Copyright

Review of the
WORLD INTELLECTUAL PROPERTY ORGANIZATION (WIPO)

and the United International Bureaux for the Protection of Intellectual Property (BIRPI)

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WORLD INTELLECTUAL PROPERTY ORGANIZATION

Bogotá Symposium on Patents, Marks and Copyright

(November 24 to 27, 1971)

Note *

This Symposium was organized by the World Intellectual Property Organization in agreement with the Government of Colombia. The 11 members of the Latin American Free Trade Association (LAFTA) were invited to appoint experts to participate in the Symposium and the following 10 accepted: Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, Venezuela.

Several intergovernmental and non-governmental organizations were also invited.

The list of participants appears at the end of this Note.

Each of the participants reported on recent developments in his country or organization in the field of industrial property and copyright. Each intervention was followed by a question and answer period and a general debate.

As far as copyright matters are concerned, a particularly thorough discussion took place on the results of the Diplomatic Conference held in Paris in July 1971 in which the Berne Convention for the Protection of Literary and Artistic Works and the Universal Copyright Convention were revised. The special provisions concerning developing countries were explained by representatives of WIPO and Unesco. The differences between the two Conventions were analyzed. The representative of WIPO reported on the plans of his Organization for the preparation of a model law on copyright based on the Paris Act of the Berne Convention and outlined the possibilities of assistance by WIPO to countries desiring to modernize their copyright legislation or the day-to-day administration of their copyright laws. In the latter connection, the meeting noted that without efficient authors' associations much of copyright protection remains theoretical.

* This Note has heen prepared by the International Bureau.

List of Participants *

I. States

Bolivia: J. Prado Salmón. Brazil: T. Thedim Loho; C. Campelo. Chile: S. Larraguihel Zavala; C. Contreras; G. Anguita. Colombia: L. G. Nieto Roa; F. Lozano Angel; E. Efrain Bernal; M. E. de Correa (Mrs.); M. G. de Saade (Mrs.); A. J. Arango; C. Duarte; C. Valenzuela. Ecuador: E. Muñoz Custode. Mexico: J. Sandoval Ulloa. Paraguay: F. M. Barreiro Maffiodo; O. Gorostiaga. Peru: B. Kresalja. Uruguay: H. A. Compagnoni. Veneznela: H. Maradei de Garcia (Mrs.); C. D. Frontado.

II. Intergovernmental Organizations

United Nations: A. Power Aliberti. Latin American Institute for Economic and Social Planning (LIESP): A. Power Aliberti. United Nations Economic Commission for Latin America (ECLA): A. Power Aliherti. United Nations Educational, Scientific and Cultural Organization (Unesco): J. M. de Azaola; A. Arciniegas (Mrs.). United Nations Industrial Development Organization (UNIDO): R. W. Richardson. Institnte for Latin American Integration (INTAL): E. White. Organization of American States (OAS): F. Moreno; R. A. Gutierrer. Permanent Secretariat of the General Treaty for Central American Economic Integration (SIECA): D. Ramírez. Andean Development Corporation: A. Vidales. Council of the Carthagena Agreement: A. Vidales.

III. Non-Governmental Organizations

Inter-American Association of Industrial Property (ASIPI): E. D. Aracama Zorraquín; R. Castro Duque. International Association for the Protection of Industrial Property (IAPIP): M. A. Correa; S. P. Ladas.

IV. National Organization

Society of Colombian Authors and Composers (SAYCO): A. Plazas Sierra; N. Madrid-Malo; L. A. Velasco Chaves; J. Olaya Muñoz.

V. WIPO

A. Bogsch *(First Deputy Director General)*; M. Porzio *(External Relations Division)*; E. Perelli (Miss) *(Secretary)*.

VI. Officers

Chairman: J. Mejía Arango; *Chairman of the industrial property meetings:* L. G. Nieto Roa; *Chairman of the copyright meetings:* A. J. Arango; *Secretary:* M. Porzio.

* A list containing the titles and fnnctions of the participants may he obtained from the International Bureau upon request.

BERNE UNION

Signatory Countries of the Paris Act (1971)

The Director General of the World Intellectual Property Organization (WIPO), in accordance with the provisions of Article 37(5) of the Paris Act (1971) of the Berne Convention, has notified the Governments of member countries of the Berne Union that, at the expiration of the required period (that is, on January 31, 1972), the following countries had signed the said Act:

— Brazil, Cameroon, Ceylon, Cyprus, Denmark, France, Germany (Federal Republic), Holy See, Hungary, India, Israel, Italy, Ivory Coast, Lebanon, Liechtenstein, Luxembourg, Mexico, Monaco, Morocco, Netherlands, People's Republic of the Congo, Senegal, Spain, Sweden, Switzerland, Tunisia, United Kingdom, Yugoslavia, on July 24, 1971;

— Belgium, on August 12, 1971; Uruguay, on October 4, 1971; Norway, on December 28, 1971; Finland, on January 25, 1972; Japan, on January 25, 1972; Austria, on January 28, 1972; Romania, on January 31, 1972;

(total: 35 countries).

At the time of signature, the Government of the Socialist Republic of Romania declared that it intended to avail itself of the right provided for under Article 7(7) of the said Act regarding the term of protection. Furthermore, this Government declared that it does not consider itself bound by the provisions of paragraph (1) of Article 33 and it is of the opinion that any dispute concerning the interpretation or application of the Convention may be brought before the International Court of Justice only with the consent of the countries concerned. Finally, it declared that "the maintenance in a state of dependency of certain territories to which the provisions of Article 31 of the Convention apply is not in conformity with the Charter of the United Nations or with the documents adopted by the United Nations concerning the grant of independence to colonial countries and peoples, including the Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of the United Nations, unanimously adopted by Resolution No. 2625 (XXV) of the 1970 General Assembly of the United Nations, which solemnly proclaims the duty of States to promote realization of the principle of equal rights and self-determination of peoples, in order to bring a speedy end to colonialism." (WIPO translation)

The Director General of WIPO wishes to draw attention to the fact that all the signatures were affixed subject to ratification.

Berne Notification No. 34, dated February 9, 1972.

NATIONAL LEGISLATION

UNITED STATES OF AMERICA

Public Law 92-170 (92nd Congress, S. J. Res. 132)

(Of November 24, 1971)

Joint Resolution extending the duration of copyright protection in certain cases

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That in any case in which the renewal term of copyright subsisting in any work on the date of approval of this resolution, or the term thereof as extended by Public Law 87-668, by Public Law 89-142, by Public Law 90-141, by Public Law 90-416, by Public Law 91-147, or by Public Law 91-555 (or by all or certain of said laws), would expire prior to December 31, 1972, such term is hereby continued until December 31, 1972.

Approved November 24, 1971.

GENERAL STUDIES

Copyright Problems Arising from the Computer Storage and Retrieval of Protected Works

Preface

In presenting this study I should first like to express my thanks for the support I have received from a number of quarters.

A considerable amount of information had to be collected in order to determine the facts of the case. I should especially like to thank Dan Lacy, Senior Vice President of the McGraw-Hill Book Company, and Dr. Spiros Simitis, Professor of Law at Frankfurt University, for their help in this respect.

The Copyright Office in Washington was most cooperative in making available to me such matter as has been published on the subject in the U.S.A.

My colleagues in the Max-Planck-Institute, Dr. Paul Katzenberger, Gert Kolle and Werner Rumphorst have assisted me in the preparation of the work. In particular, I have to thank Gert Kolle for that part of the study dealing with the facts of the case.

The study was completed in February 1971. The results of the Paris Conferences for Revision of the Berne Convention and the Universal Copyright Convention (held in July 1971) were subsequently also taken into account.*

* This report was written at the reqnest of Unesco and WIPO. The anthor is an independent expert, and the opinions expressed in it are his sole responsibility and do not necessarily reflect those of Unesco and/or WIPO.

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GLOSSARY OF ABBREVIATIONS

APLA Bull.	Bulletin of the American Patent Law Association
ASCAP Corpr. L. Symp.	American Society of Composers, Authors and Publishers, Copyright Law Symposium
Bull. Cr. Soc.	Bulletin of the Copyright Society of the U.S.A.
Copyright	Copyright, Monthly Review of the United International Bureaux for the Protection of Intellectual Property (BIRPI)
Dir. Aut.	Il Diritto di Antore
EDUCOM	Bulletin of the Interuniversity Commnnications Conncil
GRUR Int.	Gewerblicher Rechtsschutz und Urheberrecht, Internationaler Teil
H. R.	House of Representatives, Report
H. R. 83	House of Representatives, Report No. 83 (90th Cong., 1st Sess.), submitted by Mr. Kastenmeier
IDEA	The Patent, Trademark and Copyright Journal of Research and Education
ISR Systems	Information Storage and Retrieval Systems
KWIC	Key-Words-in-Context
Nachr. Dok.	Nachrichten für Dokumentation
Nimmer, Project	Project - New Technology and the Law of Copyright: Reprography and Computers, in 15 UCLA Law Review, pp. 931 *et seq.* (1968), with preface by Melville B. Nimmer
ÖBl.	Österreichische Blätter für gewerblichen Rechtsschutz nnd Urheberrecht
RIDA	Revne internationale du droit d'auteur
UCC	Universal Copyright Convention
USPQ	The United States Patents Quarterly
U. S.	United States Supreme Court Reports

INTRODUCTION

1. The subject of this study is the copyright problem which arises from the storage of protected works in, and their retrieval from, a computer.

The other copyright problems which arise as the result of the development of computer technology are excluded from the scope of this study. These include *inter alia* the much discussed question as to whether the programs which control or condition computers are protected by copyright [1]. Excluded also are those problems which can arise from the fact that the computer can play a part in the creation of a work, for example, the questions of the copyright protection of electronic music and of the persons who are to be regarded as creators of this music and therefore as the owners of the copyright [2].

2. The task of the computer is generally described by the expression " data processing ". In its broader meaning this expression also embraces those cases where storage is effected for the purposes of documentation and retrieval of the stored material. In a narrower sense, the term data processing can, however, be restricted to those cases where the stored data serves as material for the calculations and investigations to be made, the control to be exercised, etc., and are in contrast with those cases of storage of a text for the purpose of retrieval.

In the narrow sense of the term " data processing ", the greatest number of cases are concerned with the storage and processing of unprotected material. Examples are those in the scientific/technical fields, for example, the control of industrial production programs, the establishment of medical diagnoses, the simulation of the behavior of missiles, the calculation of building projects and other technical constructions and designs, in fact, the carrying out of all kinds of mathematical operations; in the field of business and management, for example, all kinds of book-keeping and accounting operations (tax returns, payroll records, premium calculations), seat bookings in air and rail transport, market quotations for stockbrokers, forecasting of, and information about, election results and the carrying out of management games.

3. The use of material protected by copyright which is stored for documentation and for retrieval is in its first stages.

Here again, the development in the realm of information storage and retrieval systems began with the use of unprotected material, such as bibliographic data which is stored for the purpose of cataloguing. Or, in the legal field, with the texts of laws or legal decisions which are retained in the memory of the computer. But the dividing line is crossed when matter is included in legal data banks which has been taken from literature, from legal commentaries, text books, treatises, etc., and which therefore become stored works protected by copyright. In addition, there have been cases of the storage of encyclopaedias, dictionaries, medical, scientific or mathematical treatises, etc., for the purposes of documentation and retrieval.

4. The first chapter of this study will report, on the basis of the information we have been able to obtain, on some typical cases where material protected by copyright is today already being used in information storage and retrieval systems. As will be shown, the material concerned comes mainly from the fields of law, economics, medicine, the natural sciences and mathematics. Literary works, e. g., of poetry, fiction, drama, etc., are only stored in special cases, where the purpose is not the retrieval of the text but the use of the text for the preparation of linguistic, syntactic or semantic analyses.

5. A sharp increase in the number of cases where works protected by copyright are used in information storage and retrieval systems must be expected in the future.

But, at the moment, the dimensions of this increase cannot be predicted. In particular, it is an open question whether, as has been forecast, there will be a revolution which will lead to the replacement of the art of printing by computer techniques; it is pointed out that the printing and copying of documents will be replaced more and more by the storage in computers of all kinds of works, e. g., literary, stage, musical and film works, maps, etc. The stored works can then be made available through the developing techniques of telegraphic or wireless transmission, to users throughout the world who can then see them projected on a screen or prepare copies of the whole or parts of the work by pressing a button [3].

But other experts [4] are of the contrary opinion that computer techniques will not take the place of the Gutenberg system. The storage in computers will only replace or supplement publishing by printing in particular fields. Storage in a computer will be advantageous right at the start in special cases, particularly where the results of certain scientific investigations are concerned. But publishing by printing is likely to be used in the great majority of cases. Authors and publishers can then, nevertheless, later permit the storage of works in computers according to demand, and thereby dispose of a secondary right as in the granting of licenses for translation, filming, the preparation of pocket editions and the like.

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[1] See *inter alia* " Electronic Machines and Intellectual Creation ", by Nawrocki, *Copyright* 1969, pp. 29 *et seq.*; Nimmer, *Project*, pp. 988 *et seq.*; *Der Urheberschutz wissenschaftlicher Werke unter besonderen Berücksichtigung der Programme elektronischer Rechenanlagen*, by Ulmer, Bayerische Akademie der Wissenschaften — Philosophisch-historische Klasse, Sitzungsherichte 1967, Vol. 1; *Der urheberrechtliche Schutz der Rechenprogramme*, by Köhler, Urheherrechtlicbe Abhandlungen des Max-Planck-Instituts für ausländisches und internationales Patent-, Urheber- und Wetthewerhsrecht, Vol. 8, Munich 1968.

[2] See *inter alia* " Electronic Music and the Copyright Law ", by Savelson, 11 *Bull. Cr. Soc.* (1964), pp. 144 *et seq.*; " Sind Apparate geistige Schöpfer? ", by Fabiani, *GRUR Int.* 1956, pp. 422 *et seq.*; " Bearheitung und Elektronik als musikalisches Problem im Urheberrecht ", by Fellerer, and " Der rechtliche Schutz am musikalischen Werk ", hy Fahiani, in Vol. 37 of the Schriftenreihe der Internationalen Gesellschaft für Urheberrecht e. V. (1965); " La musica elettronica e il diritto di antore nel pensiero di alcuni ginristi " (essays hy van Nus, Schaffers, Savelson, Nawrocki, Fromm and Fahiani) in *Dir. Aut.* 1966; pp. 1 *et seq.*

[3] See *Nearer to the Dust*, by Gipe, Baltimore 1967, pp. 83 *et seq.*; and from the critical point of view " Speicherung und Wiedergabe urheherrechtlich geschützter Werke durch Datenverarheitungsanlagen ", hy Barbara Ringer, *GRUR Int.* 1968, p. 18; also Nimmer, *Project*, pp. 994 *et seq.*

[4] See, for example, " Information Retrieval and the Decision to Publish ", by Jeanneret, 1 *Scholarly Publishing* (1970) pp. 229 *et seq.*; " Post-Gntenberg Copyright Concepts, in Automated Information Systems and Copyright Law " by Zurkowski, A Symposium of the American University, ed. by Hattery and Bush, Washington 1968, pp. 6 and 7; " Computers and Copyrights ", hy Benjamin, 152 *Science* 181 (1966), pp. 183 *et seq.*; " Impact of New Technology on the Economy of Specialized Publications ", hy Benjamin, in " Tbe Law of Software ", 1968 Proceedings, Computers-in-Law-Institnte, George Washington University, pp. C-1 *et seq.*

6. It is not possible to take any firm view on these future prospects. It is, however, certain — even if one considered the latter of the two views mentioned to be the most likely one — that the development of computer techniques will affect to a considerable degree the interests of authors and publishers.

So far as copyright is concerned, consideration must be given to the way in which the present law can afford copyright owners control over the use of copyright material in computer systems or whether this protection must be given by future legislation. The legitimate rights of copyright owners must be considered; protection must be given to copyright owners' material and moral rights, such protection being essential for their intellectual productivity. But at the same time it must be remembered that, while the control of copyright owners over the use of protected works must be safeguarded, this control must not become an obstacle to the development and improvement of information storage and retrieval systems. The interests of the user and the public in the utilization of these systems must be given adequate consideration as well as the interests of the author and publisher. We therefore examine the basic problems of copyright control in the second chapter of this study, and, in the third chapter, the legal position in detail with special reference to the provisions of the conventions.

7. We should like to make the following comments on terminology; on the one hand we refer to " copyright owners ", and leave open the question whether, in specific cases, the rights which are infringed by the use of protected works in computer systems belong to the authors, to the publishers or to both. On the other hand, we talk about " computer owners " or " computer centers ", in order to describe those people, enterprises and organizations who take the initiative in, and responsibility for, the operation of the computer systems and whose task it is to conclude the agreements with the copyright owners and the users. For this purpose it is immaterial whether the persons, undertakings or organizations concerned have bought the computer or whether it has been leased to them by the computer manufacturer.

CHAPTER 1

The facts of the case

I. Information storage and retrieval systems

8. In technical terminology all processes and methods for the storage and retrieval of information are referred to as information storage and retrieval systems (ISR systems). These can be simple, non-automatic systems. But of prime interest are automatic systems, and especially computer systems, which are the subject of the present study.

In general these systems can be described as follows: machine-readable data is fed into a computer on special material information carriers by means of special input units, is stored in internal and/or external storage units and is, after an appropriate interrogation, again made available to the user over special output units either wholly or in part [5].

9. As regards the choice and volume of the stored information there are in principle three distinct methods: the index, abstracts or full text method [6].

(a) In the indexing approach, certain key words (called descriptors) are chosen from each of the documents the contents of which are to be stored, and these key words are stored together with the appropriate information about the document (e. g., author, name of the publication, etc.). The choice of descriptors can be made manually or it can also be made automatically by the computer itself. Initial storage of the complete text of the document to be analyzed is necessary for the automatic selection of the descriptors.

The stored information is retrieved in the form of descriptors and/or sources or documents and is obtained by feeding one or two of the words required (usually logical combinations of them [7]) into the computer which is then interrogated as to the documents or sources in which these words appear. The content of the document does not appear and can only be made accessible by reference back to the original source which is not stored in the ISR system.

Apart from its use for isolated searches for stored information the index method is primarily used for the compilation of registers and catalogues.

(b) The abstracts approach falls between the index and full text methods and partly overlaps with these. It is generally characterized in that abstracts, that is, condensed summaries of the information in a document, are stored. These abstracts can be prepared either manually (be it by the author himself or another researcher) or mechanically by using the computer [8]. Mechanical abstracting presupposes, as in the index method, the storage of the complete text from which an abstract is then prepared by the use of certain methods.

(c) The most important method for the purpose of this study is the full text approach, the purpose of which is to store entire texts, or substantial parts of texts, and to make them available again to the user either wholly or in part on interrogation. Since the principal difficulties of this process arise from its very heavy demand on storage capacity, so-called condensing programs have been developed, which remove from the stored text those words not essential to its understanding and thereby save storage capacity [9]. These methods constitute transitional steps to the abstracts process depending on the extent of the deletions made from the text.

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[5] For a description of systems of this type compare generally " Legal Information Retrieval ", by Fraenkel, in 9 *Advances in Computers*, pp. 113 *et seq.* (1968); " A Copyright Labyrinth: Information Storage and Retrieval Systems ", by Ramey, in 17 *ASCAP Copr. L. Symp.* 1, pp. 6 *et seq.* (1969); Nimmer, *Project*, pp. 995 *et seq.*; Barbara Ringer, *op. cit.*, pp. 18 and 19; *On Retrieval System Theory*, by Vickery, pp. 125 *et seq.* (2nd Ed. - 1965).

[6] For details see Fraenkel, *op. cit;* " EDV und Recht — Einführung in die Rechtsinformatik ", by Steinmüller in *Juristische Arbeitsblätter*, Sonderheft 6, pp. 46 *et seq.* (1970); see also *Elektronische Datenverarbeitung im Recht*, by Haft, pp. 115 *et seq.* (1970).

[7] " Mehrdimensionale Ahfrage ", Steinmüller, *op. cit.*, p. 48.

[8] See Steinmüller, *op. cit.*, p. 47.

[9] See Steinmüller, *op. cit.*, p. 47.

10. It should be noted that there are different forms of retrieval:

(a) The texts can be retrieved wholly or in part in the form in which they are stored, without any processing of the matter in the text (mere searching systems). The texts are made available to the users in their original form.

(b) The stored texts can, however, also be used to prepare concordances, lists of words or the like without the text itself being reproduced. Studies in comparative literature (for example, authorship analyses) also belong to this category of " text processing methods " as does the input and storage of texts for the purpose of translation into other languages.

Data processing in the narrower sense of the word is involved in the last-named process. But there can be intermediate cases between the two categories named, especially if only minor alterations are made (for example, abbreviations or the omission of non-important words or parts). We shall consider both categories in that part of the study concerned with the legal analysis.

II. The technical background

11. Of the different types of computers (analogue, digital or hybrid [10]) only digital computers come into question for use in ISR systems for the practical reason that a large amount of data is involved. The operation of these computers is based on the use of the binary system [11]. Binary notation enables all alpha-numeric characters to be represented by the numbers 1 and 0. A number of codes have been developed for this purpose by means of which decimal numbers and letters can be converted into binary numbers (e. g., BCD code, Binary Coded Decimals). By means of binary notation any information can be represented technically as one of two physical (electric or magnetic) states (for example, current on, current off).

12. In general, the computer system consists of a central processing unit and its peripheral equipment. The central processing unit consists of the control unit, the internal storage units and the actual processing unit. The peripheral equipment consists of all the terminals, that is, the input and output units and the external storage units.

It is not necessary to describe the entire operation of the computer for the purposes of this study. A more detailed explanation is necessary only of the operation of the input, storage and output processes as well as of the possibilities opened up by teleprocessing.

(a) Input

The computer can only accept and process data if it is presented in machine-readable form and supplied to the machine through appropriate input units. In the present state of the art there are a number of alternatives for this purpose.

13. Conventional machine-readable information carriers are: punched cards and punched tapes with which are associated the appropriate input units, i. e., punched card or punched tape readers. The coding of the original data is carried out by punching holes in data carriers with appropriate equipment. One group or column of such punched-out holes (e. g., seven holes on a punched tape) form a character, that is, a letter or a number. These characters are converted into electric signals by means of optical or electrical processes and then stored in the respective stores in the form of electric or magnetic states of the store material (e. g., a magnetic layer). Information embodied as punched holes on punched cards or tape is directly intelligible, i. e., readable by the expert in its original form. In addition, punched cards often indicate the information on them in a clear text line at their upper edge. By using appropriate apparatus as many copies of punched cards and tapes as required can be made. The information on them can be printed out as clear text by means of appropriate equipment (tabulators).

14. Optical or magnetic character recognition methods are modern input processes which allow the acceptance of a great deal of data, and where no preliminary recording of the data on punched cards or tape is necessary. Magnetic tapes and cards, in particular, are used as magnetic information carriers which have a very high storage capacity. In optical character recognition systems, which are still at the development stage, the original data held in typographical form and in clear text on paper, microfilm or microcard is directly converted into machine-readable form, i. e., electrical signals, by appropriate optical document readers and stored. Less costly is magnetic character recognition where the original information is fixed in a magnetic writing medium and is then read and converted by appropriate magnetic character readers. By using magnetic cards and tapes, the appropriate data must be recorded with the aid of other data logging and input units (e. g., by means of punched cards or tapes, page printers, etc.). In so far as the information to be stored is not recorded initially (e. g., during the dictation of an original work) it must, in every case — under present conditions also in optical recognition systems — be recorded by means of appropriate data logging systems (e. g., typewriter, card punch, etc.). There is, in the present state of the art, so far no satisfactory direct input method for ordinary print or handwritten material in view of the stringent demands such methods would make on the quality of the paper and on the writing; but such a method may be realizable in the future. Recording in clear text and in magnetic writing provides that data stored in machine-readable form can be read, that is, is intelligible without any difficulty. But the information carried on magnetic tapes and cards is not intelligible even to the expert and can only be decoded by the conversion of the characters by suitable apparatus.

15. Other modern input units are the various visual display devices, particularly cathode-ray tubes which also serve as output units. In this case, the input is fed in by means of an appropriate input keyboard on the apparatus or with a so-called light pen. These methods are particularly suitable for a direct dialogue between a person and the machine, but are not suitable for the input of a large quantity of data although they are suitable for a continuous data output.

[10] See Steinmüller, *op. cit.*, pp. 32 *et seq.*; *Einführung in die Datenverarbeitung*, by Dworaischek, 2nd Ed. (1969) pp. 11 *et seq.*

[11] See Dworaischek, *op. cit.*, pp. 28 *et seq.*; " Elektronische Datenverarbeitung und Urheberrecht ", by Dittrich, *ÖBl.* 1970 pp. 1 *et seq.*

Finally, it should be mentioned that information can, during recording of the text, be converted directly into machine-readable form by means of the keyboard of a control console or a teleprinter. Since, however, the input of information by this method takes rather a long time its use is not very practicable where there is an input of a great volume of data, as is usually the case in ISR systems.

16. For the input of larger quantities of data in ISR systems, punched cards and tapes, documents written in clear text and in characters printed in magnetic ink, magnetic tapes and cards are particularly suitable information carriers. All input methods are equally suitable for use in the interrogation of stored information.

(b) Storage

After input, each piece of information must be stored in a suitable medium if it is to be retrievable. A number of different kinds of store or memory are available. Basically a distinction is made between internal and external memories.

17. *Internal storage*

The internal stores of an electronic data processing installation form part of the central processing unit. They are characterized particularly by a short access time; that is, the time necessary to locate and read information from a memory address is exceptionally short. Certain addresses are assigned to all storage units which are directly accessible (random access). On the other hand, the capacity of these stores is, at present, still limited. They therefore serve primarily as working or rapid memories for continuous processing [12] but not as permanent stores for large quantities of information.

These working stores are today in general ferrite magnetic core memories. These consist of magnetic cores which can take up two opposite magnetic states, a change in the information is effected by a reversal in the magnetic flux. Each piece of information is therefore represented by one of two possible states of magnetization (positive or negative). Chemical storage systems, in which the information is represented by chemical changes, are still at the development stage.

18. *External storage*

Magnetic discs, drums, tapes and cards belong to the category of external stores, defined in their narrower sense. Their storage capacity is considerably higher than that of the internal stores, almost unlimited in the case of magnetic tape stores. The latter are therefore particularly suitable for the storage of a great volume of data as is the case in ISR systems. The disadvantage of all external stores is their relatively long access time. The magnetic tape store exhibits the highest medium access time since it only allows of sequential access as against magnetic discs and drums which permit random access. Magnetic discs, tapes and cards are freely interchangeable and are therefore suitable for the permanent preservation in a special library of the information stored on them.

Technically, the storage of information is achieved in that the data is inscribed on the tracks of magnetic storage media by magnetic heads, the magnetic heads also reading off the information. Each piece of information is again represented by one of two possible (opposed) directions of magnetization. In the reading-off process, the respective direction of magnetization generates an electric signal in the winding of the magnetic head which identifies and transmits the information.

As in the case of internal stores, the information which is retained by the corresponding states of the storage material is not humanly perceptible or intelligible without the use of intermediary apparatus.

19. Punched cards and tapes together with microfilms and cards also belong to the category of external stores in its wider sense. Texts stored in this way can again be fed into the machine in the way described above (paras. 13 to 15). But they can also be used without making use of the computer.

(c) Output

20. During the output process, the stored information in the form of electric signals reaches one or more terminals which convert the electric signals and make the information available to the user on appropriate information carriers. These information carriers are essentially the same as those used for data logging and input, that is, punched cards and tapes, paper and cathode-ray tubes. The corresponding terminal equipments are card or tape punch, high speed printers (thermal printers) and visual display devices, sometimes also teleprinters or plotters. But the various magnetic media, e. g., magnetic tapes or cards or discs could also be the output information carriers. All these can constitute input, storage and output media.

Which output process is used depends on the requirements of the user. Generally, the choice lies either between a printed output in clear text by means of high speed printers and teleprinters or the output in intangible form by means of visual display devices (especially cathode-ray tubes).

(d) Teleprocessing [13]

21. Much use is already made today of teleprocessing. Its importance will grow in the future particularly in large ISR systems. There are many possibilities for the application of teleprocessing, especially in the case of central information systems which are accessible over large distances by means of a plurality of outstations. Teleprocessing is based on the principle that the users are connected through remote terminals (e. g. cathode-ray tubes, teleprinters or any of the terminal equipments referred to in para. 20 above) to a computer system by appropriate transmission links (particularly post office telephone and telegraph lines) and can communicate with it directly (on-line) or by first switching on some peripheral apparatus (off-line).

[12] For the individual tasks of these stores, see Dworatschek, *op. cit.*, pp. 61 *et seq.*

[13] See Dworatschek, *op. cit.*, pp. 281 *et seq.*

III. The practical application of the systems

A. General survey

22. The field of application of ISR systems is extensive [14]. Documentation problems occur in many walks of life: the " information explosion " of our time is not restricted to particular areas of the natural, human or economic sciences or of cultural and economic life; it has taken place equally in all these fields of human endeavor and must be brought under control in a meaningful way. This is true above all in science and technology, the discoveries in which must, on the one hand be disseminated and on the other hand form the basis for every future development. In view of the problems arising from the flood of information, ISR systems appear as the appropriate and indispensable means of making information accessible in the most useful way.

23. For example, to mention only one of the most important fields of application [15], automatic ISR systems are used in libraries for the compilation of catalogues, registers, etc., but also and especially for making information accessible to the library user. In the forefront of all the effort being devoted to ISR systems today is their use in solving the many documentation problems [16], especially in the technical and legal fields. The efficiency of patent offices, of industrial patent departments and of the many commercial patent services depends largely on reliable patent documentation, with the help of which the relevant state of the art can be reliably determined. A prerequisite for legal decisions of even quality is that it should be possible to find the respective relevant laws and precedents as well as the legal literature as quickly and completely as possible. These aims can best be realized by means of comprehensive ISR systems. ISR systems will, in any case, in the future play an important part also in education, where they will be able to be used for the dissemination of information and particularly for programmed instruction [17]. Finally, their use in the literary sciences, already referred to repeatedly, must be mentioned again [18]. Here ISR systems are used for linguistic, syntactic or semantic analyses of literary texts. The translation of texts (at least those which are largely " formalized ", particularly technical or scientific texts) by using data processing installations will become of increasing importance.

24. The enumeration of these possible applications [19] is only illustrative (representative specific projects in these fields are described in paras. 30 to 40 below). It is not possible to give a complete list of all completed and planned ISR systems. By far the greater part of the information available to us concerns projects in the legal field, whereas there is relatively little information about the use of ISR systems in technology, natural sciences or the humanities or in other fields. As regards industry, where it can be assumed that internal information and documentation systems are in extensive use, reports are seldom published and, if they are, mostly give little specific detail [20].

25. Some isolated statistics for the U. S. A. can be taken from the study of the Federal Council for Science and Technology [21] published in 1967. In this study, there are reports of 102 separate research projects concerned with abstracts or index methods; of a further 126 research projects concerned with new forms of information retrieval; and finally of 56 projects concerned with the analysis and utilization of information. The inquiry initiated by Senator McClellan about the extent of the use of automatic data processing installations for the storage and retrieval of texts, which was carried out in a number of American universities and in some government agencies, must be mentioned as an important special study and its principal findings are described below (paras. 27 and 28).

26. As regards, in particular, the storage and retrieval of material protected by copyright, on the basis of our information the number of relevant cases, while increasing, is not great at present, as has already been brought out in the Introduction. This is not only emphasized in the literature [22] but also by distinguished experts [23]. First, it arises from the fact that those ISR systems which operate on extensive texts, that is full texts or abstracts, are still in the minority; and further, for the reason that the stored texts are often not protected by copyright (e. g. texts of laws, official headnotes of court decisions and other official publications as, for example, patent specifications). The high cost associated with the storage of extensive text material today still forms a certain barrier to the realization of comprehensive full text or abstracts systems.

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[14] See, for example, Nimmer, *Project*, pp. 976 *et seq.*

[15] For a comprehensive presentation and review of the present state of the art, see Haft, *op. cit.*, pp. 121 *et seq.* (legal ISR systems); " The Copyright Law as it Relates to National Information Systems and National Programs. A Study ", Federal Council for Science and Technology — Committee on Scientific and Technical Information — Washington, D.C., pp. 8 *et seq.* (1967) (general ISR systems); and Fraenkel, *op. cit.*, pp. 141 *et seq.*, 150 *et seq.* (legal ISR systems and projects).

[16] See, for example, " Verwendung elektronischer Rechenmaschinen hei der Chemie-Dokumentation ", by Möhring, in Ullman's *Enzyklopädie der technischen Chemie*, 3rd Ed., Vol. 2/2, pp. 517 *et seq.* (1968).

[17] See, for example, " Computer — Supplemented Latin Instruction at Dartmouth College ", hy Waite, in 4 *Computers and the Humanities*, pp. 313 *et seq.* (1970).

[18] See Nimmer, *Project*, pp. 976 *et seq.*

[19] There is a comprehensive summary of the present state of the art in the application of automatic ISR systems to the humanities and the arts in the journal *Computers and the Humanities*, Vol. 1, pp. 178 *et seq.* (1967); Vol. 2, pp. 71 *et seq.*, 223 (1968); Vol. 3, pp. 105 *et seq.*, 280 *et seq.* (1969); Vol. 4, pp. 125 *et seq.*, 323 *et seq.* (1970). The aims of, and the methods and computer types nsed in, the individual projects are hriefly described. See also *Current Research and Development in Scientific Documentation*, No. 13, National Science Foundation 1969, pp. 283 *et seq.*, where are reported 94 different projects of more or less computer-aided ISR systems.

[20] There is a report hy Cunningham ahout an IBM scientific-technical information system in " Information Retrieval and the Copyright Law ", 14 *Bull. Cr. Soc.*, pp. 24 *et seq.* (1966). According to this report, ahstracts of a numher of scientific and technical journals prepared hy the authors of the articles concerned were stored with the permission of the puhlishers, and printed out periodically as hihliographies or in response to a specific search request.

[21] " The Copyright Law as it Relates to National Information Systems and National Programs ", *op. cit.*, p. 9.

[22] See, for example, Nimmer, *Project*, p. 975, also the results of the McClellan inquiry.

[23] According to Dan Lacy, McGraw-Hill, Inc., were asked for the grant of a license in one important case only. Permission was requested to store some formulae from a technical handhook puhlished hy McGraw-Hill. Use was allowed on payment of a royalty which was calculated as a percentage of the income from this service. Apart from this, less than ten requests have heen received for permission for the storage in computers of material protected hy copyright. These requests mainly concerned experimental projects and permission was granted free of charge, except in a few cases that were too indeterminate.

It should, nevertheless, he noted that an action concerning alleged infringement of copyright hy the storage of material protected hy copyright has already heen hrought hefore the U. S. District Court for the Southern District of New York (*West Publishing Corp.* v. *Law Research Science Inc.*) see *APLA Bull.* 1969, p. 469.

B. The outcome of the McClellan inquiry

27. The inquiry carried out in numerous universities and government agencies at the instance of Senator McClellan, Chairman of the Subcommittee on Patents, Trademarks and Copyrights of the Committee on the Judiciary, originated from the Subcommittee's studies on the reform of American copyright law, the subject of which at the start also included the use of data processing equipment for the storage of material protected by copyright. The replies to this inquiry were analyzed by the U.S. Copyright Office and the results published in January 1969. The outcome of the inquiry is a first representative survey of the activity and attitude of an important user group in the field of ISR systems which allows conclusions to be drawn for the situation as a whole; the results of the inquiry most important to the subject of the present study will therefore be described briefly.

(a) Universities

28. Of those universities circulated, fifty American and three Canadian universities replied. A quarter stated that they did not concern themselves at all with the storage of text material. Only somewhat less than a third (17) of these universities stated that they used complete texts for this purpose. The remainder of the universities stated that they used no, or very little, material protected by copyright and/or abstracts in the form of texts, whereby no clear distinction was always made between abstracts and complete texts. Altogether about ten universities stated that their systems or projects were at the stage of practical application and not only at the experimental stage.

It can nevertheless be inferred from the replies from these universities that they do store text material in computers, sometimes a considerable amount, for a variety of purposes. Stored are, for example, early Spanish and Greek dramas, articles from daily papers, scientific and technical journals, chemical abstracts, whole encyclopaedias (the McGraw-Hill encyclopaedia in the computer center of Pittsburgh University), excerpts from text books and other works as well as official publications. The sources used most are journals dealing with natural science, technology and general scientific subjects, but text books and other works are also used. Literary works were not mentioned except in one case (the University of Calgary, Spanish and Greek dramas). In so far as abstracts are stored there is also no information whether these are of original texts or of adaptations by others. The statements about the extent of the use of material protected by copyright vary from " none at all " to " an appreciable amount ".

The various applications of individual ISR systems were given as follows: research and experimental purposes, the classification and indexing of documents, communication between libraries, automation of libraries, teaching purposes, dissemination of information and the reduction of capacity needed for the filing of documents. The users of ISR systems are usually the university staff, students and libraries, more rarely those people or institutions not connected closely with the universities. Connections to other ISR systems were mentioned in seven cases. About twenty universities declared their intention of extending their ISR systems or of undertaking new projects within the next three years.

Apart from a few exceptions, the universities questioned did not think it necessary to ask for permission for the use of material protected by copyright, either because they relied on " fair use " or because they saw no infringement of copyright in the storage of texts in bibliographic or abstract form. In one case a license requested was refused on principle (Grand Valley State College). Only about six universities stated that their ISR systems were, or at least could be, hampered by copyright restrictions. Against this, twenty-eight universities declared that even the complete lifting of copyright restrictions would have no effect whatever. The great majority of universities were silent as to whether an unrestricted application of copyright law would affect their projects or denied that this would have any effect. The remainder of the universities were apprehensive about the consequences and opposed such a restriction for a variety of reasons.

Eighteen universities objected to a system under which they would be obliged to report the use in ISR systems of material protected by copyright to individual copyright owners or to a central agency. But six of these had less reservations about reporting to a central agency. These eighteen universities also foresaw serious problems arising from the necessity of having to abandon the storage of protected material in the event of a refusal by the author.

Sixteen universities were opposed to being made liable to pay license fees to individual copyright owners or to a central agency. If this were necessary at all, some would prefer payment to a central agency. Seven universities had no objection in principle to such an arrangement.

(b) Government agencies

29. Altogether twelve agencies were questioned (including the Department of Commerce, the Atomic Energy Commission as well as various offices of the Department of Defense). All of them stated that they stored no, or hardly any, complete texts or material protected by copyright (and in that case only with the agreement of the person entitled to the copyright [24]); bibliographic data, indexes, etc., and above all abstracts constitute the material which is predominately fed into computers. Journals dealing with the natural sciences and technology, private research reports and theses are used as sources of information in addition to the predominating use of official publications for this purpose. The purpose of all these ISR systems (of which over half are at the stage of practical application) is to make the appropriate information available and readily accessible. The users are primarily members of government agencies; however they are not necessarily restricted to this class of persons, but could be other groups depending on the circumstances of each case, such as organizations which have a contractual relationship and scientists interested in the subject. The extension of these systems and the development of new ones is planned. All agencies — with one exception — explained that their projects would not be

[24] According to Nimmer, *Project*, p. 993, the Department of Defense asked the Society of Photographic Scientists and Engineers for permission to store their scientific/technical abstracts.

hindered by copyright considerations, since only a very small amount of material protected by copyright was used. No real importance was attached either to a complete lifting or to a general imposition of copyright restrictions. On the other hand, the offices of the Department of Defense would regard it as a great (and expensive) burden to have to report on the use of works protected by copyright (especially to individual copyright owners) or to pay license fees.

C. Important individual projects

As an indication of the present situation we follow with a review of important individual projects which have come to our notice and we distinguish between full text, abstracts and index systems.

(a) Full text systems

30. *The University of Pittsburgh Health Law Center* [25]

A pioneering achievement in the field of automatic ISR systems is the one developed and still operated today at the Health Law Center of the University of Pittsburgh under the leadership of John F. Horty which has formed the basis for many other ISR systems [26]. In order to find the relevant health legislation of the State of Pennsylvania quickly and reliably, the entire text of all the laws (31,000) of this State was stored on punched cards in machine-readable form at the end of the 1950's and each section was allocated a certain address. During storage a list of every word used was compiled automatically by means of suitable programs, with the exception only of so-called "common words". This reduced list of words forms the basis for the search. All words remaining on the list were put into alphabetical order and automatically given the appropriate addresses of the collection of laws (according to section, position of the sentence and of the word). The search was made by means of a regular combination of descriptors from the word list. Either the sources or the text of the appropriate parts of the laws were printed out as the result of the search. The results of the work by Horty have been exploited commercially [27] to a considerable degree by the Aspen Systems Corporation of Pittsburgh which has been formed in the meantime and whose president Horty is. The original process has been developed and improved. According to Haft [28] the laws of all the American States have since been covered; they are constantly kept up-to-date. The input of the text is now effected by an optical character reader, the output is obtained by a modern optical printing process. The company periodically issues an "Automated Statutory Reporter" which contains all the words occurring in the stored laws in a certain context in alphabetical order. The Aspen project can be said to be the largest automated legal documentation project in the world today.

31. *LITE* [29]

The LITE project (Legal Information Thru Electronics) of the American Air Force (Air Force Accounting and Finance Center) is also based on the Pittsburgh model, and was started in 1962. The full text of the legal sources important to the Air Force is stored, for example all the U.S. Federal Laws (United States Code), the decisions of the Controller General of the United States and of the Court of Military Appeals as well as regulations, service instructions and the like. The storage and retrieval methods used closely follow the Horty method. The automatic compilation of a KWIC Index could be said to constitute a further development.

32. *UNIDATA* [30]

Commercial UNIDATA A. G. of Zurich has started a relatively new project. Its aim is the recording of Swiss law in an automated ISR system. So far, substantial parts of Swiss commercial law (particularly company law) have been stored in a state of considerable completeness. Not only texts of laws and court decisions were recorded but also important legal sources, such as text books and commentaries, that is, material protected by copyright. The complete wording of all the documents was recorded according to the "document field method" [31] where each document is represented as a vector and stored. The search is made by the user expressing his problem in the form of the largest possible number of words (or expressions) of his choice. The problem formulated in this way is again represented as a vector which is compared with the vectors of the stored documents. Those documents, whose vectors correspond with the vector representing the problem, are made available to the user, who can then evaluate the information which has been fed out and, if need be, change, supplement, or reformulate the question. The process is interactive; it is particularly suitable for direct user/machine dialogue and requires this regularly since the success of the search does not depend on the correct choice of preselected descriptors but only on the reaction of the user.

33. *ABF - IBM* [32]

Finally, mention must be made of the ISR system which has been developed by the American Bar Foundation in conjunction with IBM and which was completed in 1965. This

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[25] See "Use of the Computer in Statutory Research and the Legislative Process", hy Horty, in *Computers and the Law*, 2nd Ed. (1969), pp. 53 *et seq.*; Haft *op. cit.*, pp. 133 *et seq.*; "The Compnter and the Legal Profession", by Hamilton, 3 *Law and Computer Technology*, March 1970, pp. 58, 61 *et seq.*; Fraenkel, *op. cit.*, pp. 142 *et seq.*, 150 *et seq.*

[26] See the references in Haft, *op. cit.*, pp. 141 *et seq.*; according to Horty, *op. cit.*, p. 54, this system is usued hy the administrations of eight states. According to Hamilton, *op. cit.*, p. 64, more than thirty states have, in the meanwhile, introduced automated searching of national legislation. 3 *Law and Computer Technology*, July/August 1970, reports exclusively on the use of data processing systems in the legal field in a total of eighteen countries.

[27] See the report in *Juristische Arbeitsblätter* 1969, pp. 640 *et seq.*

[28] *Op. cit.*, p. 140.

[29] See LITE, General System Description, Air Force Accounting and Finance Center, Denver 1967; Haft, *op. cit.*, pp. 142 *et seq.*; "LITE — Legal Information Thru Electronics", by Bigelow, 8 *Jurimetrics Journal*, pp. 83 *et seq.* (1966); see 9 *Jurimetrics Journal*, pp. 39 *et seq.* (1968) for the position in 1968 regarding the storage of legal sonrces.

In addition, the Canadian project "DATUM" (Documentation Automatique des Textes juridiqnes de l'Université de Montréal) shonld he mentioned here; the complete text of most of the important pnblished decisions of the Canadian Courts are recorded and stored at the Faculty of Law of the University of Montreal; interrogation is carried out by means of descriptors from a list of words; see "Le Projet DATUM" by Boucher, in 1 *Information Science in Canada*, No. 1, p. 17 (1970).

[30] See Haft, *op. cit.*, pp. 172 *et seq.*

[31] This is based on the principles of vector analysis; for a detailed account, see Haft, *op. cit.*, pp. 172 *et seq.*

[32] *Haft, op. cit.*, pp. 157 *et seq.*; Hamilton, *op. cit.*, pp. 63 *et seq.*

system was based on an " associative " statistical process which was first tested on a few thousand legal decisions in the *North Eastern Reporter*. All the decisions were fed into the computer in full text form and automatically evaluated and analyzed by means of appropriate programs. Certain words were first entirely eliminated and the remaining ones classified into important (informative) and unimportant ones depending on the number of times they occurred. The unimportant ones were then also discarded. The associative factor of the informative key words with every other informative key word in the same document was then determined. In this way a Thesaurus was compiled which listed the associative key words and the degree of association. In making a search the " informative " words were automatically selected from the search question and the key words associated with them determined. In this way the relevant documents were found; first the informative key words only were printed out which often gave the user sufficient indication of the worth of the document as a source of information. The question could be modified according to the result of the search, or the full text of the documents found printed out.

(b) Abstracts systems

34. *Corte di Cassazione* [33]

At the highest Italian court the complete texts [34] of the official headnotes *(massime)* of the decisions of the Corte — prepared by a specially constituted panel of judges — have for some time been stored in an electronic data processing system. During storage the headnotes are automatically analyzed on the basis of a manually prepared Thesaurus and the appropriate descriptors allocated to each document. Interrogation is also carried out with these descriptors (if need be with a combination of logically connected descriptors) by using a comparison method. At the 48th Deutschen Juristentag this process was successfully demonstrated with the assistance of teleprocessing equipment. The search question was keyed into the control console of a visual display unit used as combined input/output unit, and transmitted to the central computer in Rome over post office lines. The headnotes found in this way could then be read from a screen.

35. *Law Research Service, Inc.* [35]

A further commercial organization which is engaged in automatic legal documentation and research is Law Research Service, Inc., New York. The organization works partly on an index and partly on an abstracts basis. *Inter alia*, headnotes of the court decisions published by the West Publishing Co. were included in the matter stored [36]. West Publishing has for this reason brought an action, based on their copyright in the headnotes, against the organization in the U. S. District Court for the Southern District of New York [37]. This is the first action to have been brought concerning copyright questions in relation to automatic ISR systems.

At Law Research Service the search for stored information is made with the help of lists of descriptors which are available to the user and make it possible for him to frame his own questions. The full text of the documents is held on microfilm of which the user can obtain copies.

36. *ICIREPAT* [38]

Probably the most significant project today in the field of the mechanized documentation of technical information is the work of the Paris Union Committee for International Cooperation in Information Retrieval Among Patent Offices. This Committee, to which belong nearly all the large Patent Offices of the world, is supported by WIPO and has the aim of automating and unifying patent documentation [39] and classifying it according to subject by means of electronic data processing equipment. A number of technical committees have been formed for this purpose which are working on the different aspects of mechanization. At the present stage, which is largely still one of development, patent specifications from different technical fields are analyzed by the operating staff, or to some extent already automatically, with the help of a term list prepared by hand, and the specifications stored in the form of abstracts. The search is made with descriptors which are taken from the term list. When, and in what form, an operational patent documentation system will be available cannot yet be foreseen. In any case, at a later stage, other technical information, such as research reports, papers, etc., could also be included in addition to patent specifications. Finally, it must be mentioned that industry, particularly the data processing industry, is collaborating in the work of ICIREPAT. It can be assumed from this that especially those industrial organizations working with index or abstracts systems have already developed operational documentation systems. Whether, or the extent to which, use is made of material protected by copyright cannot, however, be determined.

(c) Index systems

37. Since for the purpose of the present study, the purely index types of system are of less importance, only MARC and CREDOC will be described briefly as representative of this group [40].

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[33] See Haft, *op. cit.*, pp. 132 *et seq.* A condensed description of the system is given by Borruso in *Das automatische Klassifizierungs- und Recherchesystem juridischer Dokumente am Corte Suprema di Cassazione in Rom*, pamphlet by Univac, Germany (no date given); see also *Sistema di ricerca elettronica della giurisprudenza. Descrizione ed esperimenti*, by Laporta and others, Rome 1969.

[34] To this extent it is a full text system. But it has been included under the abstracts systems because the headnotes are abstracts of the complete court decisions.

[35] See Haft, *op. cit.*, pp. 168 *et seq.*; Nimmer, *Project*, p. 993.

[36] Information from the U. S. Copyright Office, October 30, 1970.

[37] See footnote [23] above.

[38] For a detailed description see " Information Retrieval among Patent Offices — Tokyo Meeting of the Committee for International Cooperation in Information Retrieval Among Patent Offices, ICIREPAT ", BIRPI Geneva, 1969; see also the reports of the 12th Annual Conference of the " Ausschuss für Patentdokumentation ", Deutsche Gesellschaft für Dokumentation e. V., Munich 1970.

[39] Among the considerable amount of literature about patent documentation see the references in " Literaturbericht und kritische Bibliographie zum Schrifttum der Patentdokumentation V ", by Siegel, *Nachr. Dok.* 1970, pp. 208 *et seq.*

[40] See for other index systems, for example, " Copyright Law Revision, Hearings before Subcommittee No. 3 of the Committee on the Judiciary ". H. R. 4347, 89th Congress, 1st Session (1965), p. 1427 (statement of Bella L. Linden).

The Centre de documentation juridique in Brussels (CREDOC) has developed a partly automated retrieval system as a private venture,[41] in which all the documents covered (court decisions, laws, treatises, commentaries and text books) are analyzed and classified by legally qualified staff according to a Thesaurus compiled by hand. The descriptors obtained in this way are stored together with a code number which identifies the source document. The search is made by feeding in predetermined descriptors taken from the Thesaurus; the results of the search are the references of the relevant documents. Consideration has been given to the later conversion of the system to the storage of full texts.

The MARC project (Machine Readable Cataloguing)[42] of the Library of Congress is based on a similar principle, and has been followed by a numher of other libraries. All bibliographic data of the library stock was put on magnetic tape. The system is used primarily for cataloguing and the compilation of bibliographies for different subjects; but isolated searches can also be made. The magnetic tapes are exchanged with those of other libraries.

D. Summary and prospects

38. The present position can be summarized as follows: a very important application of ISR systems is that of making scientific/technical information accessible for documentation purposes. There is no evidence available that works of fiction, poetry, drama, etc., or light literary works are being stored in computers, except for the purposes of literary research. Especially in libraries, those wanting information are, as before, being provided with material copied in the conventional way such as hooks, journals, photocopies, etc. In this area computers are only used to make the original sources of information accessible and for the preparation of catalogues and bibliographies.

39. As regards the group of users, membership of this can be restricted or unrestricted; often the systems are only accessible to persons who have a close connection with the organization supporting the system (for example, members of firms or universities). The situation is different in the case of the already fairly numerous commercial organizations whose " data banks " are usually made accessihle against payment to an unspecified set of people. Widely ramified ISR systems with a central electronic installation and with a large number of remote terminals do not yet appear to exist to any significant degree.

40. The opinion is expressed almost unanimously[43] today that ISR systems will, in future, become of outstanding importance and that material protected by copyright will be stored to an increasing extent. This is likely to be particularly true of the scientific/technical area which is almost dependent on operational ISR systems[44].

Central data banks dealing with specific subjects are being built up, where the information stored in each can be obtained from a number of remote terminals. A central documentation system, in which the information can be obtained directly without using a further, possibly remote, source of information, seems realizable in the near future. Whether and to what extent this development will also cover works of fiction, poetry or light literary works, cannot yet be foreseen. Further development will depend on a number of factors. The question of cost is especially important, the cheaper and the more reliable the installations which are developed are, the greater the likelihood that even long texts in unabridged form will be stored in, and again made available by, ISR systems.

CHAPTER 2

Basic considerations of copyright control

I. Introductory remarks

41. Assessment of the copyright position in computer storage and retrieval involves consideration of a number of points. First, there is the question of whether the material being stored and retrieved is protected by copyright which necessitates careful consideration, particularly in the case of abstracts. Then of particular importance is the question of whether the input as well as the output is subject to control by the copyright owner or only the output. In connection with this question it must be considered whether there should be exceptions to copyright protection in certain cases and whether — as advanced by some experts — compulsory licenses should be introduced and the extent to which such exceptions and compulsory licenses can he made consistent with the provisions of the conventions. Finally, the *droit moral* must be taken into account in view of the fact that also the non-economic interests of the author can be infringed by the computer use of protected works, especially his interest in a mention of the author's name and in the avoidance of distortions in, and mutilation of, his work.

42. A legal assessment of the questions which arise, especially in connection with the provisions of the Berne Convention and the UCC, will he made in the next chapter.

In view of the novel character of the problems concerned a fundamental examination should first he made of how legal protection should be appropriately developed. This examination must he centered on consideration of where copyright control should start and of how material protected by copyright can be made more accessible.

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41 See *Le CREDOC, description du système et réalisations actuelles*, Brussels 1969; Haft, *op. cit.*, p. 125.

42 See " Automation and the Library of Congress ", by Reimers and Avram, *Datamation*, June 1970, Washington, D. C.; *MARC Development*, by Reimers, Washington, D. C., Library of Congress 1970.

43 See, as representative of many, Nimmer, *Project*, p. 995; " The Copyright Law as it Relates to National Information Systems and National Programs " (cited in footnote 15 ahove), p. 9.

44 An inquiry in industry about documentation showed that 102 firms want to convert their documentation systems to electronic data processing; see " Stand und Entwicklungstendenzen der Industriedokumentation ", by Marloth, *Nachr. Dok.* 1970, pp. 187, 193. Arntz examines comprehensively the future role of scientific publications in " Die Zukunft des wissenschaftlichen Buches ", in *Das wissenschaftliche Buch*, published hy Meyer-Dohm and Strauss, Hamburg 1969 (Schriften zur Buchmarktforschung 16), pp. 137 *et seq.*

II. The starting-point of control

43. It is of crucial importance for the control of the use in ISR systems of material protected by copyright whether the permission of the copyright owner is already necessary for the input or only for the output.

This question has, so far, been debated most exhaustively in the U. S. A. We therefore first review the legal position in the U. S. A. in order subsequently to analyze critically the arguments which are advanced both for and against the control of the input.

A. Legal position in the United States

44. From existing law there is no doubt that — subject to exceptions falling within the criterion of " fair use " — under U. S. copyright law the output, at least the output in the form of a print-out, represents an infringement of copyright. It falls directly within the provision of Section 1 *(a)* of the Copyright Act of March 14, 1909 (in the version dated July 30, 1947), according to which the copyright owner has the exclusive right " to print, reprint, publish, copy, and vend the copyrighted work ".

45. It is, however, debatable whether, and in what circumstances, the input constitutes an infringement of copyright and therefore needs the agreement of the copyright owner. This depends on the interpretation of the legal term " copy ". An important precedent is the decision of the Supreme Court of 1908 in the case of *White-Smith Music Publ. Co.* v. *Apollo Co.*[45]. This concerned the manufacture of perforated music rolls for the operation of automatic pianos. The Supreme Court held that these rolls were not copies within the meaning of the Copyright Act. It was a telling argument for this decision that piano rolls are not duplicates of the copyrighted sheet music and that when played they produce sounds but not readable material. It was also emphasized that the piano rolls are to be regarded as parts of the machines, that is, of the automatic pianos which reproduce the sounds. Accordingly, the majority opinion of the Supreme Court defined the term " copy " within the meaning of the Copyright Act as reproduction or duplication of the original work, " a written or printed record in intelligible notation ". This definition proved decisive for the fact that phonorecords and, in particular, gramophone records, are not regarded as copies[46].

46. Starting from this definition, it could be assumed that information carriers such as punched cards and tapes, which are directly intelligible to the expert, can be regarded as copies but that magnetic cards and tapes or the material fixation which takes place in the computer itself cannot be so regarded. In fact this is the opinion expressed in some of the literature[47]. But the weight of the opinion in the literature expresses the view that the Apollo decision can have no bearing on the case of a computer input[48].

The argument is put forward, among others, that it can be deduced from the reasons for revision of the Copyright Act in 1909 that the application of the Apollo doctrine should remain restricted to cases involving musical reproduction[49]. Moreover, it is suggested that a distinction must be made between the fixation of protected works on information carrying media such as magnetic tapes or cards or in the computer itself, and piano rolls and records which produce sounds, on the grounds that copies of the original can be made by means of the computer[50]. Following this line of thought the explanation given for the decision in 1964 by the Copyright Office to allow the registration of computer programs points out that the information carriers are readable and therefore copies in so far as the computer can print out a readable duplicate[51].

There are, so far, no court decisions on these questions. Although an action on the point[52] has been brought before the District Court for the Southern District of New York a decision on this case is still pending.

47. Apart from this assessment of existing law, the question was also examined during the debates on the reform of U.S. copyright law and was discussed in the hearings which were held before both Houses of Congress.

Barbara Ringer reports on the progress of reform in her treatise " Copyright Law Revision: History and Prospects "[53]. Landmarks, as she points out, are the 1961 Report of the Register of Copyrights on the General Revision of the U. S. Copyright Law as well as the draft Bills which were introduced in Congress in 1964, 1965 and 1967. The House of Representatives passed the text of a new Copyright Law on April 11, 1967, which, however, did not get through the Senate of the 90th Congress.

48. The suggestion was made in the further course of the work on reform that the problems arising from modern technology should first be examined by a special commission, and this suggestion became of particular importance. On the basis of this suggestion, first made by Senator McClellan in August 1967, a Part II was added to the Copyright Bill when it was again introduced in the Senate in 1969 proposing the creation in the Library of Congress of a National Commission on New Technological Uses of Copyrighted Works.

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45 209 U. S. 1 (1908).

46 *Capitol Records, Inc.* v. *Mercury Records Corp.*, 221 F 2d 657, 105 USPQ 163 (2nd Cir. 1955).

47 " Copyrigbt Infringements by Literature Storage and Retrieval Systems " by Crisman, 11 *IDEA*, pp. 221, 227/8 (1967); " Copyrigbt Infringement by Computer ", by Lawlor, in *Computers and the Law*, 2nd Ed., Chicago 1969, pp. 161, 163; " Implication of Electronic Data Processing ", by Goldberg, 8 *IDEA* (Conf. No.), pp. 183, 188 (1964).

48 See, for example, " Copyright Protection for Computer Programs", by Banzhaf, 14 *ASCAP Copr. L. Symp.*, pp. 118, 162 (1966); " Computers and the Copyright Bill ", by Kaplan and Miller, 2 *EDUCOM* 3 (April 1967); " Copyright Registration and Computer Programs ", by Cary, 11 *Bull. Cr. Soc.*, pp. 362, 364 (1964); " Computer, Copyrights and the Law Prior to Revision ", by Greenbaum, 15 *Bull. Cr. Soc.*, pp. 164, 166 (1968); " The Computer and Copyrigbt: The Next Five Years ", by Lieb, 15 *Bull. Cr. Soc.*, pp. 13, 15 (1967); Nimmer, *Project*, p. 1006.

49 So states *Nimmer on Copyright*, para. 25.3 (1968).

50 See Nimmer, *op. cit.*, p. 1006; Greenbaum, *op. cit.*, p. 167; Cary, *op. cit.*, p. 364.

51 Cary, *op. cit.*, p. 364.

52 *West Publishing Co.* v. *Law Research Services Inc.*; see also *APLA Bull.* 1969, p. 464.

53 *Congressional Records*, Vol. 114 (1968), No. 102, pp. 2 *et seq.*

The task of the Commission was defined as follows:

> . . . to study and compile data on:
> (1) the reproduction and use of copyrighted works of authorship —
> *(a)* in conjunction with automatic systems capable of storing, processing, retrieving, and transferring information, and
> *(b)* by various forms of machine reproduction, not including reproduction by or at the request of instructors for use in face-to-face teaching activities; and
> (2) the creation of new works by the application or intervention of such automatic systems or machine reproduction.

The draft further states:

> The Commission shall make recommendations as to such changes in copyright law or procedures that may be necessary to assure for such purposes access to copyrighted works, and to provide recognition of the right of copyright owners.

The Commission is to present its final report within three years of the effective date of the new Copyright Act.

The draft of 1969 also states that the provisions of the new Copyright Act shall not be applicable " ...with respect to the use of the work in conjunction with automatic systems capable of storing, processing, retrieving, or transferring information, or in conjunction with any similar device, machine or process . . ."; rather, the existing legal position shall continue to apply to these cases for the time being.

49. Since the law has not yet been passed, the National Commission has not yet been set up.

In the present state of affairs, therefore, no early enactment can be expected of provisions regarding computer storage and retrieval of protected works. Not only is it doubtful whether the reform of copyright law will be completed in the way envisaged at present; even if it is, it must be assumed that the relevant problems will be left out and reserved for special examination by a commission.

Nevertheless, it seems advisable to refer to those specific provisions of the draft the application of which to computer questions would be of particular importance. Since, during the work on the legislation, such application was originally envisaged — before the suggestion was made to set up the National Commission — the Bill does contain a provisional view on the extent to which the input and output should be under the control of copyright owners.

50. As regards the input, the definition of the term " copy " in Section 101 of the Bill is important. This Section states:

> Copies are material objects, other than phonorecords, in which a work is fixed by any method now known or later developed, and from which the work can be perceived, reproduced or otherwise communicated either directly or with the aid of a machine or device.

The question in dispute, namely, whether, in view of the Apollo decision, the term " copy " must generally remain restricted to " written or printed records in an intelligible form " or whether only phonorecords should be excluded from the term " copy " is answered in the latter sense. In principle, the consequence of the application of this provision to computer storage and retrieval of protected works would be that the input would be under the control of the copyright owner — subject to the limits imposed by the doctrine of fair use.

Section 101 of the Bill imposes a slight restriction on the definition of the term " fixed ". It is stated there:

> A work is " fixed " in a tangible medium of expression when its embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration.

According to this a transitory fixation in the computer does not fall within the term " copy ". In practice this covers those situations which can arise in data processing in its narrower sense. The function of information storage and retrieval systems, however, presupposes longer and more stable fixation.

51. With reference to the output, it is of importance whether the control of the copyright owner extends to an output in the form of visual images on a screen or cathode-ray tube as well as, as it clearly does, to an output in the form of a hard copy print-out. The essential point here is that Section 106(5) of the Bill provides for the right of the copyright owner " to display the copyrighted work publicly " " in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works ". It emerges from the provision in Section 101 concerned with the term " publicly " that it does not matter whether " the members of the public capable of receiving the display receive it in the same place or in separate places and at the same time or at different times ". It is also immaterial that the work is made accessible to one person at a time; it is sufficient that the work is, in this way, made accessible on request to a number of persons.

B. Fundamental considerations regarding the control of input and output

52. At the international level, in so far as the control of the input is concerned, the problem is whether the input is a reproduction in the sense both of Article 9 (1) of the Stockholm and Paris Acts of the Berne Convention and of Article IV[bis], para. 1, of the revised UCC. This is considered in detail in paras. 67 *et seq.* below.

First, however, it is desirable, by analysis of the opinions expressed [54], to examine the fundamental question of whether it would be appropriate that control should start with the input or whether only at the output stage.

53. The following arguments are advanced for the view that control should only begin at the output:

It is often difficult to determine the names and addresses of the individual copyright owners. Input should be allowed without their permission if only in order to save time. It would be sufficient to secure permission before the output. It would also seem appropriate that no permission need be sought when, because of lack of demands there is no output of the stored material.

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[54] See especially Nimmer, *Project*, pp. 1010 *et seq.*; Statement of Bella L. Linden in H. R. 4347, submitted on behalf of the American Text Book Publishers Institute; Hattery and Busch in *Congressional Record.*, Vol. 114 (1968), No. 102, pp. 26 *et seq.*

The first point against this argument is that the control of the output is not, at present, completely covered by law. As will be shown in paras. 79 *et seq.* below, it can be said that the output in the form of a hard copy print-out is regarded as reproduction and therefore as an infringement of copyright. But an output where the material is made available to individuals in the form of visual images on a screen or tube is not regarded as an infringement of copyright either in the existing laws of the greater majority of States or in the law of the conventions.

But even if this loophole in national and international law can be closed in the course of time there remains the objection that it would not be practicable to require computer owners to ask for the copyright owners' permission before output: once storage has taken place it is particularly desirable that the output can take place without any delay. It would also be extremely uneconomic to store a work at the risk of the copyright owner not giving his agreement to its output.

It would be different if the request for permission — be it through the setting up of clearing-houses or the introduction of compulsory licenses — were to be facilitated and, in practice, reduced to an obligation to make a payment to the copyright owner. However, such measures would be suitable in the same way to facilitate the obtaining of the copyright owners' permission for the input. There can then be no argument that copyright control should begin only at the output stage because of the difficulty of finding the copyright owner.

The argument that there are cases where works are stored but that no output follows because of lack of demand is also not convincing. This is no different from the case where libraries acquire books which are hardly used by the library users. The library must, nevertheless, in paying for the book, also remunerate the copyright owner. Accordingly, it must in the same way be sufficient in the storage and retrieval of protected works by computer centers that the works are held in readiness for the users.

54. The question of the practicability of the actual exercise of control plays a not unimportant part in the discussion. This is particularly relevant since it is well known how difficult it is to control the making of photocopies.

Authors and publishers point out, in relation to the use in ISR systems of works protected by copyright, that the input could mostly be controlled without difficulty. The copyright owner could himself, or through a third party, make inquiries of the computer center about the work or parts of it and thereby easily establish whether there has been an input. The control of the output and especially of the number of times an output is obtained would be a much more difficult matter or even impossible to establish.

For the other point of view it has been stated that computer technology could itself without difficulty provide the means of registering each output. In the United States, Anthony G. Oettinger in particular pointed this out in his statement before the Senate Subcommittee on Patents, Trademarks and Copyrights [55]. This is undoubtedly a technical possibility. But whether it comes into operation depends on the willingness or otherwise of computer owners to make use of it.

As regards the possibility of controlling the input, the argument put forward by publishers and authors does fail in those cases where storage and retrieval is carried out in a concern or an organization for internal purposes only. There are then the same difficulties in the controlling of use as in the making of photocopies for internal use in a concern. It is, however, true that, where a larger number of people have access to the information stored in the computer, which are the cases of greatest interest, control of the input can be effected without much difficulty.

55. Finally, in considering where control should start, it is of importance that there is a large number of cases, where works protected by copyright are, in fact, stored, but where the output is not the work itself or any substantial parts of the work protected by copyright. In the discussions in the U. S. A. reference was made particularly to those cases where the output only reproduces fragments of, or information from, the content of the work which is allowable under the concept of " fair use ".

In forming a judgment on this question one must, in my opinion, distinguish as follows:

(a) At one extreme there are the cases of the so-called " one use " input. Storage only serves to provide answers to certain problems. To this category belong, in particular, those cases where computers are used for linguistic, syntactic or semantic analyses in the literary field. The purpose of these is to establish the vocabulary used in literary works, the frequency with which certain expressions occur, the importance of the words or word forms used, or to compile concordances which allow conclusions to be drawn about the identity of the author. Storage in these cases need only be transitory. Neither the work itself nor any parts of it protected by copyright appear in the output.

In these cases, national legislation must be left some latitude. It is a defensible point of view that the copyright owner suffers no unreasonable damage by such " one use " input and that the scientific purpose of the investigation justifies the free use of the input. On the other hand, there is the consideration that the input represents even in these cases an advantage to the computer owner at the copyright owner's expense. *Inter alia* it could be said that if the investigation was made without the assistance of the computer it would be necessary to buy a number of copies or to make reproductions of individual purchased copies in view of the number of staff who would have to be employed. Connected with these cases in some respects are those where the work protected by copyright is stored for the purpose of translation. Here too, a transitory storage of the original text is sufficient. The emphasis is on the translation which constitutes the output. In law, the print-out of the translation and the reproduction of such print-out is, in any case, an infringement of the copy-

[55] Hearings on S. 597 before the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, United States Senate (90th Congress, 1st Sess.), U. S. Gov. Printing Office, (1967), p. 585.

right in the original work. But here, too, it can be argued that control starting with the input represents a stronger protection for the copyright owner. From the point of view of international law, it would be desirable to allow national legislation some latitude in this matter also.

(b) Entirely different are those cases where storage is effected not, perhaps, for the reproduction of the full text or of any parts thereof protected by copyright, but for disseminating information contained in the work. Only individual passages, sentences, figures or formulas may appear in the output or the computer may have to indicate only " yes " or " no " in response to questions put to it.

On the assumption that only the output is subject to copyright control the copyright owner would then have no rights vis-à-vis the computer owner. But this result would be in clear conflict with the requirements of copyright protection. For example, an encyclopaedia, or a scientific or technical work could be stored in a computer center and the information referred to above could then be made available to the public at large. This storage, which could be effected by using a single copy, could replace the purchase of hundreds or thousands of copies by public or private libraries, who would otherwise acquire the work as a source of information for users. The loss thereby incurred by authors and publishers would necessarily require that, as compensation, they would have a claim against the computer center. But only the input can form the basis for such claims.

56. Consideration of the pros and cons, especially the aspect just mentioned, leads in my view to the conclusion that, on principle, control must begin with the input. That does not rule out exceptions in certain cases — among these the cases described in para. 55 *(a)* above. The question regarding the measures which could be taken to make it easier to obtain copyright owners' permission also remains to be resolved.

In practice, control of the input will make it possible to settle any questions concerning the output in the agreement between the copyright owner and the computer owner. A lump-sum agreement can be concluded, in so far as this is permitted by national laws, and it could, in particular, be agreed that the number of times the output is made available is registered and that payment is made in addition to, or in place of, payment for the input, the amount of such payment being determined by the volume of the output.

57. From the legal point of view the way in which the input is fed in must be immaterial. In particular, the control of the copyright owner must not be restricted to those cases where the input is fed in by means of punched cards, tapes, magnetic tapes or other special information carriers. On the contrary, those cases where the printed information is directly readable by the computer must also be taken into consideration. Storage in the computer, therefore, must itself be considered as relevant to copyright.

III. Facilitation of access to protected material

58. In a general assessment of the problems under consideration the interests of the computer users and of the public must be considered as well as those of the copyright owners. A just balance must be found between the conflicting interests. It is of importance, from the public interest point of view, that computer technology opens up the possibilities of documentation and retrieval of stored material, particularly of scientific and technical information, by up-to-date methods particularly suited to the ever-growing demand for information.

There is no doubt that the necessity of obtaining the agreement of the copyright owner in each individual case, even in the case of short papers or abstracts, makes the exploitation of the possibilities created by computer technology more difficult. It has also been pointed out on behalf of the computer users that there are cases where it is not possible to contact the copyright owner, for example, in cases of the kind where a newspaper publisher declares that the rights do not belong to him but to the author of the article in question and where inquiries about the author's address, or that of his heirs, run into difficulties.

In discussions, particularly in the U. S. A.[56], about the ways in which access to protected material could be facilitated, consideration has centered on the one hand on the setting up of clearing-houses and on the other on the introduction of compulsory licenses. So far only preliminary consideration has been given to the matter, no concrete or sufficiently well-worked out proposals have yet been put forward.

59. The idea of the setting up of clearing-houses was put forward because of the parallel with the collecting societies, especially with the fee-collecting societies in respect of musical and broadcasting rights. New methods would however have to be used in working out the details of any such arrangement. Consideration would have to be given not only to the delimitation of the repertory which is to be administered by the organization to be set up by the copyright owners, but also to the question whether the organization is itself to be entitled to enter into agreements with the computer owners, be they collective or individual ones, or whether it should only be empowered to act as an intermediary, to ensure rapid contact with the copyright owners, and to work out guide-lines for contracts. It is reasonable that distinctions should be made, for example, the organization might be entitled to conclude agreements in relation to certain types of article whereas it might only be able to act in an advisory capacity or as an intermediary in the case of larger works. In the U. S. A. the possibility of using the Copyright Office has been considered. Copyright owners would communicate to the Copyright Office the works in respect of which they would allow computer storage and retrieval. A control system would be introduced for works registered by the Copyright Office as the result of such communication, the system guaranteeing the payment of a certain remuneration dependent on the volume of the output[57].

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[56] See Nimmer, *Project*, pp. 1010 *et seq.*; H. R. 83, p. 25; " The Case for the Invisible Copies ", by Keplinger, *RIDA*, No. LXVI, pp. 3, 25 *et seq.* (1970).

[57] Interview with Norton Goodwin, Attorney Member of the Publications Board of the Society of Photographic Scientists and Engineers, referred to by Nimmer, *Project*, p. 1014.

60. While the establishment of clearing-houses would be on a voluntary basis, the introduction of legislation for compulsory licenses would make access to the protected material easier for computer owners.

Before the introduction of compulsory licenses a number of detailed points would have to be clarified. Presumably works of all kinds should not be included in such a provision but only specified groups of works or parts of works. Apart from this, it must be made clear regarding the conditions for a compulsory license whether it would be sufficient if the work was published in any form; or whether the license should be made dependent on the work having appeared in a machine-readable form; or whether it would be a condition for a license that the copyright owner had already allowed another computer owner the use of the work for computer storage and retrieval.

As regards the type of compulsory license, it would have to be decided whether it should be a statutory license which gives the computer owner a direct right to the use of a protected work against payment, or a compulsory license in the strict meaning of the word which only imposes an obligation on the copyright owner to grant a license. Finally, the question of payment would present particular difficulties. Should it be in the form of a lump sum payable on input? Or should it be calculated also (or exclusively) on the basis of the output?

61. Some experience must be gained before these questions can be answered.

Any legislative measures to facilitate access to protected material seem, in any case, to be premature. It will have to be seen what solutions are adopted on a voluntary basis by the interested parties. Agreements between copyright and computer owners are already in existence and their number is growing. Cooperation between the organizations representing the interested circles would be particularly desirable. These organizations could first prepare model agreements or guidelines for agreements between copyright and computer owners specifying, in particular, rules for carrying out the control and for assessment of the payments to be made. Apart from this, they could examine the possibility of the establishment of clearing-houses and the extent to which the agreements should be concluded individually on the copyright owners' part and how far global agreements could be made about a specific repertory.

The greater the success of these methods the greater the possibility of avoiding a system of compulsory licenses. Should introduction of such a system nevertheless prove necessary then it could be based on the agreements reached on a voluntary basis. If generally applicable solutions have been found by the interested parties, but individual copyright owners, the storage and retrieval of whose works in computer systems is of particular importance in the public interest, refuse to cooperate, this could be dealt with by compulsory licenses. The remuneration could also be modelled on the rates that are generally agreed upon in contracts.

CHAPTER 3

The legal position, in particular the rules of the conventions

I. Protected works. Parts of works and abstracts

62. The starting-point of the inquiry into copyright is the question of the extent to which the material which is stored is protected by copyright.

The Berne Convention provides that "literary and artistic works" are subject to copyright; they are described more closely in Article 2 of the Convention, which lists a series of examples. In the UCC (Article I), the Contracting States undertake to protect literary, scientific and artistic works. The inclusion of scientific works in the category of protected works in fact introduces no distinction; it is also made clear in Article 2(1) of the Berne Convention that the expression "literary and artistic works" includes every production in the literary, scientific and artistic domain. In national copyright laws also, scientific works are either expressly defined as protected or are included in the concept of a literary work.

63. Special provisions are usually made in national laws for official works such as laws, regulations and legal decisions. In view of the public interest in the dissemination of these works, there is, in a large number of countries, either no copyright protection for these works or, at any rate, copying and dissemination of them is permitted[58]. Other national laws, in particular the U. K. Copyright Act, start from the premise that copyright belongs to the Crown or the State, but this in turn waives its rights under the copyright law to a large extent where this is in the public interest[59]. The restriction of protection is expressly allowed under Article 2(4) of the Berne Convention (Stockholm and Paris Acts) where it is stated that:

> It shall be a matter for legislation in the countries of the Union to determine the protection to be granted to official texts of a legislative, administrative and legal nature, and to official translations of such texts.

There can be no doubt that such restrictions conform also with the rules of the UCC.

These exceptions are of particular importance for legal data banks. The storage and retrieval, particularly of laws, regulations and legal decisions is allowable to the extent that this is permitted by national legislation. The same is true for the officially prepared headnotes of legal decisions. But it must also be remembered in the case of legal data banks that not only legal textbooks, legal commentaries and treatises, etc., enjoy full copyright protection; also protected are the reports of cases which are published in journals and the like as well as privately prepared headnotes in so far as, by reason of the intellectual effort expended on them, they show the originality required for copyright protection.

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[58] See, for example, the copyright laws of Austria (Art. 7), Denmark (Art. 9), the Federal Republic of Germany (Art. 5), Italy (Art. 5), Japan (Art. 11), the Netherlands (Art. 11), Norway (Art. 9), Poland (Art. 5), Switzerland (Art. 23) and Czechoslovakia (Art. 2, para. 2).

[59] For the legal position in the U.S.A., see *Nimmer on Copyright*, para. 66.

64. In addition to the works as a whole, parts of works are also protected by copyright. This is true provided that the relevant part of the work is of sufficient substance and originality to satisfy the requirements of copyright protection. There are no specific provisions in this respect in the conventions. In most national laws the protection of parts of works is also regarded as self-evident. But there are also specific provisions, for example in the U. K. Copyright Act, where Section 49 states that copyright protection does not extend only to the work itself but also " to a substantial part thereof ".

65. No infringement of copyright arises from the use of information to identify the work, particularly for the purposes of indexing (see above, para. *9(a)*) of the usual information about the author, the title, the year of publication, the publisher, the place of publication, etc.

In general this can be seen from the fact that this sort of information is not a part of the work protected by copyright. This is, in principle, also true for titles. The title identifies the work. As such it is, if it is distinctive, protected in cases where confusion of the public is caused by the use of the same or a similar title for another work. Protection is afforded either under the rules against unfair competition or a passing-off action may be brought under common law [60].

In addition, however, it is an open question in some States whether, if the title is particularly original, it is not also protected by copyright. In some countries, for example in Germany, Austria and Switzerland, this is largely a theoretical problem. The possibility is not excluded that, in special cases, the title may be accorded copyright protection; but in practice the protection under the laws against unfair competition generally prevails. French law, however, goes further, in that there is legal provision for copyright protection of titles. According to the first paragraph of Article 5 of the Law on Literary and Artistic Property, the title of a work is protected by copyright, " dès lors qu'il présente un caractère original ". But copyright protection can be no bar to the entry of a title in a bibliographic card index or when used to index the work in information storage and retrieval systems. Rather, one must assume that on publication of the work the use of the title is permitted for these purposes.

There is also no bar in principle to the storage and retrieval of single key words. The question of copyright protection can only arise when it comes to the use of a number of individually worked out key words.

66. Finally, there is the question of whether, and when, there is an infringement of copyright in the use of abstracts. This question is of particular importance in the fields of technology, science and medicine where it becomes more and more common to store abstracts for the purpose of disseminating information both to experts and to the general public. In judging this question, it is important to distinguish between the following cases:

(a) The abstracts can be prepared by the author of the full text himself. This particularly concerns those abstracts which are printed at the beginning or end of an article in a scientific journal. These usually exhibit the originality necessary for copyright protection. Their use for storage and retrieval must therefore be dependent on the agreement of the owner of the copyright. But often the author and the publisher are interested in the widest possible dissemination of the abstract. The author is anxious that his name and his scientific work become known in professional circles and the use of the abstracts can be also of interest to the publisher because he believes they have advertising value. It is reported from the United States, where the copyright notice is mostly in the publisher's name, that publishers in general tolerate the use of the abstracts for storage and retrieval even if they do not give their express permission.

(b) The legal position is different in the case of abstracts which are commissioned by the computer owner from others. The question here is whether the agreement of the copyright owner of the full text is necessary before using the abstracts. Legally, this depends on whether the abstracts are to be regarded as adaptations of the original work.

The assessment of this question depends on the manner in which the full text is used in the abstract. Short reports, of the type often incorporated in review papers and which are in practice particularly used in the medical field, can be regarded as a permissible use. There is, nevertheless, some latitude on this matter in national laws and in legal decisions. For example, it is to be expected that stricter standards will be applied in the countries of continental Europe than in legal judgments in the U.S.A. where the admissibility of the use of abstracts is judged from the viewpoint of " fair use ". In any case, the permission of the copyright owner of the full text is necessary where more comprehensive abstracts are concerned which can be used instead of the full text and could therefore adversely affect the sale of the relevant publication [61].

(c) The situation must be regarded similarly in those cases where the abstracts are prepared by the machine itself (see para. *9(b)* above). Possibly this involves a short informative passage in the form of a selection of individual key words, which does not constitute an infringement of copyright of the full text. But it is different when the text is only shortened and the essential parts retained. The assumption of a copyright violation seems to be even more reasonable when the abstract is prepared by a computer than in the case when abstracts are prepared by a human being since there is then no possibility of establishing a new linguistic form.

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[60] See (also in relation to what follows) the comparative law studies by Röder, *Schutz des Werktitels*, Vol. 20 of the Schriftenreihe zum gewerblichen Rechtsschutz published by the Max-Planck-Institut für ausländisches und internationales Patent-, Urheber- und Wetthewerbsrecht (1970).

[61] In British law we find the concept of " abridgment ". There are a number of older decisions on the question of whether the publication of abridgments is permissible without the agreement of the author of the original work. Today it depends, according to Section 49 of the Copyright Act, on whether the abridgment involves a substantial use of copyright material or only of ideas and information. See *Copinger and Skone James on Copyright*, No. 432 (10th Ed. 1965). The authors deal with the question from the viewpoint of an infringement of the right of reproduction, since the concept of adaptation is defined more narrowly in the U. K. Copyright Act; this, however, makes no difference. The concept of " abridgment " is expressly referred to in the Indian Copyright Act (1957). Section 2 of this Act states *inter alia*: " 'adaptation' means, in relation to a literary or dramatic work, any abridgment of the work."

T. R. Srinivasa Iyengar writes on this in *Indian Copyright Act* (1968), p. 19: " An abridgment is an epitome of the work abridged. The substance and essence of the work must be preserved in suitable language."

II. The control of the input

A. The Berne Union

67. For the first time in the Berne Union, the Stockholm Act (1967) recognizes the right of reproduction as one of the minimum rights that is granted by the Convention to the authors of protected works. The relevant provision (Article 9(1)), which was carried over into the Paris Act without change, says:

> Authors of literary and artistic works protected by this Convention shall have the exclusive right of authorizing the reproduction of these works, in any manner or form.

Article 9(1) of the Paris Act is not yet in force. Since, however, the purpose of the present study is to examine, also with regard to the future, whether the provisions of the conventions guarantee an appropriate regulation of the copyright problems arising from the computer storage and retrieval of protected works, it seems advisable to proceed from the quoted provision of Article 9(1).

68. From a study of the legal position in the U.S.A. it has emerged that it is doubtful under existing law whether the concept of a copy can cover material forms other than written and printed records.

There is no such doubt as regards the concept of reproduction in the sense of Article 9(1) of the Stockholm and Paris Acts. It is not only made clear in Article 9(1) that the rights of the author extend to reproduction " in any manner or form "; it is also stated expressly in Article 9(3) that:

> Any sound or visual recording shall be considered as a reproduction for the purposes of this Convention.

Thus it was possible to delete as superfluous the recognition of the right regarding mechanical reproduction in Article 13(1) of the earlier versions of the Convention.

Reproduction within the meaning of Article 9(1) of the Stockholm Act therefore also applies to unintelligible forms, for example to the recording of works on magnetic tapes, discs or drums; it is sufficient that the work can be rendered perceptible to the human senses through mechanical means (indirectly). Reproduction is, without doubt, already constituted by the first material fixation of the work and not only by the production of a number of copies. For example, the first stage in the making of records, that of recording the work on a matrix, must be regarded as reproduction under this provision [62] and not only the subsequent pressing of the discs.

69. In storing a work in a computer, a material fixation constituting a reproduction already takes place when, as is the current practice, the work is encoded on the input medium such as punched cards, punched tape, magnetic tape and magnetic cards. But the storage itself is also to be regarded as a reproduction, irrespective of whether an internal or an external store is used. This is self-evident when external storage is effected on magnetic discs, magnetic drums or magnetic cards and in the case where external storage in its broadest meaning (see para. 19 above) is carried out on punched cards, punched tapes, microfilms or microfilm cards. But a material fixation constituting reproduction also occurs where there is internal storage, whether or not this is done by magnetic or chemical techniques.

However, the case of internal storage, where the fixation in the computer memory is only transitory, possibly for a period of only microseconds, could prove an exception. What we have here is the legal principle which is embodied in Section 101 of the U. S. Copyright Revision Bill, referred to above in para. 50. According to this provision a work can only be regarded as " fixed ", if " its embodiment in a copy or phonorecord is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration ". There is a restriction here which, as will be shown below in paras. 86 and 87, also seems to be in conformity with Article 9 of the Stockholm and Paris Acts.

70. Since the member countries of the Berne Union, with few exceptions, have not ratified or acceded to the provisions of Articles 1 to 21 of the Stockholm Act, and since neither ratifications nor accessions to the Paris Act are as yet present, these countries have had up to now no reason to bring their national laws into conformity with said provisions. But an examination of member countries' national laws which have been promulgated in the last few decades reveals that the question of the rights of the author in respect of the reproduction of his work has already been largely settled in a manner compatible with Article 9(1).

A short review reveals the following:

71. The U.K. Copyright Act of 1956 is based on a wide interpretation of reproduction. Section 2(5) of the Act lays down that:

> The acts restricted by the copyright in a literary, dramatic or musical work are —
>
> *(a)* reproducing the work in any material form;

In addition, under Section 48(1), the concept of reproduction in the case of a literary, dramatic or musical work includes, *inter alia*, " a reproduction in the form of a record ". It is thereby made clear that it is not material whether or not the fixation is directly perceptible to the human senses.

Related to the U. K. provisions are, among others, those in the Copyright Acts of Australia (Section 21), Canada (Section 3(1)), Israel (Section 1(2)), New Zealand (Section 2(1) and Section 7(3)) and South Africa (Section 1(1) (xxxvii) and Section 3(4)). It is also stated in the Copyright Acts of India (Section 14(1)) and Pakistan (Section 3(1)) that the authors of literary, dramatic and musical works have the right " to reproduce the work in any material form ".

72. A closer definition of the concept of reproduction is also contained in the French Law on Literary and Artistic Property, of March 11, 1957. The relevant provision in Article 28(1) and (2) reads as follows:

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[62] Similarly from the viewpoint of French law see: R. Plaisant, " Droit d'enregistrement et de reproduction mécanique ", in *Juris-Classeur, Propriété littéraire et artistique* (1970); Fasc. 15, pp. 2 and 3, para 3.

La reproduction consiste dans la fixation matérielle de l'œuvre par tous procédés qui permettent de la communiquer au public d'une manière indirecte.

Elle peut s'effectuer notamment par imprimerie, dessin, gravure, photographie, moulage et tout procédé des arts graphiques et plastiques, enregistrement mécanique, cinématographique ou magnétique.

The special feature of this provision lies in the fact that the *fixation matérielle* as such is not sufficient, but that the fixation must be carried out by a process *qui permet de communiquer l'œuvre au public d'une manière indirecte*. The reference to *communication d'une manière indirecte* as well as the specific reference in Article 28(2) to the *enregistrement mécanique ou magnétique* makes it clear that it does not matter whether the *fixation matérielle* is immediately perceptible to the human senses [63]. The definition also does not require that the purpose of the *fixation matérielle* is to communicate the work to the public. It is sufficient that it is suitable for this purpose. In general, storage in a computer affords the possibility of communicating the work to the public. The only exception to this might be where storage is effected transitorily and for such a short time only that there is an insufficient degree of permanence for the communication to the public.

73. Article 16(1) of the Copyright Law of the Federal Republic of Germany states that:

Das Vervielfältigungsrecht ist das Recht, Vervielfältigungsstücke des Werkes herzustellen, gleichviel in welchem Verfahren und in welcher Zahl (The right of reproduction shall he the right to make copies of the work, irrespective of method or numher).

Article 16(2) makes it clear that the recording *(Aufnahme)* of the work on visual and audio recording media is also to be regarded as reproduction. The official explanatory memorandum submitted to Parliament together with the draft law stated that it (the recording) must be in the form of material fixations, which are suitable for making the work humanly perceptible in any manner, either directly or indirectly. The term *Vervielfältigung* (reproduction) is therefore interpreted in the same way as in French law.

It was doubtful under the previous German Copyright Law of 1901 whether the first fixation in material form as part of the manufacturing process was to be regarded as reproduction, for example, in the case of books the setting up of type or the printing of proofs, or whether there is no reproduction until there is fixation on material destined for distribution, e. g., books, records, etc.[64] According to the present law, the situation is as in the former sense. It is beyond doubt that, in the manufacture of records, the making of the sound recording and not only the manufacture of the records already constitutes an infringement of the right of reproduction. In the same way, input into a computer must be regarded as reproduction.

74. A similarly broad concept of reproduction exists in a number of other countries of the Berne Union, e.g. in the copyright laws of Argentina (Art. 2), Austria (Art. 15), Belgium (Art. 1), Bulgaria (Art. 4), Denmark (Art. 2), Italy (Art. 13), Japan (Art. 21), Mexico (Art. 4), the Netherlands (Art. 14), Norway (Art. 2), Portugal (Art. 62), Romania (Art. 13*(a)*), Sweden (Art. 2), Switzerland (Art. 12(1)), Tunisia (Art. 2) and Yugoslavia (Arts. 28 and 34). The Spanish Copyright Act (Art. 7) protects the author's right to reproduce the work without defining the concept any more closely. But interpretation of the provision shows that it does not matter whether the fixation in material form is directly or indirectly perceptible to the human senses [65].

No specific mention has been made of the right of reproduction in the copyright laws of Czechoslovakia, Hungary and Poland. The laws of these countries provide that the author has the exclusive right to use and dispose of his work without enumerating the rights flowing from this. Since there has not yet been any legal decision on computer storage and retrieval, no definite conclusions can be drawn from the legal provisions. But it can be said that the purpose of the provisions is to provide comprehensive protection for the author's rights of exploitation.

B. The Universal Copyright Convention

75. The revision of the UCC, which was accomplished in July 1971 in Paris, led to the recognition of the right of reproduction in the text of the Convention. In Article IV[bis], para. 1, provision is made that:

The rights referred to in Article I shall include the hasic rights ensuring the author's economic interests, including the exclusive right to authorize reproduction hy any means, puhlic performance and hroadcasting. The provisions of this Article shall extend to works protected under this Convention either in their original form or in any form recognizahly derived from the original.

76. As far as reproduction is concerned and especially the question of whether the right of reproduction — subject to the exceptions permitted by para. 2 of Article IV[bis] — also includes the right of permitting or prohibiting the input of a work into a computer, the words " reproduction by any means " seem to suggest that the term " reproduction " is to be understood in the same sense as in the Berne Convention.

There is, however, no provision corresponding to Article 9(3) of the Stockholm and Paris Acts, which makes it clear that any sound and visual recording is also to be regarded as a reproduction and that it therefore does not matter for the purpose of reproduction whether the fixation in material form is directly or indirectly perceptible to the human senses.

The provision of Article VI of the UCC concerned with publication states:

" Publication ", . . ., means the reproduction in tangihle form and the general distribution to the puhlic of copies of a work from which it can be read or otherwise visually perceived.

But it cannot be argued from this provision and its restriction to "copies from which the work can be read or otherwise visually perceived " that the term " reproduction " in Article IV[bis]

[63] See for the reasons for this provision and for an interpretation of it: Deshois, *Le droit d'auteur en France*, 2nd Ed. (1966), pp. 262, 293 *et seq.*

[64] See Ulmer, *Urheber- und Verlagsrecht*, 2nd Ed. (1960), pp. 191 *et seq.* The Reichsgericht had decided the matter in the latter sense. (Entscheidungen des Reichsgerichts, amtliche Sammlung, Vol. 107, p. 277). But the decision was justly criticized in the literature.

[65] See J. Yolas Valverde, *Propiedad Intelectual* (1962), pp. 27 *et seq.*

must be similarly narrowly interpreted. The term was formulated in the Washington Recommendation and in the subsequent consultations independently of the term "publication" as used in Article VI. The purpose of the revision of the UCC, that is, to safeguard for the author the basic right of exploitation of the work makes it likely that the term " reproduction " in the UCC includes also the fixation in material form on sound carrying media, magnetic tape, etc., where the use of apparatus is necessary to make the work humanly perceptible.

77. On the whole there are, in my view, good reasons for interpreting the term " reproduction ", as used in the revised UCC, in the same way as in the Berne Convention. However, a clarification of this question has been forthcoming from neither the consultations of the diplomatic conference nor its general report. Thus, the possibility cannot be discounted that the question will remain a controversial one and that the Contracting States will be guided in their interpretation of the term " reproduction " by the basic legal concepts of their national law. A review of national laws shows the following:

(a) In the great majority of the Contracting States of the UCC the term " reproduction " is interpreted broadly in a sense corresponding to the provision in the Stockholm and Paris Acts of the Berne Convention. This holds not only for those States which are also member countries of the Berne Union but also for those which only belong to the UCC. For example, Article 41 of the Venezuelan Copyright Law states: " Reproduction consists in the material fixation of the work by all methods which permit the indirect communication to the public ". There is a similarly broad view of " reproduction " in the copyright laws of Ecuador (Art. 5), Guatemala (Art. 10), Haiti (Art. 10), Kenya (Sec. 7), Malawi (Sec. 7), Paraguay (Art. 3), Peru (Art. 36) and Zambia (Sec. 7).

(b) But, as has been mentioned in para. 45, it has, in view of the Apollo decision, been disputed in the United States whether the fixation of the work on magnetic tapes, magnetic discs and other information carrying media, when it is only in machine-readable form, can be regarded as a copy under the current Copyright Act and, further, whether storage in a computer can itself be regarded as copying. The predominating opinion in the literature on the subject is that the answer to this question should be in the affirmative but there are, as yet, no court decisions. But, if a legal decision should give a negative answer, then one must reckon with the possibility that the term " reproduction " in the revised UCC will be interpreted correspondingly narrowly in the U. S. A.

It is therefore possible that a general consensus, that a computer input should be regarded as a reproduction under the UCC, irrespective of the manner in which it is fed in, will only be reached when this legal concept has prevailed also in the U. S. A.

III. The control of the output

78. In so far as the control of the input by the copyright owner is guaranteed, the question of the control of the output assumes less importance. Agreements which are concluded about the input between copyright and computer owners can also settle matters concerning the output. *Inter alia,* terms can be agreed on the extent of the output and to whom it should be available. In particular, the payments to be made to the copyright owner can be agreed upon in such a way as to make them dependent on the number of times the output is fed out.

Nevertheless, the legal position of the copyright owner is strenghtened if, in addition to making contractual agreements about the output, copyright law also gives him the right of controlling the output, in so far as this consists of material protected by copyright.

79. There is no difficulty about copyright control of the output when this is in the form of a hard copy print-out. In the legal sense reproduction then takes place according to Article 9(1) of the Stockholm and Paris Acts as well as according to Article IV^{bis}, para. 1, of the revised UCC and such reproduction needs the consent of the copyright owner except where national laws provide for any of the permitted exceptions.

But what is the position when the output is effected by the projection of stored material in the form of visual images on a screen or tube? In U. S. case law the Court of Appeals for the Second Circuit took the view that the projection of a filmed work on a screen is to be regarded as a copy [66]. But this opinon has remained an isolated one. As a general principle, a clear distinction is made in the copyright systems between the material fixation of the work and acts such as lecturing, performance, broadcasting and other representations which can themselves become the subjects of a material fixation but which as such are intangible, visual, or acoustic forms of presentation. The U. S. Copyright Revision Bill also limits the concept of reproduction in this manner to cases of material fixation; the projection on a screen or a tube falls within the newly formulated term " public display ".

80. In Articles 11, 11bis, 11ter and 14 of the Berne Convention there are provisions dealing with intangible forms of presentation. Article 11 is concerned with the public performance of dramatic, dramatico-musical and musical works and with the communication to the public of the performance of such works; Article 11bis deals with the broadcasting of the work and with the communication to the public of the broadcast of the work; Article 11ter deals with the public recitation of literary works and the communication to the public of the recitation of such works; Articles 14 and 14bis relate to the public performance and the communication to the public of cinematographic works and the preexisting works which are adapted or reproduced in cinematographic works. There is, however, no general provision. The Berne Convention does not, therefore, cover those cases where literary works are presented to the public by projecting them on a screen or tube. The computer output is therefore also excluded from the provisions in so far as the output is effected by projection on a screen or tube.

Article IV^{bis}, para. 1, of the revised UCC grants to the author, as was already mentioned, the right of public performance. A closer definition of this term was not produced by the negotiations at the diplomatic conference. In any event,

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[66] *Patterson* v. *Century Productions, Inc.*, 93 F. 2d, 489,35 USPQ 471 (1937).

one will not be able to assume that the provision is to be understood in a broader sense than those provisions of the Berne Convention which have been cited, namely performance, recitation and communication.

81. Provisions in national laws are in some cases more comprehensive than those of the conventions. For example, French Copyright Law is based on a general concept of *représentation*. Article 27 of this Law states:

> La représentation consiste dans la communication directe de l'œuvre au public, notamment par voie de:
>
> récitation publique;
>
> exécution lyrique;
>
> représentation dramatique;
>
> présentation publique;
>
> diffusion, par quelque procédé que ce soit, des paroles, des sons ou des images;
>
> projection publique;
>
> transmission de l'œuvre radiodiffusée par le moyen d'un haut-parleur et éventuellement d'un écran de radio-télévision placé dans un lieu public.

The term " performance " is also used in a broad sense in the British Copyright Act. It is defined in Section 48 as:

> " Performance " includes delivery, in relation to lectures, addresses, speeches and sermons, and in general, subject to the provisions of subsection (5) of this section, includes any mode of visual or acoustic presentation, including any such presentation by the operation of wireless telegraphy apparatus, or by the exhibition of a cinematograph film, or by the use of a record, or by any other means, and references to performing a work or an adaptation of a work shall he construed accordingly.

The German Copyright Law is based on the general concept of public communication *(öffentliche Wiedergabe)* in Article 15 of the Law. The right of recitation *(Vortragsrecht)*, of performance *(Aufführungsrecht)* and of presentation *(Vorführungsrecht)* are given as examples. The right of presentation is defined as the right to communicate to the public by means of technical devices artistic, photographic and cinematographic works or illustrations of a scientific or technical character. Literary works are not mentioned in this connection. But there can be no doubt that the public presentation of literary works by their projection on screen or tube falls within the general term public communication *(öffentliche Wiedergabe)*.

82. These provisions, which also occur in similar form in other member States of the conventions, have in common that they also include the presentation of protected works by projection on a screen or tube. But the presentation must be a public one. The question therefore arises whether it constitutes public presentation when the output of the work in the form of a display on a screen or tube is made available only to one person or to a few persons at a time. The answer to this question is, at the least, open to doubt. It must be no, if the term " public " is given its usual meaning. Against this, the U. S. Copyright Revision Bill seems to represent a definite progress in this direction in that it defines the term " publicly " so as to include also those cases where the members of the public receive the display in several places and at different times (cf. para. 51 above).

83. From this, and seen as a whole, the existing provisions prove to be somewhat defective. Making good this defect does not appear urgent in so far as the control of the input is provided. But the matter will have to be kept in mind for later revisions of the conventions. It will then not be sufficient to provide only for the author's right of public presentation of the work in the form of projection on a screen or tube, but the concept of the term " public " will also have to be defined in a similar way as in the U. S. Copyright Revision Bill.

IV. Exceptions. Compulsory licenses

84. Within the limits allowed by the conventions, national laws can provide for restrictions of the control which the copyright owner can exercise over the input and print-out of protected works. On the one hand, this can follow from those provisions that provide for exceptions which allow reproduction without the agreement of the copyright owner and without an obligation to make any payment. On the other hand, a limitation of the right of reproduction can result from provisions in national laws for compulsory licenses. In such a case, the copyright owner has a right to remuneration. In particular, there may be a statutory license when the work can be reproduced without asking the copyright owner's permission or there may be a compulsory license in the strict sense, where the copyright owner is obliged to allow reproduction on request against payment.

85. As regards the law of the conventions, the provisions of both the Berne Convention and the revised UCC must be considered:

(a) The Berne Convention (Stockholm and Paris Acts) considers as lawful *jure conventionis* in Article 10(1) " to make quotations from a work which has already been lawfully made available to the public ". Apart from this, Contracting States are allowed to provide for exceptions to the right of reproduction in certain cases. *Inter alia*, Article 10(2) allows Contracting States " to permit the utilization, to the extent justified by the purpose, of literary or artistic works by way of illustration in publications, broadcasts or sound or visual recordings for teaching, provided such utilization is compatible with fair practice ". Also particularly relevant is the new provision in Article 9(2) which was added to the Convention at the Stockholm Conference and which was carried over into the Paris Act:

> It shall be a matter for legislation in the countries of the Union to permit the reproduction of such works in certain special cases, provided that such reproduction does not conflict with a normal exploitation of the work and does not unreasonably prejndice the legitimate interests of the author.

(b) The revised UCC gives greater latitude for the making of exceptions. For this purpose, in addition to para. 1 of Article IV[bis], which gives copyright owners the rights of reproduction, of public performance and of broadcasting, there is para. 2 which states:

> However, any Contracting State may, by its domestic legislation, make exceptions that do not conflict with the spirit and provisions of this Convention, to the rights mentioned in paragraph 1 of this Article. Any State, whose legislation so provides, shall nevertheless accord a reasonable degree of effective protection to each of the rights to which exception has been made.

86. As regards the exceptions which allow reproduction without the agreement of the copyright owners and without obligation to make any payment, relevant examples are, among others, those "quotations" and "utilizations" referred to in Article 10 of the Berne Convention. The right reserved to Contracting States by Article 10(2) to make provision for utilizations, to the extent justified by the purpose, of literary or artistic works by way of illustration for teaching is of special importance for material which is stored in computers for the purpose of programmed instruction.

In addition, the "one use input" cases must be considered which have been referred to in para. 55 *(a)*, where storage assists in solving certain problems, for example, for the purpose of linguistic, syntactic or semantic analyses, as well as the case of indexing, where the selection of the descriptors is made by the computer itself and the full text must first, therefore, be stored (para. 9 *(a)*). In these cases it can be assumed — at least if the store is cleared after the solution of the problem — that the input "does not unreasonably prejudice the legitimate interests of the author" in the sense of Article 9(2) of the Stockholm Act. Sufficient latitude is, therefore, left for national laws to provide for an appropriate solution to this legal problem.

It is also beyond doubt that, if the input must be regarded as a reproduction within the meaning of the revised UCC, the provision in Article IV^{bis}, para. 2, permits Contracting States to provide for exceptions in the stated cases.

87. The situations just described are concerned only with temporary storage: when the problem has been solved the stored text is, in general, cleared from the computer. In this sense there is some relationship with the so-called "ephemeral recording" which takes place during the preparation of a broadcast and which is allowed in Contracting States under certain conditions by Article 11bis (3) of the Berne Convention. This parallel case suggests, as already mentioned, that an exemption should be made dependent on the clearance of the text from the store as soon as possible after the relevant problem has been solved.

In so far as storage is limited to the shortest possible time, the view expressed in para. 69 could also be relevant, namely that such storage cannot be regarded as reproduction since it lacks sufficient permanence. The dividing line here is fluid. In our opinion it can be left to the countries of the Union to decide whether they want their national laws to be based on the standpoint that there is no reproduction because there is insufficient permanence or whether they provide for exceptions from the prohibition of reproduction.

88. In the examination of the question of how access to material protected by copyright can be facilitated in the interests of exploiting to the full the possibilities opened up by computer techniques, the possibility of the introduction of compulsory licenses has been discussed, particularly in the U. S. A., as mentioned in para. 58 above. It is true that so far it is only a matter of suggestions and preliminary consideration and not one of thought-out proposals which could form a basis for legal provisions.

For the time being one will have to wait for the experience gained from agreements concluded on a voluntary basis. All the same, with a view to the future it seems appropriate here to examine whether, and how far, the introduction of a compulsory license could be combined with the provisions of the conventions.

89. As far as the Berne Convention is concerned, the relevant provision is Article 9(2) of the Stockholm and Paris Acts which has already been mentioned several times. Examination of the individual features of Article 9(2) reveals the following:

(a) To begin with, Article 9(2) is only applicable when the restriction of the right of reproduction is limited to "certain special cases". It could be said that "special cases" are at issue here in view of the relatively small extent to which material protected by copyright is now stored. But, in the long run, a rapid increase in the number of cases must be counted on. The introduction of a compulsory license, which would permit general computer storage and retrieval of protected works, would no longer be in accord with a restriction to "special cases". The compulsory license would rather have to be limited to particular types of works, for example, to abstracts, reviews in journals and smaller parts of works in specified scientific and technical fields.

(b) It can be determined from the additional provision in Article 9(2) that reproduction "does not conflict with a normal exploitation of the work", that those works must be meant which are normally exploited in another way, especially by printing and distribution through the book trade, but that those works are not meant which are intended from the first for computer storage and retrieval. The introduction of a compulsory license would not therefore be allowable if such a license permitted works which had not been printed but only stored in a computer center to be taken over by a rival computer center without the consent of the copyright owner.

(c) Finally, the application of Article 9(2) requires that the reproduction "does not unreasonably prejudice the legitimate interests of the author". The obligation to make a payment connected with a compulsory license plays an important part in the consideration of this feature of the Article. Use without payment can only be expected of the author in special cases set out in the examples in para. 86 above. But there is not the same encroachment on his financial interests if he is paid an appropriate remuneration. A corresponding consideration arose in the Stockholm discussions about Article 9(2), in connection with the preparation of photocopies. The Report on the Work of Main Committee I states [67]:

> If it [the photocopying] implies a rather large number of copies for use in industrial undertakings, it may not unreasonably prejudice the legitimate interests of the author, provided that, according to national legislation, an equitable remuneration is paid.

The question of what constitutes equitable remuneration, and especially how far its assessment should also take into account the number of times the output is obtained, can only

[67] *Copyright* 1967, p. 189.

be assessed when sufficient experience has been gained on the basis of agreements concluded between copyright and computer owners.

90. As regards the UCC, and under the assumption that the input of a work into a computer is to be regarded as reproduction as a matter of principle, an answer to the question of the allowability of introducing compulsory licenses must begin with consideration of the provision of Article IV^{bis}, para. 2. It could fairly be assumed that also with respect to this question more latitude is allowed to Contracting States than by the rules of the Berne Convention. Nonetheless, the general report on the diplomatic conference emphasizes that Article IV^{bis}, para. 2, does not permit the introduction of a general system of compulsory licenses. In this regard it was said:

> The conference adopted this principle, it being understood that a "general system" referred either to a system applying to a specific type of work with respect to all forms of use, or to a system applying to all types of work with respect to a particular form of use.

Input into computers appears to be a "particular form of use". If one follows the definition given in the general report, a compulsory license can be provided by the Contracting States, but only for definite, not for all types of work.

V. "Droit moral"

91. The copyright problems arising from the use of protected works in computer systems are not restricted to the protection of the economic interests of authors. Their moral interests are also involved. This is mentioned repeatedly in the literature as is the expectation that, in view of the continuing development of information storage and retrieval systems, the *droit moral* will assume particular importance [68].

92. The moral rights of authors are, primarily, those protected by Article 6bis of the Berne Convention:

> ... the right to claim authorship of the work and the right to object to any distortion, mutilation or other modification of, or other derogatory action in relation to, the said work, which would be prejudicial to his honor or reputation.

(a) The author has legitimate interest in the mentioning of his name in connection with the output and recognition thereby of his authorship. It is immaterial whether the subject of the output is the whole work, only fragments of the work, or abstracts. Particularly in the case of scientific authors, the personal interest in the mentioning of the author often takes precedence over the economic interest in the remuneration.

(b) The legitimate interests of the copyright owner can further be damaged in that the work is distorted, mutilated or otherwise adversely affected when it is used in a computer system. Such adverse effect can be the result of technical faults or of mistakes by the personnel operating the computer. But it can also arise because the meaning of the work is rendered incorrectly in the preparation of extracts from, or of abstracts of, the work.

93. From the point of view of *droit moral* one must further think of those cases where the author has changed his views and therefore wants to correct or erase the stored information. This concerns particularly scientific authors who realize that, because of more recent research results, the views they held earlier have been overtaken and who therefore want either all, or part of, the information removed or altered. While there is no protection for this interest in Article 6bis of the Berne Convention there is provision in the national laws of individual member States of the Berne Union. Examples are the *droit de repentir* in Article 32 of the French Copyright Law and the *Rückrufsrecht* of Article 42 of the German Copyright Law. Both Laws allow the author to withdraw permission for exercising his rights but in this case make him liable to compensate the transferee. There is a difference in so far as, according to the German Law, the author has to show and, in the case of a dispute prove, that the work is no longer in accord with his views, while the French Law allows the exercise of the *droit de repentir* without such proof.

94. So far the *droit de repentir* and the *Rückrufsrecht* have not played an important role in legal practice. It is, however, likely that it will assume a greater importance where a work is stored rather than printed. If the work has appeared as an article in a journal or as a book, the withdrawal would involve considerable cost. Apart from extreme cases, the scientific author who reaches new conclusions will make the necessary corrections in a new article or in the new edition of his book. The situation is different with a computer. Here the old material stored must be partially or wholly erased or replaced by the storage of new material so that the information given by the computer is up-to-date. In those cases, where alterations are necessary on account of continuing scientific development, it would be equitable that the computer center should itself bear the cost of alterations.

95. The review shows that the copyright owners' moral interests involved in computer storage and retrieval on the whole concern familiar aspects of the *droit moral*. However, it looks as though, in future, new aspects of the right of withdrawal will arise.

As regards protection of moral rights it is possible for copyright owners to protect themselves by means of the agreements about input which they make with the computer owners. For example, it could be agreed, particularly in cases where a considerable volume of material is stored, that the author must be provided with a print-out for checking, much in the same way as he receives proofs in letter-press printing. Agreements could also be made which would entitle authors to demand erasure of the stored text or its replacement by a new text where this is made necessary by scientific development.

The question of whether the author's moral rights are protected by law in the absence of an agreement depends primarily on national law. As regards the Convention obligations, the UCC does not recognize the *droit moral*. Also under Article 6bis of the Berne Convention the legal remedies necessary for the protection of the rights to claim the authorship

[68] See Barbara Ringer, *op. cit.*, in *GRUR Int.* 1968, pp. 18, 20; and Nimmer, *Project*, pp. 1017 *et seq.*

of the work, to object to distortions, etc., are left to the national law of the country where the protection is sought. For the time being, the known objections arising from the Anglo-American legal tradition would probably cause those countries to oppose any revision of both Conventions, with the purpose of including the *droit moral* in the UCC and of extending the scope of Article 6bis of the Berne Convention. But in the longer term the possibility of such revisions will have to be kept in mind. In this connection it is encouraging to see that, in the literature in the U. S. A., the importance of the *droit moral* in computer storage and retrieval of copyrighted material is also particularly emphasized.

Conclusions

96. As this study has shown, the provisions of the Berne Convention (Stockholm and Paris Acts) seem, for the time being, to be a suitable basis for the international settlement of the copyright problems arising from the computer storage and retrieval of protected works. In general, the right of reproduction referred to in Article 9(1) of the Convention gives the copyright owner the right to permit or not to permit the input. As far as legal measures become necessary to facilitate access, in special cases, to works protected by copyright, these can be taken by the member States within the limits imposed by Article 9(2). A revision of the Berne Convention does not, therefore, appear to be urgent. But in the longer term it may be necessary to study whether it would be desirable to amend Article 9(2), in respect of the computer use of protected works, by the inclusion of detailed provisions. In addition, as regards the control of the output, it seems desirable in the long run that copyright owners should be given the right under the Convention to control the use of the output also if it is in the form of visual images on a screen or tube (paras. 79 *et seq.*, 83). The possibility of an extension of the *droit moral* will also have to be kept in mind (paras. 91 *et seq.*, 95).

97. The most important question regarding the revised UCC is whether the provision of Article IVbis, para. 1, which gives authors the right of reproduction, can be construed so as to give authors the right to permit or not to permit the input, irrespective of the way it is effected. As was shown above (para. 76), there would be good reasons for a broad interpretation of the concept of reproduction in relation to a computer input, such an interpretation corresponding to that of Article 9(1) of the Berne Convention. But the possibility cannot be discounted that the Contracting States will be guided in their interpretation by their national legal concepts and that the question will therefore remain a controversial one for the time being. In the present situation a general consensus on a wide interpretation of the concept of reproduction will depend mainly on whether in the U. S. A. the opinion, which has already been widely expressed in the literature, that the computer input is to be regarded as a copy irrespective of the type of input medium, will be confirmed by legal decisions.

In other respects the same problems will have to be kept in mind for a revision of the UCC as for a later revision of the Berne Convention.

98. As was emphasized in the study (para. 61), agreement between the organizations representing the interested circles seems especially desirable. The particular purpose of the discussions should be to work out model agreement or guidelines for agreements between copyright and computer owners in the interests of facilitating access to the protected material and to examine the possibility of establishing clearing-houses. This is valid both nationally and internationally. Unesco and WIPO could undertake the task of encouraging such cooperation and of assisting it by the convocation of a committee of experts.

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INTERNATIONAL ACTIVITIES

International Literary and Artistic Association (ALAI)

(General Assembly, Paris, February 1, 1972)

The International Literary and Artistic Association (ALAI) held its annual General Assembly at Paris on February 1, 1972. The Assembly was preceded by a meeting of the Executive Committee of the Association. In consequence of the death of President Marcel Boutet, the debates were presided by Mr. Sture Petrén, member of the Swedish group of the Association and judge at the International Court of Justice in The Hague. Representatives of ALAI's national groups from the following countries participated in the meeting: Belgium, Finland, France, Germany (Federal Republic), Italy, Netherlands, Sweden, Switzerland, United Kingdom, as well as observers of certain international non-governmental organizations concerned. WIPO was represented by Mr. Claude Masouyé, Head, External and Public Relations Division, and Unesco by Miss Marie-Claude Dock, Head, Copyright Division.

Apart from administrative or internal questions, the agenda of this General Assembly included survey of the results of the Diplomatic Conferences convened in July 1971 to revise the multilateral copyright conventions as well as the establishment of the program of activities of the Association for 1972. In this respect, a working session was provided for in Paris from July 3 to 7, 1972, to study the current problems in the field of international copyright, and in particular: (i) the new provisions for developing countries included in the Paris Act of the Berne Convention and in the Universal Copyright Convention as revised; (ii) the new Convention for the Protection of Producers of Phonograms; (ii) the protection of program-carrying signals communicated by satellites; (iv) the questions posed by the reproduction of copyright works and by the lending of books; (v) the problems raised by video-cassettes and by the use of computers.

The General Assembly also re-elected its officers. Professor Henri Desbois was elected President of ALAI; Mr. Sture Petrén, First Vice-President; Mr. De Sanctis, Mr. Limperg and Mr. Reimer, Vice-Presidents. Professor André Françon will exercise the functions of Permanent Secretary.

OBITUARY

Marcel Boutet

A leading figure in the field of international intellectual property has left us: Marcel Boutet, President of the International Literary and Artistic Association (ALAI) — this, of all his titles, was probably the one to which he was most attached — is no more. He died suddenly in Paris on December 12, 1971.

The sad news of President Boutet's passing came as a cruel blow to all those — and they were many — lucky enough to have known and valued his great qualities. The man who made such moving eulogies, the man who, at the general assemblies of the organization over which he presided, always had a few words of appreciation for those of its members who would never come again, who always found a personal glimpse or a fitting image for each, this is the man to whom we now owe a resounding tribute, and it is not without emotion that I dedicate these few lines to him.

President Boutet devoted his entire career to the cause of justice and law. There are professions, just as there are places, where intellect and wit still have their part to play: that of attorney is one; Marcel Boutet chose it, and it gave him the greatest intellectual satisfaction. He was born on October 31, 1894, and, after sound training in law, went straight from university to the Bar, to be registered as an attorney at the Paris Court of Appeal. From 1949 to 1952 he was a member of the Council of the Order of Advocates, which French magistrate d'Aguesseau aptly described by saying that it was " as old as the Magistrature, as noble as Virtue and as necessary as Justice herself ". Having taken the oath in 1921 at the age of 27, he proudly celebrated the fiftieth anniversary of his registration at the Paris Bar on

November 18, 1971, shortly before illness took him away from us.

In his profession, which he exercised with unparalleled integrity, Marcel Boutet specialized in cases involving the recognition and defense of intellectual property rights. His brilliant addresses brought about innumerable judgments and decisions, and French jurisprudence is greatly indebted to him. After the war his choice of speciality resulted in his being a member of the French Delegation at the many Diplomatic Conferences convened for the revision of intellectual property conventions or the drafting of new international instruments. He was at Brussels in 1948, Geneva in 1952, Lisbon in 1958, Stockholm in 1967, and Paris and Geneva in 1971, to mention only the most important events in his professional activity at the international level. Taking up his pilgrim's staff, as he liked to put it, to advocate what he, in all honesty and sincerity, considered to be the real doctrine of intellectual rights, he travelled throughout the world, attending countless meetings, working groups, congresses and conferences. Wherever he went he was present in every sense of the word, expounding with conviction his opinions and preoccupations, pointing out the possible consequences of proposed solutions, enthusiastic in his defense of positions under threat, yet always ready to hear the opposite view, sometimes with scepticism, but always with courtesy. His remarks, his opinions and his suggestions led many of us to regard him as " the conscience of the Berne Union ".

Although the nature of his professional activity kept him more within the industrial property field — it should be remembered that in France he was a member of the Higher Council of Industrial Property and President of the French group of the International Association for the Protection of Industrial Property (AIPPI) — he was always more attracted to copyright, to which he devoted himself perhaps with more affection, and certainly with great skill. His intimate knowledge of the Berne Convention made him an expert whose opinion was always highly appreciated. His gift for the drafting of legal texts and his conciseness in the wording of principles and provisions more than once enabled him to play a leading part in shaping the texts of laws and conventions alike.

At the national level he distinguished himself as the rapporteur of the Intellectual Property Commission which prepared a draft law, later to result in the new Law of March 11, 1957, on literary and artistic property. He applied all his energy to this legal codification of copyright in France, and the result was a masterpiece of modern legislation.

At the international level he was always an active member of his country's delegation, seeking to avoid as far as possible situations where the development of the law and the adaptation of conventions to modern political, economic or social requirements might take place without regard for the interests of authors. On several occasions he was called upon to preside over discussions, a task which he fulfilled with grace, tact and impartiality, and with the sole aim of serving the cause of copyright.

Yet above all Marcel Boutet was the President of ALAI, the international non-governmental organization created at the instigation of Victor Hugo, which is justly proud to have been in turn the initiator of the Berne Convention. He took over the presidency from Georges Maillard, who himself had succeeded Bâtonnier Pouillet, well known to law students for his famous Manual. He was elected President in 1947 and remained in office until his death, which means that, for almost twenty-five years, he put heart and soul into this association of lawyers devoted to literary and artistic property. It was he who gave it the vitality and drive essential to any activity carried on at an international level, even though the means at his disposal were never generous. He controlled its destiny with a masterly touch, and his death is unquestionably a heavy loss to the Association. No doubt the torch of leadership will pass into good hands and continuity will be ensured, but the personality of President Boutet will have left an indelible mark on the history of ALAI.

A tribute to Marcel Boutet would not be complete without a mention of the many studies which he published in specialized reviews on subjects relating to industrial property and copyright. One such study was his excellent commentary, published in the French *Juris-Classeur*, on the provisions adopted in Brussels in 1948, at the time of the revision of the Berne Convention. His experience, combined with the academic talents of Robert Plaisant, contributed to the development of intellectual property law by leaving a work which is a welcome source of reference to practitioners.

The French Government acknowledged Marcel Boutet's merits by awarding him a number of distinctions. He was a " Chevalier de la Légion d'Honneur ", " Officier de l'Ordre national du Mérite " and " Officier des Arts et Lettres ". He also received honors from foreign governments.

President Boutet leaves behind him the memory of an exceptionally courteous and kind person: he had preserved the politeness and good manners of a period which, alas, is gradually disappearing into the past. He was possessed of immense learning and culture. As a speaker he was particularly eloquent, with a wonderful ability to brighten his speeches with quotations, themselves chosen with a skill all his own. One such quotation comes poignantly to mind: last November President Boutet was staying in Geneva at the time of the sessions of the intergovernmental copyright committees which were held there. When I alluded to the amount of work on the horizon of international copyright, he reminded me of the words of Fontenelle, French man of letters and nephew of the great Corneille: " Don't take life too seriously; whatever you do, you won't come out of it alive. " A word of advice drawn from sound philosophy... or was it a premonition? Whatever the circumstances, President Boutet's charm had its effect and conversation immediately rose to a higher plane, leaving one with the gratifying sensation that only a strong personality can communicate.

Marcel Boutet was that. His life reminds us that we can, as the poet said,

> " leave behind us, after death,
> our footprints on the sands of time ".

The teachings he left behind him will not be forgotten.

Claude MASOUYÉ

CALENDAR

WIPO Meetings

March 6 to 16, 1972 (Washington) — International Patent Classification (IPC) — Working Group IV of the Joint ad hoc Committee

March 13 to 17, 1972 (Geneva) — Committee of Experts on the Protection of Type Faces
Object: Discussion of a draft Agreement and draft Regulations — *Invitations:* Member countries of the Paris Union — *Observers:* Intergovernmental and international non-governmental organizations concerned

March 20 to 24, 1972 (Munich) — International Patent Classification (IPC) — Working Group V of the Joint ad hoc Committee

April 6 and 7, 1972 (Geneva) — Patent Cooperation Treaty (PCT) — Standing Snbcommittee of the Interim Committee for Technical Cooperation
Members: Austria, Germany (Fed. Rep.), Japan, Netherlands, Soviet Union, Sweden, United Kingdom, United States of America, International Patent Institute — *Observer:* Brazil

April 10 to 14, 1972 (Geneva) — ICIREPAT — Technical Committee for Standardization

April 17 to 21, 1972 (Geneva) — ICIREPAT — Technical Committee for Shared Systems

April 17 to 21, 1972 (Geneva) — ICIREPAT — Advisory Board for Cooperative Systems

April 24 to 26, 1972 (Geneva) — ICIREPAT — Snbcommittee on Organic Chemistry

May 2 to 8, 1972 (Geneva) — Committee of Experts on the International Registration of Marks
Object: Preparation of draft texts for the Vienna Diplomatic Conference in 1973 (see below) — *Invitations:* Member conntries of the Paris Union; organizations concerned

May 9 to 17, 1972 (Paris) — Committee of Governmental Experts on Prohlems in the Field of Copyright and of the Protection of Performers, Producers of Phonograms and Broadcasting Organizations Raised hy Transmission Via Space Satellites
Object: Study of the problems — *Invitations:* Memher countries of the Berne Union, Member countries of the Paris Union and Memher States of the United Nations or of a Specialized Agency — *Observers:* Intergovernmental and non-governmental organizations concerned — *Note:* Meeting convened jointly with Unesco

May 29 to June 2, 1972 (The Hague) — International Patent Classification (IPC) — Bnreau of the Joint ad hoc Committee

June 5 to 9, 1972 (The Hague) — International Patent Classification (IPC) — Joint ad hoc Committee

June 26 to July 7, 1972 (The Hague) — International Patent Classification (IPC) — Working Group I of the Joint ad hoc Committee

July 5 to 7, 1972 (Geneva) — ICIREPAT — Technical Coordination Committee

July 10 to 14, 1972 (The Hague) — International Patent Classification (IPC) — Working Gronp III of the Joint ad hoc Committee

Septemher 4 to 8, 1972 (London) — International Patent Classification (IPC) — Working Group II of the Joint ad hoc Committee

Septemher 11 to 15, 1972 (London) — International Patent Classification (IPC) — Working Group V of the Joint ad hoc Committee

September 20 to 22, 1972 (Geneva) — ICIREPAT — Plenary Committee

Septemher 25 to 29, 1972 (Berne) — International Patent Classification (IPC) — Working Group IV of the Joint ad hoc Committee

September 25 to 30, 1972 (Geneva) — Coordination Committee of WIPO, Executive Committees of the Paris and Berne Unions, Assemblies of the Madrid and Locarno Unions

Octoher 2 to 6, 1972 (Geneva) — Patent Cooperation Treaty (PCT) — Interim Committees and Standing Subcommittee of the Interim Committee for Technical Cooperation
Members of the Interim Committees: Signatory States of the PCT — *Observers:* Intergovernmental organizations and international non-governmental organizations concerned; *Members of the Standing Subcommittee:* Austria, Germany (Fed. Rep.), Japan, Netherlands, Soviet Union, Sweden, United Kingdom, United States of America, International Patent Institute — *Observer:* Brazil

Octoher 9 to 13, 1972 (Geneva) — Committee of Experts on a Model Law for Developing Countries on Appellations of Origin
Object: To study a Draft Model Law — *Invitations:* Developing countries memhers of the United Nations — *Observers:* Intergovernmental and international non-governmental organizations concerned

October 9 to 13, 1972 (Geneva) — ICIREPAT — Technical Committee for Standardization

Octoher 16 to 20, 1972 (Geneva) — ICIREPAT — Technical Committee for Compnterization

October 23 to 27, 1972 (Geneva) — ICIREPAT — Technical Committee for Shared Systems

Octoher 23 to 27, 1972 (Geneva) — ICIREPAT — Advisory Board for Cooperative Systems

Novemher 20 to 24, 1972 (Geneva) — International Patent Classification (IPC) — Bureau of the Joint ad hoc Committee

Novemher 27 to December 1, 1972 (Geneva) — International Patent Classification (IPC) — Joint ad hoc Committee

December 13 to 15, 1972 (Geneva) — ICIREPAT — Technical Coordination Committee

May 7 to June 2, 1973 (Vienna) — Diplomatic Conference on: (a) the International Registration of Marks, (b) the International Classification of the Figurative Elements of Marks, (c) the Protection of Type Faces

Septemher 24 to Octoher 2, 1973 (Geneva) — Administrative Bodies of WIPO (General Assemhly, Conference, Coordination Committee) and of the Paris, Berne, Nice and Lishon Unions (Assemblies, Conferences of Representatives, Executive Committees)

UPOV Meetings

April 13 and 14, 1972 (Geneva) — Consultative Working Committees

May 23 and 24, 1972 (Cambridge) — Technical Working Party for Cross-fertilized Agricultural Crops

May 25 and 26, 1972 (Antibes) — Technical Working Party for Ornamental Plants

September 13 and 14, 1972 (Geneva) — Working Group for Variety Denominations

November 7 and 10, 1972 (Geneva) — Diplomatic Conference
Object: **Amendment of the Convention**

Novemher 8 and 9, 1972 (Geneva) — Council

July 2 to 6, 1973 (London/Camhridge) — Symposium on Plant Breeders' Rights

Meetings of Other International Organizations concerned with Intellectual Property

March 27 to 29, 1972 (The Hague) — International Patent Institute — Administrative Council

April 24 to 28, 1972 (Cannes) — International Association for the Protection of Industrial Property — Council of Presidents

April 26 to 28, 1972 (Helsinki) — International Writers Guild — Executive Council

May 15 to 19, 1972 (Paris) — International Puhlishers Association — Congress

May 21 to 25, 1972 (Geneva) — International League Against Unfair Competition — Congress

July 3 to 7, 1972 (Paris) — International Literary and Artistic Association — Working Session

July 4 to 6, 1972 (The Hague) — International Patent Institute — Administrative Council

Octoher 16 to 21, 1972 (Mexico) — International Confederation of Societies of Authors and Composers — Congress

Octoher 23 to 26, 1972 (The Hague) — International Patent Institute — Administrative Council

November 12 to 18, 1972 (Mexico) — International Association for the Protection of Industrial Property — Congress

December 11 to 15, 1972 (The Hague) — International Patent Institute — Administrative Council

May 20 to 26, 1973 (Rio de Janeiro) — International Chamber of Commerce — Congress

Intergovernmental Conference for the Setting Up of a European System for the Grant of Patents (Luxembourg):

April 24 to 28, 1972 — Working Party II
April 24 to 28, 1972 — Working Party III
May 15 to 19, 1972 — Coordination Committee
June 19 to 30, 1972 — Intergovernmental Conference