Informatik», 1973, 20, № 4, 53—55. (In German).

244. **Information and documentation science.**

The question is raised of incorporating information science (informatics) in university curricula, which in turn calls for deciding whether this discipline has reached the status of a science. Reception, processing, storage, retrieval and dissemination of information are discussed. In the overall framework of sciences, information science should find its place at the interface of the social sciences and the humanities. Information systems are the object of its study. Possible names for the new discipline are considered. 51 refs.

Schober Hans-Werner, Wersig Gernot. Informations- und Dokumentationswissenschaft. Ein Diskussionsbeitrag und theoretischer Ausblick. «Nachr. Dok.», 1968, 19, № 4, 116—124. (In German; English summary).

245. **Trends in information and documentation: practice and science.**

Achievements and future trends of informatics are discussed as based on the analysis of latest publications. The current state-of-the-art is considered, describing the information systems, technical facilities of information work services, planning and coordination, and organization of research in information science. Much attention is given to standardization of information terminology. 62 refs.

Schober Hans-Werner, Wersig Gernot. Tendenzen der Information und Dokumentation in Praxis und Wissenschaft. «Dokum. und Inform. Weg Informationszeitalter». Frankfurt/M., 1971, 13—34. (In German).

246. **Data information and information theory.**

The paper discusses the distinction between data as unstructured facts, and information as data organized into a structure. A decision maker needs a set of facts selected and oriented in a certain pattern, that is he needs information. A management information system designer must give the prime concern to the information needs of the managerial staff. The main difficulty is to distinguish the influence of informational factors on decision making from that exerted by opinion and experience. Information theory is discussed from the viewpoint of its development in the framework of other disciplines. 15 refs.

Schoderbek Peter P. «Bus. Quart.», 1971, 36, № 3, 78—85, (In English).

247. Schouten T. F. **Ignorance, knowledge and information, information theory.** Colin Cherry (ed.). New York Acad. Press, Inc., 1956, 37—47.

248. **Planning performance and implementation of information research projects of the Polish Central Institute of Scientific, Technical and Economic Information: methodologies.**

The scope and tasks of the information science are outlined, proceeding from a definition suggested by A. I. Mikhailov, A. I. Cherny and R. S. Gilarevsky. A classification of the research methods employed at the Polish Central Institute of Scientific, Technical and Economic Information is suggested and the methods used by information science are discussed in general terms. The principles of planning, programming, implementing, evaluating, utilizing and documentation of R&D in information field are expounded. Specific problems connected with planning and impelementation of R&D projects in individual fields of information activity (information languages, mechanization and automation of information service, terminology, etc.) are considered. Requirements are set forth for improving the methods of planning, programming, evaluation, utilization and practical implementation of the research results obtained at the Institute.

Scibor Eugeniusz. Metody programowania, prowadzenia i wdrazania prac naukowo-badawczych CIINTE z dziedziny informacji. «Pr. stud., przyczyn. CIINTE», 1970, № 4, 82 s. (In Polish).

249. **Scientific and technical communication. A pressing national problem and recommendations for its solution.** A Report by the Committee on Scientific and Technical Communication of the National Academy of Sciences — National Academy of Engineering. Washington, D. C., Nat. Acad. Sci., 1969. (Publ. № 1707).

250. **Trends in information science.**

Information science is defined as a discipline dealing with individual information systems and comprising both some chapters of information theory and some applied scientific disciplines. The subject of information science is defined and the relations of this science to other sciences are established. Definitions are given of information, signal, information system and some other concepts. Models of a number of information systems are discussed (open-loop information transmission system, interactive system, composite systems having a hierarchical or a network structure). The problem of information system optimization is presented and the properties of self-teaching systems are characterized. Four most vital problems of information science are distinguished: the optimization of optical information scanning, of information transmission methods in open-loop systems, of interactive systems and the analysis and synthesis of systems making use of channels of new types and of systems having a composite structure. The purport of these problems is expounded and the prospects for and urgency of the specific directions of information research in PPR are assessed. 10 refs.

Seidler Jerzy. Kierunki rozwoju nauki o informacji. «Nauka polska», 1968, 16, № 5, 107—122. (In Polish).

251. **News-information-scientific information.**

Principal ideas tackled in world information literature are briefly surveyed. The place of the concept of information in cybernetics is defined, describing the links and relationships of the concepts of information and signal, information and matter. From the standpoint of the mathematical theory of communication, the process of scientific information transmission and the possibilities of its quantification are examined. 20 refs.

Sekulič Branko. Vijects-informacija-naučna informacija. «Met. i tehn. organiz.», 1972, 24, № 5—6, 5—10. (In Serbocroatian; English summary).

252. **Scientific information theory and classification of sciences.**

The article discusses the place of scientific information theory within the system of sciences and its relation to other sciences. The study of three aspects of scientific information theory: its subject, methods, and objectives, permits to conclude that this theory is predominantly a social discipline closely linked with other social sciences, and also with philosophical, mathematical, and technical sciences. It forms an integral part of two new and rapidly developing cycles of sciences-science of science and the communication sciences. The fact that information is one of the functions of any science, while the theory of scientific information provides a theoretical basis to scientific information activities, makes this discipline one of general scientific interest. Detailed consideration of links between scientific information theory and other disciplines allows to build a diagram showing its place within the system of sciences (using the triangle of sciences proposed by B. M. Kedrov).

Semenjuk E. P. Teorija nauchnoj informacii i voprosy klassificacii nauk. «Nauchn.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.», 1967, ser. 2, № 3, 3—8. (In Russian).

253. **On some psychological problems of pragmatic evaluation of scientific information.**

Specific psychological problems involved in pragmatic assessment of scientific information are discussed, and the following conclusions are made: 1. In contrast to the probability approach, the pragmatic approach to scientific information evaluation presupposes measuring the degree to which given particular information has been used by a particular user. In this connection, a number of psychological problems arise, involved in the analysis of the process of scientific information consumption and classification of scientific texts and their readers by psychological characteristics; 2. One of such characteristics may be defined as the time taken by a standard

average reader to read and understand a text; 3. The totality of scientific texts considered as a file of aggregated information items can be divided into several classes by the degree of their complexity; 4. For measuring the degree of complexity of texts, a diagram of the text reading process representing the dynamics of psychological characteristics of the reader can be used. 13 refs.

Serov N. K. O nekotorykh psikhologicheskikh problemakh pragmaticheskoj ocenki nauchnoj informacii. «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.», 1970. ser. 2, № 12, 6—8. (In Russian; English summary).

254. **Library science, documentation and information science.**

Relationships between documentation, library science and scientific information are considered and these terms are defined. Aspects of library and information personnel training are also discussed. 2 ills., 12 refs.

Shera Jesse H. Bibliothéconomie, documentation et science de l'information. «Bull. Unesco biblioth.», 1968, 22, № 2, 62—70. (In French).

255. Shera J. H. **The compleat librarian.** Cleveland, Press Case West. Reserve Univ., 1971, 137—138.

256. Shera J. H. **Documentation: its scope and limitations.** «Libr. Quart.», 1951, 21, № 1, 19.

257. Shera J. H. **Documentation and the organization of knowledge.** Lockwood, 1965.

258. Shera J. H. **Libraries and the organization of knowledge.** Lockwood, 1965.

259. Shera J. H. **Sociological foundations of librarianship.** New York, Asia Publ. House, 1970.

260. Shera Jesse H., Egan Margaret E. **Examen del estado actual de la biblioteconomía y de la documentación.** «Rev. Univ. № 61, Univ. Nac. del Litoral», 1964.

261. Shera Jesse H., McFarland Anne S. **Professional aspects of information science and technology.** In: Cuadra Carlos A. (ed.) «Annu. Rev. of Inform. Sci. and Technol. Vol. 4». Chicago, Encycl. Britannica, Inc., 1969, 439.

262. **Some problems of the theory of scientific information.** Shrejder Ju. A. Nekotorye problemy teorii nauchnoj informacii. «Nauch.-tekhn. inform. Sb. Vses. in-t nauch i tekhn. inform.» 1966 № 6, 17—22.

263. **On semantic aspects of information theory.**

The paper is an abridged version of the article published in «Informacija i kibernetika» («Informatics and Cybernetics»), M., «Sov. Radio» 1967, 15—47.

Shrejder Ju. A. O semanticheskikh aspectakh teorii informacii. V sb. «Teor. probl. inform.». M., Vses in-t nauch. i tekhn. inform., 1968, 152—173. (In Russian).

264. **Thesauri in informatics and in theoretical semantics.**

A definition of «thesaurus» is given, differentiating between «abstract thesaurus» and «concrete thesaurus». The thesaurus structure is discussed in the light of theoretical semantics. Examples are supplied illustrating methods of specifying semantic relations in a given language, which are important in constructing a thesaurus model. A popular view that thesaurus is a working tool in information work is wrong. It is stated that thesaurus is a way of describing the semantics of a language, so that much attention should be paid to research into thesaurus models as a form of presenting semantic information. Automatic procedures for thesaurus generation are discussed. 14 refs.

Shrejder Ju. A. Tesaurusy v informatike i teoreticheskoj semantike. «Proc. Int. Conf. Gen. Principles Thesauri Build., Warsaw, 1970.» Warsaw, 1970, 85—98. (In Russian; English summary).

265. **Universality of information.**

Interest in information — political, vocational, sportive, social, scientific, etc. — has been steadily growing since early 1950s. Examples illustrate the importance of information in major areas of human activities. Scientists and practicians in various countries over the past two decades have been intent on bringing the information transmission and processing operations up to the requirements of the present-day science and engineering. The term «informatics» is becoming more and more privileged as compared with the alternative terms applied to the totality of the processes involved in collecting, classifying and disseminating data and other knowledge. The concept of informatics is relevant largely to information processing based on modern facilities, including the electronic com-

puter. These processes are gradually replacing the conventional library service techniques. 9 refs.

Silva Benedicto. A universalizacão da informaçao. «Informática. Semin., Rio de Janeiro, 19—21 nov. 1968.» Rio de Janeiro, Inst. Brasil. bibliogr. e doc., 1969, 9—19. (In Portuguese).

266. **Scientific documentation and information. Its necessity in modern research.**

The paper considers general aspects of information work and terminology problems in this field. The concepts of documentation, information and scientific information are defined. The need for creating documentation and information centers is advocated. Some centers in Czechoslovakia, Japan and USA (with description of their main operations) are described. The Documentation and Information Center of the Industrial University of Santander, Colombia, is described in detail.

Silva Clarede. Documentación e información científica. Su necesidad en la moderna investigación «Rev. Univ. ind. Santander», 1963, 5, № 1, 366—369. (In Spanish; English summary).

267. **Information terminology in Slovakia.**

Requirements to terminological systems of a scientific discipline are stated, considering the main stages in the elaboration of the terminology of library science, bibliography and informatics in Slovakia in the 1960 s. The methods of compilation of the Slovak part of the multilingual dictionary of terms in informatics, published by VINITI (USSR) are described. The problems that had to be faced in the process are analysed. Slovak Technical Library continues its work on the Slovak terminology of informatics.

Šimová Viera. Informatická terminologia na Slovensku. «Knižn. a ved. inform.», 1971, № 1, 38—43. (In Slovak).

268. **New terminological dictionary in informatics.**

Work on preparation of terminological dictionary in informatics in 14 languages is described. The dictionary will be published by the International Centre of Scientific and Technical Information, Moscow. A general outline of the dictionary and arrangement of entries is given.

Šimová Viera. Nový informatický slovník na obzore. «Sprav. Slov. techn. knižn.», 1971, 46—52 (In Slovak).

269. **Glossaries and terminological standards in informatics.**

The bibliography of glossaries and terminological standards in informatics covers 270 Czechoslovak and foreign publications issued in 1950—1971. The entries are arranged by groups: linguistic and explanatory dictionaries (partly, encyclopedia and reference aids); international terminological recommendations of CMEA and ISO and the national standards; dictionaries of abbreviations, terms glossaries published in journals; selected bibliographies of dictionaries and terminological standards. Author, geographical and classified indexes are given.

Šimová Viera. Slovniky a terminologicke normy z informatiky. Slov. techn. knižn. Bratislava, 1973, 93 s., il. (In Slovak; English, German, and Russian summaries).

270. **Theoretical preparations for terminological work in the field of informatics.**

Šimotá V., Nálevková M. Teoretická priprava terminologickej práce v oblasti informatiky. Průběžná zpráva za 1. epapu k VÚ P—18—121—001—00—10. Bratislava, SITK, 1971, 128 s.

271. Spiegel J., Walker D. (ed.) **Information system sciences.** Washington, D. C., Spartan Book, Inc. 1965.

272. **Some problems of documentation.**

Sputnikova P. S. Nokotorye voprosy dokumentacii. «Bibliotekoved. i bibliogr. za rubezhom», 1959, vyp. 2, 166.

273. **Essence and goal of informatics.**

The term «informatics» is compared with the usual name of «computer science». Informatics covers programming languages, whose logical and structural principles it elaborates, but it is not concerned with the design and operation of computers. The main areas of informatics are, on the one hand, scientific elaboration of computer programs and retrieval systems, and on the other hand, solution of problems arising in conjunction with processing of large data files.

Stetter Hans J. «Schriftenr. Techn. Hochsch. Wien», 1971, 1, 157—173 (In German).

274. **To documentation problematics.**

Stjazhkin N. I., Kravchenko N. D. K problematike dokumentalistiki. «Doklady na konferencii po obrabotke informacii, mashinnomu perevodu i avtomaticheskomu chteniju teksta». Vyp. 4, M., 1961, 2.

275. **Research in the field of information science.**

The paper is a review of the 1969/1970 annual progress report of the School of Information Research of Georgia Institute of Technology. The report is a collection of research papers by teachers and students of the School dealing with the following problems: (1) measurement and management of information; (2) information processes and processors; (3) theory of information systems; and (4) natural language.

Stolarska Ewa. Badania w dziedzinie nauki o informacji. «Biul Osr. dok. i inform. nauk», 1970, № 2, 99—101, (In Polish).

276. **Methodological approach to the theory, methods and organization of information activities and information systems.**

Main methodological principles of the theory of information science are defined in general terms and specifically as applied to the theory of information systems. A functional model of social information relations and of the information process is described, treating these as the main function of socio-historic cognition. In elaborating the theory of information science the following methodological principles should be adhered to: (1) information process should be regarded as a specific reflection of the process of cognition; (2) informatics at the present stage is developing via integration of theories and methodologies that have been created at individual stages of the historic evolution of information activities. The subject of informatics is defined as the study of regularities of the information relations in society, and the concept of information activity is discussed. It is noted that there are no essential differences between problems dealt with by scientific information on the one hand and mass communication theory on the other. The concept of information potential formed of the following components: information (semantic), information sources, communication media and information systems is analysed. Reasons are suggested explaining the redundancy of scientific information and critical dimensions of the information parameter of the development of the present-day science. A new field of theoretical research within the scope of informatics is pointed out and outlined in detail — the study of information sources, historical model of information relations and information systems (library science-bibliography-informatics). Methods of the present-day information activity are described, as well as the principles of an optimal information system, prospects and ways of overcoming critical points in the field of scientific information. 38 refs.

Straka Josef. Metodologické přistupe k teorii, metodice a organizaci informačni činnosti a soustavy. «Bibliogr. zb.», 1968, 2, 5—32. (In Czech; English, Russian and German summaries).

277. **Definitions of «document» in the 20th century: an essay of generalization.**

The evolution of the concept of document is traced, classifications of documents are examined, and the documents are divided into graphic and plastic ones. Six equivalent definitions of document are given, differing by the standpoint they represent. Graphic documents and plastic documents are defined, too. 12 refs.

Suski Andrzej M. Analiza XX—wiecznych definicji dokumentu oraz próba ich uogólnienia. «Aktual. probl. inform. i dok.», 1968, 13, № 4, 18—22. (In Polish; English, French and Russian summaries).

278. **On communication, communiqué, communicatics and some related concepts.**

The concept of information relation is considered in terms of the differences among natural, semantic and «artificial» (non-semantic) information. An information relation, effectuated via semantic information, is called communication. Various definitions of communication are discussed, and the history of the notion of communication in the Polish language is desribed. The meanings which this term has in Czech and in Russian are investigated. A division of communication into retrocommunication, intercommunication and telecommunication is introduced. «Communicatics» is suggested as the name for the science of communication, and it is proposed to use «recommunicatics» instead of the current term «informatics». 14 refs.

Suski Andrzej M. O komunikacji, komunikacie, komunikatyce i niektórych pojeciach pochodnych. «Aktual. probl. inform. i dok.», 1968, 13, № 6, 1—6. (In Polish; English, French and Russian summaries).

279. **The information business is a people business.**

The paper discusses several areas of the behavioral sciences that appear fruitful as sources of concepts and

methodologies for studies of human information processing and information systems. Information systems are viewed as social structures amenable to analysis according to systems engineering principles broadened to take account of psychological and sociological factors. A social value of information is defined. The applicability of several models of communication processes is considered. Behavioral science constructions developed to explain and study perception, attitudes, and leadership are related to information system contexts. Closer co-operation between behavioral and information scientists is considered beneficial to both groups. 3 refs.

Swanson Rowena. W. «Inform. Storage and Retrieval» 1970, 6, № 4, 351—361. (In English).

280. **Symposium on education for information science.** Warrenton, Va, 1965. Washington, D. C. Spartan Books, 1965, 171.

281. **Development of the theory of scientific information.** The characteristics of scientific information work are given: (1) it is a kind of communication activity; (2) communication is based on the analysis of documents; (3) it has a scientific nature; (4) the character and the content of working processes within human society exert an influence on the character and content of communication; and (5) the need for scientific information for specific working processes of human society is met by specific information systems. In analysing the characterictics of theoretical problems in the field, the conclusion may be drawn that the study of the information needs from the viewpoint of sociology, the investigation of the laws and regularities of the creation, dissemination and utilization of information sources and information retrieval are all scientific objectives. Structural and functional analysis of mechanized information systems and of their parameters help to improve the work. These studies are closely related to communication. As to the contentd of information, it does not determine the theory of scientific information, but affects practical methods of work. Informatics is a branch of the general theory of communication, adopting the findings of a number of scientific disciplines and conducting research into the laws of the origin and formation of the interrelations among scientific information and its users. 39 refs.

Szentimihályi János. A tudományos tájékoztatás elméletének kialakilása. «Tud. tájek. elmélete és gyakorl.» 1972, № 19, 23—50, 158, 167, 176. (In Hungarian; English, German and Russian summaries).

282. **The place of informatics in the system of sciences.** In our age of the rapid differentiation and integration of sciences, an unambiguous systematization of sciences becomes an ever more difficult task. Despite this, it is not useless to try to find a proper place for this or that discipline within the system of sciences. Scientific information activity as such had been brought about by real social needs earlier than its theoretical foundations were laid down and analysed. This may explain why more attention is given to defining the subject, scope, content and theory of scientific information (information science, informatics, documentalistics, documentation and information). The subject of informatics is not information as such but the process in the course of which information gets through from its transmitter (i. e. the source of information) to its receiver (i. e. the user), as well as the system in which this process goes on, involving all means and ways, methods and operations which are the components of the information system. It was in the course of social evolution and division of labour that informatics has developed into a scientific discipline in its own right. A scientific discipline evolves only at a time when a large enough group of phenomena has become known whose interdependencies and regularities are characterized by a common basic contradiction. As regards information, the contradiction lies here between the objective need for information on the part of society (individuals and organizations) and the relatively uninformed state of society in spite of the abundance of information. Informatics as a scientific discipline dealing with information examines one highly specialized field of social communication and, as such, forms a part of communication sciences, thus belonging to the domain of social sciences. Informatics makes use of the achievements of sociology, psychology, pedagogics, linguistics, semantics and semiotics. This fact makes it necessary to examine the relation of informatics to the rest of the social sciences. Thus, placing informatics in the system of sciences also permits certain practical conclusions. Those erroneous views, which tended to narrow

down informatics to content analysis of information transmitted or to the examination of technical devices and their user have led to certain inadequacies in such branches of informatics, as the analysis of social demand, and the psychology of the producers, transmitters and users of information, resulting, at the same time, in mistakes in training information officers. 14 refs.

Szepesváry Tamás, Vajda Erík. Az informatika helye a tudományok rendzerében. «Tud. és müsz. tájék», 1970, 17, № 8—9, 613—637. (In Hungarian; English, German and Russian summaries).

283. **The place of informatics in the system of sciences.**

The subject of informatics is not the information itself but the process in the course of which information gets through from its transmitter to its receiver, as well as the system in which this process goes on, including all means and ways, methods and operations of the information system. It was in the course of the evolution of society and of the division of labour that informatics has developed into a scientific discipline in its own right. The main contradiction in informatics lies between the objective needs of information on the part of society (individuals and organizations) and the relatively «uninformed» state of society in spite of the abundance of information. Informatics, as a scientific discipline dealing with scientific information examines one highly specialized field of social communication and thus is a part of communication science, belonging to the sphere of social sciences. Informatics tends to make use of achievements in sociology, psychology, pedagogics, linguistics, semantics and semiotics. Erroneous interpretations of the tasks of informatics are criticized. 18 refs.

Szepesvárey Tamás, Vajda Erík. Az informatika helye a tudományok renszerében. «Tud. tájék. elmélete és gyakorl.», 1972, № 19, 138—156, 164, 173, 182. (In Hungarian; English, German and Russian summaries).

284. **The social value of information.**

Fields of the behavioral sciences are considered that are likely to serve as a source of concepts and methods for the study of problems involved in processing of information by man and by information systems. The latter are treated as social structures that can be analysed according to principles of systems engineering. The applicability of a few models of the communication process is examined. A closer cooperation between information scientists and behavioral scientists is advocated. 24 refs.

Talavage J. «Res. 1969—1970. Annu. Progr. Rept. Sch. Inform. and Comput. Sci. Ga Inst. Technol.» Atlanta, Ga, 1970, 22—25. (In English).

285. T a u b e M. **Theory and practice of documentation.** In: M. Taube e. a. — Studies in coordinate indexing. Vol. 1. Washington, Doc. Inc., 1953, 7.

286. T a y l o r, R. **Glossary of terms frequently used in scientific documentation.** Seattle, 1962, 16.

287. T a y l o r R. S. **The information sciences.** «Libr. J.», 1963, 88, № 19, 4161—4163.

288. T a y l o r R. S. **Professional aspects of information science and technology.** Cuadra C. A. (Red). «Annu. Rev. of Inform. Sci. and Technol. Vol. 1». New Vork, Intersci. Publ. 1966. 15—40.

289. **Documentation as means of modern science and means of accumulating scientific knowledge.**

The paper deals with general aspects of the theory and practice of information in connection with an explosion-like increase in the number of scientific research projects and publications.

Teichmann Horst. Dokumentation als Mittel moderner Wissenschaft und Wissensspeicherung. Universitas», 1965, 20, № 2, 169—773. (In German).

290. **Theoretical problems of informatics.**

The publication was prepared by the FID Study Committee on the Research on the Theoretical Basis of Information (FID/RI). It is a collection of original articles (there are 11 articles in the volume) on various aspects of information science.

Teoreticheskie problemy informatiki. Sb. statej. (Mezhdunar. federacija po dokumentacii. 435). M., «Vses. in-t nauch. i tekhn. inform.», 1968, 203 s., il. (In Russian).

291. **Information sciences and services: components, relationships and policies.**

A broad range of issues connected with further improvement of science information communication is dealt with. The intellectual character of most of information processing and dissemination procedures is emphasized,

and the disparity between the level of development of information technology and the level of elaboration and understanding of many semantic components of communication systems is demonstrated. Main stages in the development of information science theory and practicable systems for storage, retrieval and dissemination of information are examined; the morality patterns of research personnel contributing to effective information exchange and its pinpointed accessibility for would-be users are defined; a generalized information system structure is presented, encompassing diverse alternative implementations and representing a useful methodological manual for developing new information supply services.

Težak Božo. Informacione znanosti i službe: njihova struktura, odnosi i politika. «Inform. jugosl.», 1969, 1 1—4, 13—30. (In Serbo-Croatian; English summary).

292. Thomson D. L. **Glossary of STINFO terminology.** Dayton, USAF Office of Aerospace Research, Oct. 1963, AGOSR 5266 (AD 417625), 66.

293. Townley H. M. **«It isn't a science».** «Inform. Sci.», (Gr. Brit.). 1967, 1, № 2, 49—50.

294. **University of Chicago. Committee on the Information Sciences.** Description of the Committee's program.. Chicago, 1965 (Unpublished. Cited in «Annu. Rev. Inform. Sci. and Technol.». Vol. 1, 25).

295. Some methodological problems in informatics. Ursul A. D. **Nekotorye metodologicheskie problemy informatiki.** «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.», 1967, ser. 2, № 7, 3—7.

296. **Discussing the concept of information.** The paper discusses the aspects of quantity and content of information. In defining the concept of information it is suggested to proceed from the synthesis of these two points of view. The concept of quantity of information tends towards further generalization. It is suggested that the analysis of the evolution in defining quantity of information might lead to a common concept of information. Some clarifications of the concept of scientific information are given. The concept of information most frequently used in the theory of scientific information considers information as news exchanged by people in the process of scientific and creative work. Bibl. 20 titles.

Ursul A. D. K obsuzhdeniju opredelenija ponjatija «informacija». «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.» 1966. № 7, 26—28.

297. **To the problematics in the theory of scientific information.**

Uspenskij V. A., Shrejder Ju A. **K problematike teorii nauchnoj informacii.** «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.» 1963, № 3, 17—20.

298. **Contours of informatics.** (A note to the article by P. Györe).

Since the general adoption of the term «Informatics» for the designation of the science dealing with the processes of scientific-information activity, more and more papers have beer appearing that treat the subject of informatics and its relations to other disciplines. Györe's paper is one in that series. Györe identifies the scientific information process with the communication process and informatics with the general communication theory. Assuming that the object of the latter is human personality he argues that man likewise is the object of study of informatics. The scientific information process is a peculiar kind of communication that has separated out from the overall science communication process in the course of social division of labour. The laws governing the scientific information process can be determined only by studying it as a historically established independent process. Since a process is not indentical with its subject it follows that the communication process is not identical with man. The study of the participants of the scientific information process, important as it is, is far from being the sole task of informatics. Even in this context informatics ought to deal not with man in general but with humans as the participants of scientific information process. This concept of informatics does not at all imply that it should concentrate on technical aspects and nothing else, but only that man should not be studied apart from his environment.

Vajdo Erik. Az informatika konturjai. Eszrevételek. Györe pál Cikkéhez. «Tud és müsz. tajékoztatás». 1969. 16, № 4, 258—270. (In Hungarian; English, Russian and German summaries).

299. **Outlines of informatics.**

Since the term «informatics» has become wide-spread as a denotation of a specialized branch of science dealing

with the processes of scientific information, an ever increasing number of publications, treating the subject of informatics and its relations to other fields, have appeared.. The paper by P. Györe belongs to this category. The author identifies the process of scientific information with that of communication, and informatics with the general theory of communication. Since in his opinion Man is the essential subject of the latter, the author insists that the same applies to informatics. Scientific information may be considered as a feature of communication, which, in the course of the social division of labour, became detached from the process of scientific communication; the latter, in turn, had previously branched off from the general process of communication. Its regularities may only be defined by examining this historically developed special process. Informatics must examine neither Man nor personality but those «performers» of the process of scientific information that can be described socially. This concept of informatics does not mean that it has to be restricted to mere technicalities. 5 refs.

Vajda Erik. Az informatika konturja: észrevételek Györe Pál cikkéhez. «Tud tájék elmélete és gyakorl.», 1972, № 19, 61—69, 160, 169, 178. (In Hungarian; English, German and Russian summaries.

300. **Standardization of terms in informatics.**

The Hungarian terminology of informatics is considered at present inadequate. A prohibitive circumstance in shaping the terminology is the difficulty of adapting the terms of statistical information theory and other allied, fields to the needs of informatics, and also the chaotic nature of the processes of creating new terms, which often originate in the course of practical information and production activities. Synonymy and multiple meaning of terms, vague definition of concepts, mistakes in usage are frequent terminological mistakes. The author suggests to use a new «Terminology» section of the journal «Tudományos és müszaki tájékoztatás» for regular discussion of this group of problems. 3 refs.

Vajda Erik. Az informatika szaknyelvének rendezése. (Elöszó a terminológia rovathoz). «Tud. és müsz. tájék.», 1972, 19, № 8—9, 635—648. (In Hungarian; English, German, and Russian summaries).

301. **The place of informatics within the system of sciences.**

The paper was given at the CMEA international symposium «Theoretical basis of information» held in Moscow on 9—13 June 1970. The paper discusses the subject of informatics, its evolution in the process of social division of labour, and its place in the system of sciences. The conclusion is drawn that, in the system of social sciences, informatics belongs to communication sciences, within which it is a discipline in its own right.

Vajda E. Mesto informatiki v sisteme nauk. (Mezhdunar. simpozium stran-chlenov SEV. «Teor. osnovy inform.» Moskva, 9—13 ijunja 1970). M., VINITI, 1970, 18 s. (In Russian).

302. **Scientific and technical terminology unification: a new section in «Tudományos és Müszaki Tájékoztátas» journal (Hungary).**

A section on informatics terminology has been introduced in this journal starting with the issues 8—9, 1972. Editors' intentions in this conjunction are presented. The contents of the section in 1972 are summarized: it carried the articles «On results and prospects for unification of STI terminology in Hungary», «Information activity as a gate to communication», «On the problem of informativity», «Informativity in terminology», etc.

Várady Eva. Terminológiai kérdések a Tudományos és Müszaki Tájékoztatásban. «Könyvtaros», 1973, 23, № 7, 400—401. (In Hungarian).

303. **On terminology in the field of patent information.**

Opinion held by specialists in different countries concerning the terms «documentation» and «information» is summarized. Proceeding from the definitions commonly accepted in the U. S. S. R., the following concepts are formulated: patent collection (state, national), patent literature, patent documentation (primary and secondary), patent information (current awareness, documentary, reference), and literature on patent studies. These concepts are specified and their interrelations inside an information system are shown.

Vcherashnij R. P. O terminologii v oblasti patentnoj informacii. «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.», 1968, ser. 1, № 11, 7—11. (In Russian: English summary).

304. **Patent documentation and patent information.**
Vcherashnij R. P., Kravec L. G., Serkh G. F., Furman E. I. Patentnaja dokumentacija i patentnaja informacija. M., CNIIPI, 1969.

305. **Librarianship and documentation.** Verkhuf M. Bibliotechnoe delo i dokumentacija. «Bjul. Junesko dlja b-k», 1960, 14, № 5, 213—216.

306. **Informatics.**
The origin of the term informatics and its scope are described. The Central Classification Committee of FID is reported to have set up, early in 1968, a working group to revise UDC schedules for Documentation and Library Science in order to transfer numbers 002 Documentation and 02 Library Science to newly introduced number 04/05 Informatics.

Vicentini A. L. C. Informatika. «Tud. és müsz. tájékoztatáts 1968, 15, № 8—9, 589—596. (In Hungarian; English, German and Russian summaries).

307. **Informatics.**
At the 33rd Conference of FID in Tokyo, September 1967, A. I. Mikhailov proposed the term «informatics» as the name for the theory of scientific information. The origin and scope of the term are explained. Relationships to bibliography, library science, documentation, reprography, mathematical theory of information, cybernetics, semiotics, psychology, electronics and automation are explained. In 1968, the Central Classification Committee of FID set up a working group to revise UDC tables on Librarianship and Documentation with the aim that the classes 002 Documentation and 02 Librarianship should be merged and inserted into the UDC as a new class 04/05 Informatics. Thus, in 1968, the term «informatics» became definitely incorporated into the international scientific terminology. 22 refs.

Vicentini A. L. C. Informatika. «Tud. tájek elmélete és gyakorl.», 1972, № 19, 19—23, 157, 166, 175. (In Hungarian; English, German and Russian summaries).

308. Vickery B. C., Simpson D. J., **Future of scientific communication.** «Sci. J.», 1966, № 7, 80—85.

309. Vickery B. C. **The present state of research into the communication of information.** «Aslib Proc.», 1964, № 2, 79—91.

310. Vickery B. C. **On retrieval system theory.** London, Butterworth and Co., 1961.

311. **Semiotics.**
Vleduc G. E. Semiotika. In: Kibernetiku—na službu kommunismu. T. 5. M., «Energija», 1967, 370 s.

312. **Semantics and scientific information (the semantic aspects of informatics).**
The paper was given at the CMEA international symposium «Theoretical basis of information» held in Moscow on 3—18 July 1970. The relations connecting semantics and informatics are revealed, defining the respective places of the two fields of studies, assessing the part played by semantic research in informatics, and major trends in this research. 90 refs.

Vlèduc G. E., Uspenskij V. A., Shrejder Ju. A. Semantika i nauchnaja informacija (semanticheskie aspekty informatiki). (Mezhdunar. simpozium stran-chlenov SEV. «Teor. osnovy inform.», Moskva, 3—18 ijulja 1970). M., VINITI, 1970 45 s., il. (In Russian).

313. **On basic aspects of the proceedings of a symposium on semiotic problems of the languages of science, terminology and informatics.**
The principal ideas of the papers presented at the symposium held on December 22 through 25, 1971, at the Philological Faculty of the Moscow University, are reviewed. The progress of the semiotic theory is predicated on the definition of the subject-matter and scope of this science; the philosophical premises underlying the elaboration of a theory; and the regard for continuity and filiation of ideas. The requirements laid to theories in linguistics and semiotics are subject to discussion. Semiotics can tackle several theories at a time. System approach is itself a major theoretical problem. Transfer of ideas and methods due to expansion of the subject field at the junctures of semiotics with other sciences, as well as from traditional fields to new ones, is important for the advancement of semiotics. Problems arising in developing science languages in semiotics are identified: criterion of the boundaries of the languages of science and technology in the macrosystem of the national language; and typology of the languages of science. The basic problems of informatics are IRS design and management of the upwards and downwards flows of information, both

manual and computerized ones. Terminology is defined as a semiotic discipline concerned with construction of term systems of various types for various regions of science and technology. 5 refs.

Volkov A. G. Ob osnovnykh aspektakh raboty simpoziuma «Semioticheskie problemy jazykov nauki, terminologii i informatiki». «Vest. Mosk. un-ta. Filol.», 1972, № 5, 60—64. (In Russian).

314. **Physical and philosophical observations concerning the concept of information.**

Proceeding from the cybernetic concept of information, physical properties and detection capabilities of the symbols used for information purposes are examined; a matrix of various information processes is presented. Different aspects and levels of semantic content (message) of information are considered as giving rise to various definitions of the subject and method of the information science. 6 refs.

Völz Horst. Physikalische und philosophische Gedanken zum Informationsbegriff. «Dok./Inform. Schriftenr. Inst. Informationsw., Erfindungsw. und Recht Techn. Hochsch. Ilmenau (früher «Dokumentation/Information Schriftenr. Inst. Dokum., Patentw. und Recht Techn. Hochsch. Ilmenau»), 1970 № 13, 47—60. (In German.).

315. **Development of a mechanized information retrieval system for central reference information collection in chemistry and chemical industry. An attempt at a linguistic description and evaluation of information languages.**

The publication is the first systematic study of information languages made from the viewpoint of the modern linguistics theory in the Soviet professional literature. A comprehensive review of literature on information languages (up to 1969) is made. The publication deals mainly with the development of the theory of quantitative typology of information languages.

Voprosy razrabotki mekhanizirovannoj informacionno-poiskovoj sistemy dlja central'nogo spravochno-informacionnogo fonda po khimii i khimicheskoj promyshlennosti. Opyt lingvisicheskogo opisanija i ocenki informacionnykh jazykov. Vyp. 23. M., NII tekhn.-ékon, issled., 1970, 184 s., il. (In Russian).

316. **Problems of documentary information.** Vorob'jev G. G. **Problema dokumental'noj informacii.** Kibernetika i dokumentalistika. M., «Nauka», 1966, 5—34.

317. **On problems of terminology.**

The author gives a brief analysis of more than 70 papers given at the terminology section of the symposium «Semiotic problems of the languages of science, terminology and informatics» held in Moscow in December 1971.

Vysochanskaja O. A. Nekotorye voprosy terminologii. «Nauch.-tekhn. inform. Sb. Vses. in-t nauch. i tekhn. inform.», 1972, ser. 1, № 4, 41—42, 48. (In Russian; English summary).

318. Wagner F. S. **A dictionary of documentation terms.** «Amer. Doc.», 1960, 11 № 2, 102—119.

319. **What is informatics?**

Two different viewpoints on defining «informatics» are described, quoting the definition given in «Elek. Rechenanlag.», 1970, № 2.

Was ist Informatik? «Nachr. Dok.», 1970, 21, № 4, 176. (In German).

320. Weinberg Alvin M. **Scientific Communication.** «Int. Sci. and Technol.», 1963, 66—67.

321. Welt I. D. **Information science — science information.** «Amer. Doc.», 1964, 15, № 4, 249.

322. **Contribution to the terminological studies of the Committee on Terminology and Language: Problems of the German Documentation Society.**

An understanding that terminological work is essentially team-work has come as an important result of the activities of the Committee on Terminology and Language Problems (FRG). The past few years have witnessed a largely increased interest in the theoretical aspects of terminological work. Proposals are given for the definition of the following concepts: system, concept and sign, language as a system of signs, elements of language coding, types of signs and words, language types, writing and written language, natural and artificial language, subject field language. The different codes and languages are defined (natural, artificial, sound-besed, etc.). 3 refs.

Wersig Gernot, Meyer-Uhlenried Karl-Heinz. Versuche zur Terminologie in der Dokumentation I: Sprache.

«Nachr. Dok.», 1969, 20, № 3, 116—123. (In German; English summary).

323. **Terminological essays in informatics. Part. II.** Communication and information.

Proceeding from the definitions of the concept «language», a terminologically represented model of the communication process is deduced that shows the transfer of meaning between communicator and recipient through communication channels and mediators. The communication structures are communication sequence, chains, network and system. With a universal definition of data as fixed representations of facts by signs, various meanings of «information» can be terminologically differentiated as «information», «information process» and «informatics». The theory of signs makes the differentiation of syntactical, semantic, sigmatic and pragmatic information possible. Adequate to communication process and system, information process and information system can be defined. 15 refs.

Wersig Gernot, Meyer-Uhlenried Karl-Heinrich. Versuche zur Terminologie in der Dokumentation. II. Kommunikation und Information. «Nachr. Dok.», 1969, 20, № 5, 199—204. (In German; English summary).

324. **Terminological essays in documentation.** — Part III. Documentation. Report of the Terminological and Language Committee.

Presentation of definitions related to the concept field «documentation» proposed by the Committee on Terminology and Language Problems of the German Documentation Society. Since the term «documentation» has been used with many meanings and has changed its general meaning, the authors propose to use the term in future only in compounds. The following terms should substitute «documentation» in its various meanings: documentation process, documentation techniques, documentation system, field of information and documentation, information and documentation science. The documentation process refers to a documentary reference unit and creates documentation units which act as a substitute for the reference unit. Reference units are for the most part documents (some types of documents are specified). The documentation system consists of a physical and a conceptual subsystem. The physical subsystem includes

documentation personnel performing documentation activities and documentation equipment performing documentation operations. The conceptual documentation system includes documentation principles and documentation techniques. 18 refs.

Wersig Gernot, Meyer-Uhlenried Karl-Heinrich. Versuche zur Terminologie in der Dokumentation. III: Dokumentation. Zugleich Bericht des Komitees Terminologie and Sprachfragen. «Nachr. Dok.», 1970, 21, № 1, 14—19. (In German; English summary).

325. **What is documentation?**

The definition of documentation given by J. Shera at Cleveland Convention of the American Library Association is mentioned. According to Shera, documentation is not a synonym of mechanization of library and bibliographic operations. Documentation can be considered the theory of library science, the main aim of which is to study a more comprehensive use of information recorded on various carriers.

«Spec. Libr.», 1963, 54, № 3, 168. (In English).

326. **Informatics as a science and its relationships with other sciences.**

Informatics is a science encompassing a theory, methodology, history, organization, and practical documentation methods. Each of these components is defined. Relationships of informatics with library science, mathematical information theory and other sciences are shown.

Wiesenberger Ivan. Náplň informatiky a její souvislost s jinými obory, «Techn. knih.», 1968, 12, № 4, 120—124. (In Czech).

327. **System approach to the interrelation between research and information work.**

Using a system approach the paper investigates general and specific aspects of research and information work, their interrelation and interdependence. 6 refs.

Wiesenberger Ivan. Systémovy přístúp ke vztahu mezi výzkumnou a informační činností. «Cs. inform.», 1971, 13, № 2, 12—21. (In Czech; English, French, German and Russian summaries)

328. Wilson P. **Two kinds of power; an essay on bibliographical control.** Berkeley, Univ. Calif. Press, 1968.

329. **BSc degree in information science at Newcastle upon Tyne.**

The syllabus and purpose of the four-year undergraduate course for B. Sci. Degree in information science at a College of Commerce (Newcastle, Great Britain) are presented. The goals of the course and the nature of practical studies are described.

Wilson T. D. «Aslib Proc.», 1969, 21, № 1, 18—23. (In English).

330. **Notes on forecasting the development of informatics as a scientific discipline.**

Informatics is a new discipline, which makes it especially difficult to forecast its development. The need for this forecasting is explained by three reasons. By means of forecasting it is possible: (1) to obtain latest information to be used in planning further practical work; (2) to formulate problems and priorities in the field of research and development; and (3) timely to train the necessary information personnel in a way adequate to the requirements which are constantly growing. The analytical and prognostic studies should not be confined to the problems of information storage and retrieval, but they should embrace all essential components of information activities. The major research trends and problems important from the standpoint of forecasting are given. 10 refs.

Winde Bertram. Einige Bemerkungen zur prognostischen Entwicklung der Informatik als Wissenschaftsdisziplin. I. «Informatik», 1972, 19, № 2, 7—11. (In German; English, French and Russian summaries).

331. Wójcik T. **Prakseosemiotyka. Zarys teorii optymalnego znaku.** Warszawa, PWN, 1969, 289 s.

332. **Some praxiosemiotic problems of scientific information.**

Formal aspects of the general classification theory and the theory of optimal language are examined with the aim of stimulating the development of the central problem of scientific information, viz. the theory of retrieval languages. Communication and cognition processes are described; postulates or the optimum message and the optimum code are formulated; problems of classification codes are discussed; the objectives of praxiological linguistics are defined; the components of the optimal language model are established; sequential analysis

of the model is presented, and the syntactic structure of language is examined.

Wójcik Tadeusz. «Proc. Int. Conf. Gen. Principles Thesauri Build., Warsaw, 1970». Warsaw, 1970, 109—124. (In English).

333. Wooster H. **Implications of basic research in information sciences to machine documentation.** Washington, D. C. Air Force Office Sci. Res. 1962 (AFOSR-492).

334. Wooster H. **Information technology and the information science: with fork and hopes.** Washington, D. C. Air Force Office Sci. Res., 1964 (AFOSR-9769)

335. **International terminology at service of informatics.**

The basic concepts of automated data processing are discussed, and documentation methodologies are described. Problems of terminology standardization are dealt with and connections between thesaurus entries and normalized names are considered. Research in terminology conducted by AILA, which has set up a special terminological and lexicographic commission, is reported.

Wüster E. Internaci terminologie en la servo de la informatiko. «Sci. rev.», 1971, 22, № 1, 3—10. (In Esperanto; German summary).

336. Yehoshua Bar-Hillel. **Language and information. Selected essays on their theory and application.** Addison-Wesley, Reading. Mass., 1964.

337. **Information science: toward the development of a true scientific discipline.**

If information science is to be considered as a «true» science it must have a set of concepts with rigorous definitions of terms relating to its theory. A model of a generalized information system is considered and the range of its applicability is indicated. By the use of this model and the definition of information science as a «true» science, the goals and requirements for a curriculum in information science are established. Science information as a subset of information science in discussed. 4 refs.

Yovits M. C. «Amer. Doc.», 1969, 20, № 4, 369—376. (In English).

338. **Subject and structrure of information.** Žatkuliak J. Predment a struktúra informatiky. Studie K VU P-18-121-001-00-10. Bratislava, SITK, 1971, 69 s.

339. **Dictionary of Russian and English terms in informatics.**

The dictionary includes 3035 terms pertaining to various areas of information theory and practice and the allied fields of knowledge. The terms are classified under 48 subject headings. The first part of the dictionary contains a list of terms and their synonyms in Russian and the equivalent English terms. Each term is furnished with a detailed definition. The second and third parts of the dictionary are alphabetic lists of terms in Russian and English. The Russian phrase terms are supplied with all their alternative and inverted variants. The fourth part is alphabetic lists of Russian and English abbreviations frequently used in information literature.

Zhdanova G. S., Kolobrodova E. S., Polushkin V. A., Chernyj A. I. Slovar' terminov po informatike na russkom i anglijskom jazykakh. M., «Nauka», 1971, 360 s. (In Russian).

340. **Vital problems of engineering psychology.** Žincenko. V. P., Panov D. Ju. Uzlovye problemy inženernoj psichologii. «Voprosy psichol.», M., 1962, 5, 13—30.

341. **Information for research.**

Various aspects of supplying information for research and development are considered. The titles of the chapters are: 1. Methodological principles and the basic notions of the theory of scientific and technical information. 2. Scientific and technical creativity viewed as the processing and origination of information. 3. Information flows and research management and control. 4. Information service as a sine qua non of scientific and technical creation. 5. Preparing information on research results. 6. Mechanization and automation of information processes inside a research organization. 7. The choice and calculation of optimum operation conditions for an information system. 8. Measurements of scientific information. 9. Economic aspects of the effective utilization of scientific information in material production.

Zlochevskij S. E., Kozenko A. V., Kosolapov V. V., Polovinchik' A. N. Informacija v nauchnykh issledovanijakh. Kiev, «Nauk. dumka», 1969, 289 s., il. (In Russian).

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