Cornell Law Review

Volume 55
Issue 6 *July 1970*

Article 8

Admissibility of Computer-Kept Business Records

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ADMISSIBILITY OF COMPUTER-KEPT BUSINESS RECORDS

In 1950 approximately ten to fifteen computers were in use in the United States, primarily for experimental purposes. By 1966 some 35,200 computers were in active business use, and it is predicted that by 1975 this number will jump to 85,000.[1] The vast majority of computers now being used in business and industry serve record-keeping functions.[2] This rapid development of the computer in business presents new questions regarding the admissibility of computer-kept records under the laws of evidence as they exist today and as they would exist upon enactment of the Proposed Federal Rules of Evidence.[3]

I

AN INTRODUCTION TO COMPUTERS

A. *In General*

An understanding of the unique evidentiary problems generic to computers requires at least an elementary grasp of how computers work. The following is a necessarily simplified outline of the functioning of a stored-program digital computer, the most common variety of computer and the one most widely used by business to maintain records.

Almost all computers consist of four basic elements. These are: (*a*) input-output devices; (*b*) storage devices; (*c*) arithmetic and logical units; and (*d*) a control unit.[4] All information that is to be stored in the computer's memory is first translated from readable form into machine language. This can entail the use of punch cards, magnetic tapes, paper tapes, or transparent film. Once the information is in this form, it can be fed into the computer through the input device. The infor-

1 McCarthy, *Information*, SCIENTIFIC AM., Sept. 1966, at 65, 67. The figures appeared in a report published by the American Federation of Information Processing Societies.

2 Computers are performing other functions, and it is predicted that they will eventually play a part in the decision-making process. Tomeo, *I.B.M. v. Wigmore: The Case for Cybernated Evidence*, THE STARR REP., April 1966, at 3.

3 COMMITTEE ON RULES OF PRACTICE AND PROCEDURE OF THE JUDICIAL CONFERENCE OF THE UNITED STATES, PRELIMINARY DRAFT OF PROPOSED RULES OF EVIDENCE FOR THE UNITED STATES DISTRICT COURTS AND MAGISTRATES (1969) [hereinafter cited as PROPOSED FED. R. EVID.].

4 Furth, *Computers*, in COMPUTERS AND THE LAW 26, 30-31 (2d ed. R. Bigelow 1969).

mation is thereby placed in the storage device, which can be best thought of as the computer's memory bank. These storage devices can either be entirely internal (called "cores") or external in the form of magnetic tapes, disks, cards, or drums that can be removed from the computer and filed so as to give the machine, in effect, an unlimited capacity for memory. Arithmetic and logical units are the circuitry and components of the machine that perform the binary operations the machine is called upon to do. The operation and procedure of these units is regulated by the control unit, which in turn responds to orders given it by means of a "program."[5]

Once the machine has digested all the information fed to it through the input device, it can be called upon, by utilizing a program, to search its memory for a particular piece, or any number of pieces, of information; perform a series of arithmetic computations with this information; and then spew forth the results. The process by which it reports its findings is performed by the output device. In most cases, the output device delivers information that is still only in machine-readable form. Therefore, a further process is necessary to convert this information into English prose. More advanced computers, however, are capable of producing print-outs in English.

B. *Maintaining Records with a Computer*

Use of a computer results in a substantial departure from traditional methods and procedures of record-keeping. Consequently, the type of evidence available, its reliability, and its usefulness in a trial proceeding are variously affected. It is appropriate to highlight some of the critical differences between computer-kept records and traditional records.

Obviously, one of the most appealing characteristics of a computer is the incredible speed with which it can perform various operations. In doing so, however, the machine shortcuts many of the intermediary steps that would have to be taken if the same computations were performed manually. No written records are retained as to the process through which the machine went to arrive at its final conclusions; all the machine's calculations are carried on internally in response to the directives of the program. Evidence of the process the computer performed in arriving at its final product, if needed, could be no more than circumstantial proof as to the contents of the machine's memory, the program used, and the machine's capacity and ability to perform that program. This is not to say that a computer could not record each

5 *Id.* at 31.

separate calculation that it makes in arriving at its final conclusion. If it were asked to do so, it would indeed deliver a print-out at each step of its process. Computers, however, are rarely used in this way due to the great increase in time and expense such use would entail.

Another obvious difference between traditional records and computer-kept records is in the physical form of the record. In almost every case, the record as contained in the computer's storage device would be of little or no use. Since it must be translated into English, a computer print-out is subject to the objection that it is a document created especially for trial and therefore not properly a business record exception to the hearsay rule.[6]

Traditional record-keeping systems are usually cumulative; each new entry is added to the prior entries that comprise the permanent records. The present state of affairs is ascertainable, and so, by backtracking, is the state of the record at any prior time. In a computerized system, on the other hand, it is typically the practice to keep records up to date by combining old records with new entries, thereby destroying the old records and making it impossible to ascertain the state of the record at any prior time.[7] This is done because of the great speed with which the entire record can be copied and the new material integrated.

The computer offers unique opportunities for fraudulent record alteration. Since the record can be erased as easily as standard recording tape, and since no prior records are available to check consistency or continuity, safeguards must be established to ensure against tampering. At the present time the greatest safeguard is the aura of complexity that shrouds the computer. Few people have the knowledge necessary to tamper successfully with the machine; tampering would require a detailed knowledge of how computers work and of the program and procedure being used in the particular computer involved. However, as more people learn about computers and their operation, such further safeguards as codes, restricted access to machines, and periodic compilation of records may become necessary to protect against the possibility of fraudulent alteration of records.[8]

Although computers have been known to malfunction as the result of internal failures of transistors and maguetic distortion, er-

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6 *See* 5 J. WIGMORE, TREATISE ON EVIDENCE §§ 1522-23, 1525-26, 1532 (3d ed. 1940).

7 Freed, *Evidence*, in COMPUTERS AND THE LAW, *supra* note 4, at 139, 141.

8 It appears that judges and commentators have not directly confronted this problem or even referred to it in more than a cursory manner. This is startling in light of its obvious importance to the questions whether the business record rule should apply to computer print-outs and what weight should be given these records as evidence.

rors are much more likely to be caused by external factors. A power failure, even a power decrease for a split second, can cause a computer to make grievous errors. Today, however, most computers have built-in devices that notify the operator in the event of a power lag or internal disparity.

Since the machine can perform so quickly and inexpensively, the usual test for detecting machine errors is to rerun the same program either simultaneously or successively, and compare the results for consistency. The same test uncovers any purely clerical human error, but unfortunately does not reveal an invalid, incomplete, or erroneous program. Experience has shown that many errors stem from human oversight by a programmer, coder, or operator. The computer is thus limited by the accuracy and validity of the information fed to it and the skill of the programmer who seeks to process and extract that information.

Most mistakes result from faulty programming.[9] Where a very complex program involving hundreds of individual instructions is used, each instruction can be run separately on the computer and the result checked before the program is run as a whole. This technique is called "debugging" and works relatively well, though not infallibly.

II

EVIDENTIARY PROBLEMS UNDER EXISTING LAW

Since computer print-outs are written or documentary evidence made out of court and not subject to the tests of cross-examination, they are clearly hearsay if offered for the truth of their contents.[10] Print-outs are also targets for objection on the ground that they are secondary evidence as to the state of the true record that is contained in the computer, or of the information originally fed into the computer, and therefore in violation of the best evidence rule.[11]

A. *The Hearsay Objection*

Prior to *Vosburgh v. Thayer*,[12] shop-books and business records were barred from introduction into evidence by the hearsay rule.

9 Freed, *Computer Print-Outs as Evidence*, in 16 AM. JUR. PROOF OF FACTS 273, 298 (1965).

10 *See* C. MCCORMICK, LAW OF EVIDENCE § 225 (1954); 5 J. WIGMORE, *supra* note 6, at §§ 1361-62.

11 C. MCCORMICK, *supra* note 10, at § 195. Most of the problems discussed herein could best be dealt with by pre-trial stipulations between counsel. This is probably the general practice and may account for the surprising dearth of cases involving these issues.

12 12 Johns. 461 (N.Y. 1815).

After that landmark case, however, a limited exception was made where the proponent of the evidence could establish that there were regular dealings between the parties, that he kept honest and fair books, and that no regular clerk was employed who could testify first-hand to the entries. These guidelines were followed in most jurisdictions for more than one hundred years, until it was apparent that rigid adherence to the limitations on admissibility had no relation to the realities of accepted business practice.[13]

Prompted by dissatisfaction with the existing rules and by belief that there is little motive for a businessman to falsify records essential to his very livelihood, jurisdiction after jurisdiction adopted some form of statutory exception to the hearsay rule in the case of business records.[14] In content and effect, most of the statutes adopted were strikingly similar. For purposes of analysis, the development that took place in New York will be used as an example.[15]

In New York, prior to 1928, business records were treated under the "shop-book rule," which permitted their introduction "provided they were made in the regular course of business, contemporaneously or within a reasonable time after the transaction recorded, by a person unavailable as a witness, who had personal knowledge of the event and no motive to misrepresent or misstate."[16] This rule was superseded in 1928 by the enactment of New York Civil Practice Act section 374-a.[17] With the enactment of the 1963 New York Civil Practice Law and Rules, section 374-a was changed slightly in wording, but not in substance, and became what is the present law of New York.[18] New York C.P.L.R. rule 4518(a) reads:

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13 The routine of modern affairs, mercantile, financial and industrial, is conducted with so extreme a division of labor that the transactions cannot be proved at first hand without the concurrence of persons, each of whom can contribute no more than a slight part, and that part not dependent on his memory of the event. Records, and records alone, are their adequate repository, and are in practice accepted as accurate upon the faith of the routine itself, and of the self-consistency of their contents. Unless they can be used in court without the task of calling those who at all stages had a part in the transactions recorded, nobody need ever pay a debt, if only his creditor does a large enough business. Massachusetts Bonding & Ins. Co. v. Norwich Pharmacal Co., 18 F.2d 934, 937 (2d Cir. 1927) (Learned Hand, J.). *See also* 5 J. WIGMORE, *supra* note 6, at § 1530.

14 *See* Note, *Revised Business Entry Statutes: Theory and Practice*, 48 COLUM. L. REV. 920 (1948).

15 New York has adopted the Uniform Business Records as Evidence Act along with 27 other states. 9A UNIFORM LAWS ANN. 504-31 (1965). The federal government has adopted similar legislation as the Federal Business Records Act, 28 U.S.C. § 1732 (1964).

16 E. FISCH, NEW YORK EVIDENCE § 831, at 410 (1959); *see* Vosburgh v. Thayer, 12 Johns. 461 (N.Y. 1815).

17 Law of March 23, 1928, ch. 532, § 374-a, [1928] N.Y. Laws 1158.

18 N.Y. CIV. PRAC. LAW R 4518 (McKinney 1963).

> Any writing or record, whether in the form of an entry in a book or otherwise, made as a memorandum or record of any act, transaction, occurrence or event, shall be admissible in evidence as proof of that act, transaction, occurrence or event, if the judge finds that it was made in the regular course of any business and that it was the regular course of such business to make it, at the time of the act, transaction, occurrence or event, or within a reasonable time thereafter. All other circumstances of the making of the memorandum or record, including lack of personal knowledge by the maker, may be proved to affect its weight, but they shall not affect its admissibility. The term business includes a business, profession, occupation and calling of every kind.[19]

In considering admissibility of computer print-outs the threshold question, of course, is whether a computer print-out qualifies as a "writing or record." Although there is no precedent in New York on this specific point, cases indicate that no particular form or type of record is required to satisfy the statute[20] and that records kept by a computer would be included within the broad language, "whether in the form of an entry in a book or otherwise."

Given a record, the New York statute sets forth three principal tests that must be met for admissibility. The first and most troublesome requirement is that the writing or record must have been made in the regular course of business. In the case of a computer-kept record, this presents a problem; although it may well be the regular course of business to feed the information into the computer's storage device, it is seldom the practice to print out readable excerpts from the machine's memory bank until necessary for a specific purpose. Therefore, the print-out is arguably not a writing or record made in the regular course of business, but is rather a document prepared especially for trial and at best a copy of the real record, which exists within the computer.

No case in New York has ever directly addressed this question, nor has a clear definition of "regular course of business" ever been articulated. The meaning of that phrase has apparently been relegated to the murky province of the trial judge's "sound discretion."[21]

The first case to deal with the admissibility of computer print-outs as business records was *Transport Indemnity Co. v. Seib*.[22] This Nebraska case remains the landmark decision and has been relied

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19 *Id.* R 4518(a).

20 *Cf.* Mayole v. B. Crystal & Sons, 266 App. Div. 1008, 44 N.Y.S.2d 411 (2d Dep't 1943); *In re* Borden's Will, 41 N.Y.S.2d 269 (Sup. Ct. 1943), *aff'd*, 267 App. Div. 823, 47 N.Y.S.2d 120 (2d Dep't 1944).

21 *See* Williams v. Alexander, 309 N.Y. 283, 129 N.E.2d 417 (1955).

22 178 Neb. 253, 132 N.W.2d 871 (1965).

upon heavily by the few other jurisdictions that have passed on the question.[23] In *Seib*, defendant opposed the admission of print-outs on the ground that they were prepared especially for trial and therefore were not "made in the regular course of business" as required by the Nebraska statute. The court rejected this argument:

> The retrieval from the taped record . . . was made for the purposes of the trial. But, the taped record and the information and calculations thereon were made in the usual course of business and for the purpose of the business alone.[24]

In admitting the print-out because the taped record satisfied the statutory test, the court arguably departed from the Nebraska statute, which provides:

> A record of an act, condition, or event, shall, insofar as relevant, be competent evidence if the custodian or other qualified witness testifies to its identity and the mode of its preparation, and if it was made in the regular course of business, at or near the time of the act, condition, or event, and if, in the opinion of the court, the sources of information, method, and time of preparation were such as to justify its admission.[25]

At least with respect to records not kept by computer, it is clear that what must satisfy the statutory tests is the record itself, not the source from which the record is drawn. The court's decision may be justified for two reasons. First, in the context of computers, the reference to "the sources of information" may indicate an ambiguity in the statute, because it could be interpreted to require that either the computer record or the print-out be "made in the regular course of business." Second, the requirement that the evidence be identified and attested to by "the custodian or other qualified witness" may offer enough insurance against falsification to permit expanding the statute to include computer print-outs. In *Seib*, the proponent of the print-outs went to great lengths in describing its record-keeping practices, the method it followed in producing the print-outs in question, and the chain of identity of these print-outs. This foundation was of paramount importance in convincing the court of the truth and accuracy of the evidence and therefore in achieving admission of the print-outs.[26]

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23 *E.g.*, Louisville & N.R.R. v. Knox Homes Corp., 343 F.2d 887, 896 (5th Cir. 1965); Merrick v. United States Rubber Co., 7 Ariz. App. 433, 436, 440 P.2d 314, 317 (1968) (involving a statute identical to Nebraska's); King v. Mississippi *ex rel.* Murdock Acceptance Corp., 222 So. 2d 393, 398 (Miss. 1969).

24 178 Neb. at 260, 132 N.W.2d at 875.

25 NEB. REV. STAT. § 25-12,109 (1964).

26 178 Neb. at 257, 132 N.W.2d at 874. *See also* Comment, *Computer Print-Outs of Business Records and Their Admissibility in New York*, 31 ALBANY L. REV. 61 (1967).

Most writers on the subject feel that the *Seib* rationale could be applied to the New York statute.[27] However, the New York statute differs substantially from the Nebraska statute. It specifies clearly that it is the "writing or record" sought to be introduced, not the source from which the writing was taken, that must be made in the regular course of business. Furthermore, it has no provision analogous to Nebraska's "sources of information" clause. Thus, whereas the Nebraska court in *Seib* could admit the print-out on the grounds that its "sources of information, method, and time of preparation were such as to justify its admission" and that the taped records from which it came "were made in the usual course of business and for the purpose of the business alone," no such reasoning could be relied upon by a New York court. Furthermore, since the New York statute does not require that a "custodian or other qualified witness" identify and attest to the accuracy of the evidence, the result of applying the Nebraska court's reasoning would be that any study, compilation, or summary made especially for trial, no matter how subjective or self-serving, could gain admission if its basic source material was a record made in the regular course of business. Clearly, the framers of the statute did not intend this result.

The other two principal tests for admissibility of business records under the New York statute are that the regular course of business involve and include the keeping of records, and that the memorandum or record be made at the time of the transaction, event, or occurrence, or within a reasonable time thereafter.[28] The former offers little difficulty where it can be shown that the computer is regularly used for keeping the records. The latter, however, presents a problem.

In using a computer to keep records, it is customary to feed information into the machine as the information becomes available. Therefore, the information in the storage device is not arranged in orderly form but rather is spread helter-skelter along the memory tape or coil. To produce a meaningful record, the machine must be instructed (programmed) to collect the particular information and print it out in whatever format or order is desired. This print-out is then the "memorandum or record" sought to be introduced. In most cases, the "transaction, occurrence or event" of which the print-out is evidence occurred years before the print-out was made; therefore it is

27 Tomeo, *supra* note 2, at 3; Comment, *supra* note 26, at 73. *See also* Louisville & N.R.R. v. Knox Homes Corp., 343 F.2d 887, 896 n.37 (5th Cir. 1965), citing *Seib* with approval and noting the substantial similarity between the Nebraska statute and the federal law. *Cf.* First Nat'l Bank v. United States, 358 F.2d 625, 632 n.6 (5th Cir. 1966).

28 *E.g.*, Shea v. McKeon, 264 App. Div. 573, 35 N.Y.S.2d 962 (1st Dep't 1942).

difficult to establish that this memorandum or record was made "within a reasonable time" after that transaction, event, or occurrence. Since the probable intent of the "reasonable time" requirement is to avoid the reliance on fallible human memory,[29] the objection ought to be overcome by a showing that the information was fed into the computer within a reasonable time, regardless of when the print-out was made.[30] This reasoning, however, flies in the face of the statutory language.

The hearsay problems raised by computer print-outs are more easily dealt with in jurisdictions having no statutory business records exception.[31] In *King v. Mississippi ex rel. Murdock Acceptance Corp.*,[32] the Mississippi Supreme Court extended the shop-book rule to include computer print-outs, holding that such print-outs are admissible without the necessity of identifying, locating, and producing as witnesses individuals who made entries in the regular course of business. The court laid down a series of guidelines for future admission of computer print-outs of business records. These guidelines resemble those contained in the Nebraska business records statute, but seem to permit the trial court more discretion in determining the reliability of the evidence. Under the guidelines, computer print-outs are admissible if the print-outs are relevant and material and it can be shown:

> (1) that the electronic computing equipment is recognized as standard equipment, (2) the entries are made in the regular course of business at or reasonably near the time of the happening of the event recorded, and (3) the foundation testimony satisfies the court that the sources of information, method and time of preparation

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29 C. MCCORMICK, *supra* note 10, at § 285.

30 This objection was not raised in *Seib*, but the court seemed to be addressing it when it said:

> The taped record furnished a cumulative record based on information flowing into the office of the plaintiff company day by day and fed into the machine in response to a systematic procedure for processing each insured's account.
>
> In terms of the statute, we are of the opinion that the "sources of information, method, and time of preparation" were such as to justify its . . . admission.

178 Neb. at 259, 132 N.W.2d at 875.

31 Alaska, Indiana, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Utah, Virginia, and West Virginia have no statutory provisions permitting business records to be introduced in evidence over the objection of the hearsay rule. Maine may not either; ME. REV. STAT. ANN. tit. 16, § 356 (1964), is ambiguous and appears to make admissibility discretionary with the court.

Among the remaining states, only Iowa and Florida expressly exempt electronically-stored records from the hearsay rule. FLA. STAT. ANN. § 92.36(2) (Supp. 1969); IOWA CODE ANN. § 622.28 (Supp. 1970).

32 222 So. 2d 393 (Miss. 1969).

were such as to indicate its trustworthiness and justify its admission.[33]

The court's use of the word "entries" and not "record" or "memorandum" in the second requisite eliminates a major problem caused by the various statutes. The first requirement is not clear; the court was apparently concerned that the scientific reliability of the particular computer be established. The last requisite is flexible enough in its wording, yet clear enough in its intent, to be of great value to the courts. The Mississippi court seems well aware of the potential danger of fraudulent alteration where computer evidence is involved. This awareness is reflected in its determination that the probative value of print-outs is the same as conventional books and that they are therefore subject to refutation to the same extent.[34]

B. *The Best Evidence Rule*

Simply stated, the best evidence rule demands that the content of a writing be proved by the original document; a copy of the original is inadmissible unless the original's absence can be satisfactorily explained.[35]

Once again the threshold question is whether a computer print-out is a "writing" or merely "real evidence."[36] If it is a writing, which it most likely is, then it is clearly a copy of the original record that is contained within the computer. Furthermore, the true original is most likely a document from which the information fed into the computer was taken, and this document was most likely destroyed by the proponent party.[37]

Fortunately, there are a growing number of exceptions to the best evidence rule, many of which would encompass a computer print-out. The first exception is one of necessity: if the original documents are so numerous or complicated that their production would be burdensome and of little probative value to the court or jury, a summary or extract

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33 *Id.* at 398.

34 *Id.* at 399.

35 C. McCORMICK, *supra* note 10, at §§ 195-97; J. THAYER, PRELIMINARY TREATISE ON EVIDENCE 484-87 (1898).

36 Under UNIFORM RULE OF EVIDENCE 1(13), a "writing" is defined very broadly and would probably include a computer print-out.

37 For the sake of convenience, companies that employ computers for record-keeping generally keep the original receipts and invoices for only a short period of time after the information contained thereon is fed into the computer. After this time period has lapsed, the original documents are destroyed leaving only the computer-kept record as evidence of the transactions. *See generally* Freed, *supra* note 9, at 296.

may be admissible within the trial judge's discretion.[38] Another exception, which would apply in the case of an objection on the ground that the original documents were destroyed by the proponent of the print-out, is that secondary evidence is admissible where the original, though destroyed by the proponent party, was not destroyed in bad faith.[39] Perhaps the most applicable exception is made when the court finds that the original documents were destroyed in the ordinary course of business.[40]

In New York the best evidence rule would not present any real problem to the admission of computer print-outs for New York has adopted a modified form of the Uniform Photographic Copies of Business and Public Records as Evidence Act.[41] Although this statute has been narrowly construed in New York[42] and no cases have been decided as to whether its scope would encompass computer print-outs, a liberal reading of the statute would permit their admission in spite of their status as secondary evidence.[43]

C. *Weight Afforded Print-Out Record Evidence*

It is most unlikely that any court would bar admission of computer-produced evidence solely on the ground that it may contain errors,[44] since the same is true of traditional man-made records. The *Seib* court believed that although testimony as to the reliability of computers was not relevant in determining whether print-outs should be admitted into evidence, such testimony was relevant in determining

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38 Public Operating Corp. v. Weingart, 257 App. Div. 379, 13 N.Y.S.2d 182 (1st Dep't 1939) (dictum).

39 *See* Sellmayer Parking Co. v. Commissioner, 146 F.2d 707, 710-12 (4th Cir. 1944); C. McCORMICK, *supra* note 10, § 201, at 414 & n.11.

40 Steele v. Lord, 70 N.Y. 280, 38 N.Y.S. 826 (1877).

41 N.Y. CIV. PRAC. LAW R 4539 (McKinney 1963) states:

> If any business, institution, or member of a profession or calling, in the regular course of business or activity has made, kept or recorded any writing, entry, print or representation and in the regular course of business has recorded, copied, or reproduced it by any process which accurately reproduces or forms a durable medium for reproducing the original, such reproduction, when satisfactorily identified, is as admissible in evidence as the original, whether the original is in existence or not, and an enlargement or facsimile of such reproduction is admissible in evidence if the original reproduction is in existence and available for inspection under direction of the court. The introduction of a reproduction does not preclude admission of the original.

42 Toho Bussan Kaisha, Ltd. v. American President Lines, Ltd., 265 F.2d 418, 423 (2d Cir. 1959).

43 *See* 9A UNIFORM LAWS ANN. 580-82 (1965); Annot., 76 A.L.R.2d 1356 (1961).

44 For discussion of computer accuracy in keeping business records, see text at notes 8-9 *supra*.

the weight to be attached to such evidence once admitted.[45] The same rule probably applies under the New York statute; probable reliability need not be demonstrated to admit the business record, and "[a]ll other circumstances of the making of the memorandum or record . . . may be proved to affect its weight, but they shall not affect its admissibility."[46] It may be necessary, therefore, for the proponent of the print-outs to produce detailed explanations of all stages and procedures of its computer operation and to stress safeguards used to ensure accuracy and reliability. Such testimony would be most effective if it came from a supervisor of computer operations or other expert who is apprised of all aspects of the operation.

Presentation of testimony regarding accuracy is difficult, since failure to stress safeguards may lead to objection on the ground of dubious reliability, while too heavy emphasis on error detection may leave the court and the jury with the impression that computers are error-prone. In each case some measure of balance must be struck between these two possible pitfalls.

III

The Proposed Federal Rules of Evidence

The Federal Business Records Act,[47] which is presently in effect in the federal courts, is similar to New York's statute.[48] There are no cases interpreting the federal statute, although a recent decision indicates that computer print-outs would fall within its reach.[49] Any federal decision construing the statute would naturally have strong persuasive force on states with similar statutes. At the present time, however, the federal rules of evidence are being revised by the Advisory Committee of the Proposed Federal Rules of Evidence. Their specific proposals might affect the admissibility of computer print-outs and the best evidence rule.

45 178 Neb. at 258-59, 132 N.W.2d at 875. *See also* King v. Mississippi *ex rel.* Murdock Acceptance Corp., 222 So. 2d 393, 399 (Miss. 1969). The degree to which reliability can be established will become the critical factor in litigation involving computer evidence. For an excellent discussion see Freed, *supra* note 9, at 310-16.

46 N.Y. Civ. Prac. Law R 4518(a) (McKinney 1963).

47 28 U.S.C. § 1732 (1964).

48 N.Y. Civ. Prac. Law R 4518(a) (McKinney 1963).

49 Olympic Ins. Co. v. H.D. Harrison, Inc., 418 F.2d 669 (5th Cir. 1969). Although this case was dismissed on other grounds, the court observed that where print-outs were produced in the ordinary course of business, they had "a prima facie aura of reliability," and that there was no error in relying on them as a basis for summary judgment where the opposing party failed to make any specific objections as to their accuracy. *Id.* at 670.

A. *Hearsay*

In confronting the business record exception the Advisory Committee on the Proposed Federal Rules of Evidence settled upon a somewhat expanded version of the Uniform Business Records as Evidence Act. Rule 8-03 of the Proposed Rules states in part:

> HEARSAY EXCEPTIONS: AVAILABILITY OF DECLARANT IMMATERIAL.
> (a) GENERAL PROVISIONS. A statement is not excluded by the hearsay rule if its nature and the special circumstances under which it was made offer assurances of accuracy not likely to be enhanced by calling the declarant as a witness, even though he is available.
> (b) ILLUSTRATIONS. By way of illustration only, and not by way of limitation, the following are examples of statements conforming with the requirements of this rule:
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> . . . .
>
> (6) RECORDS OF REGULARLY CONDUCTED ACTIVITY. A memorandum, report, record, or data compilation, in any form, of acts, events, conditions, opinions, or diagnoses, made at or near the time by, or from information transmitted by, a person with knowledge, all in the course of a regularly conducted activity, as shown by the testimony of the custodian or other qualified witness, unless the source of information or the method or circumstances of preparation indicate lack of trustworthiness.[50]

Although the Committee was aware of the use of computers in business record-keeping,[51] it was seemingly unaware of the principal problems involved in using print-outs as evidence; as a result its proposal offers little improvement over the present situation.

A computer print-out unquestionably is a form of "data compilation" under rule 8-03(b)(6). However, many print-outs are not made "at or near" the time of the acts or events recorded. In addition, many print-outs are made especially for trial and will be objectionable as not made "in the course of a regularly conducted activity." The Committee has not dealt adequately with these realities of computer operations. The reference to compilations "made . . . by, or from information transmitted by, a person with knowledge" raises a new problem, since the print-out may contain information transmitted by another

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[50] PROPOSED FED. R. EVID. 8-03.

[51] The Advisory Committee's note on rule 8-03(b)(6) does not specifically refer to the problems of computer print-outs, but does say that "[t]he expression 'data compilation' is used as broadly descriptive of any means of storing information other than the conventional words and figures in written or documentary form. It includes, but is by no means limited to, electronic computer storage." *Id.*, Advisory Committee's Comments to Rule 8-03, at 190. *See also id.* 9-01 and accompanying note by the Advisory Committee (expansion of ancient document rule to include data compilations).

computer. Human involvement could be found by tracing the chain of transmission but perhaps not before losing the desired form of the information. It is thus unclear whether rule 8-03(b)(6) is limited to first-cycle print-outs. Notwithstanding the proviso that examples are "by way of illustration only," these restrictions are likely to exclude many print-outs if adopted as proposed and if strictly construed.

Fortunately, the Committee chose to include the requirement of foundation testimony by a "custodian or other qualified witness," and further provided for exclusion of evidence where its "source . . . or the method or circumstances of preparation indicate lack of trustworthiness." Hopefully these provisions will ensure against fraudulent alteration.

B. *Best Evidence*

The Proposed Federal Rules of Evidence deal more effectively with the problems raised by computer print-outs under the best evidence rule. The traditional rule requiring production of the original of a document to prove its contents is restated by the Committee to include writings, recordings, and photographs.[52] This rule seems to add little to prior law until coupled with certain definitions in rule 10-01:

> (a) WRITINGS AND RECORDINGS. "Writings" and "recordings" consist of letters, words, or numbers, or their equivalent, set down by handwriting, typewriting, printing, photostating, photographing, magnetic impulse, mechanical or electronic recording, or other form of data compilation.
>
> . . . .
>
> (c) ORIGINAL. An "original" of a writing or recording is the writing or recording itself or any counterpart intended to have the same effect by a person executing or issuing it . . . . If data are stored in a computer or similar device, any print-out or other output readable by sight, shown accurately to reflect the data, is an "original."[53]

Under these definitions, a computer print-out is an "original" if it can be shown accurately to reflect the data that it represents. Thus, foundation testimony is still required to establish the print-out's accuracy and reliability. The enactment of such a rule would provide a realistic

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52 The general rule is set down in rule 10-02, entitled "Requirement of Original." The rule reads: "To prove the content of a writing, recording, or photograph, the original writing, recording, or photograph is required, except as otherwise provided in these rules or by Act of Congress." *Id.* 10-02.

53 *Id.* 10-01.

solution to the problems of computer print-outs and the best evidence rule.[54]

CONCLUSION

At first blush, jurisdictions that are still functioning under the common law rules of evidence are in an envious position with respect to the proper handling of computer print-outs; they can create specific rules for handling print-out evidence without being confined by the wording of a statute that gives little or no attention to computers. However, the adoption of the various business record statutes does not

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[54] The Advisory Committee notes:

> Present day techniques have expanded methods of storing data, yet the essential form which the information ultimately assumes for usable purposes is words and figures. Hence the considerations underlying the rule dictate its expansion to include computers, photographic systems, and other modern developments.

Id., Advisory Committee's Comments to Rule 10-01, at 235. The Committee then goes on to say, in reference to rule 10-01(c):

> In most instances, what is an original or the original will be self-evident and further refinement will be unnecessary. However, in some instances particularized definition is required . . . . While strictly speaking the original of a photograph might be thought to be only the negative, practicality and common usage require that any print from the negative be regarded as an original. Similarly, practicality and usage confer the status of original upon any computer printout. *Transport Indemnity Co. v. Seib*, 178 Neb. 253, 132 N.W.2d 871 (1965).

Id. It is not clear whether the analogy to a photographic negative is well-made. Alteration of a photographic negative requires the use of a physical process that might be detected by a close examination. The inner workings of a computer are not subject to comparable scrutiny and can be altered or erased with very little danger of detection.

The actual effectiveness of the proposed federal best evidence rule would probably turn upon the courts' subsequent interpretation of the extent of foundation testimony required to show that the print-out accurately reflects the data it purports to represent. The courts must require enough foundation testimony to uncover fraud without requiring so much as to undermine the intent of the liberalized rule.

One remedy is suggested by rule 10-06, entitled "Summaries." This rule, born of necessity and based on practicability, provides:

> The contents of voluminous writings, recordings, or photographs which cannot conveniently be examined in court may be presented in the form of a chart, summary, or calculation. The originals shall be made available for examination or copying, or both, by other parties at a reasonable time and place. The judge may order that they be produced in court.

Id. 10-06. Built into rule 10-06 is the safeguard of making original sources available to the opposing parties. But if, in relation to the best evidence rule, print-outs are originals, the effectiveness of rule 10-06 is somewhat limited. One possible solution would be to extend this safeguard one step further and provide that the opposing party be permitted access to the computer from which the print-outs were taken. This could be done on court order at the request of either party, provided that computer experts representing each party be present to witness the programming and procedure followed in obtaining the print-out.

preempt the common law, but merely supplements it.[55] If a jurisdiction wishes to treat the problem of computer-kept records independently from ordinary business records, it could find that print-outs do not fall within the scope of the statute and are therefore subject to common law rules. Such a finding would then permit the court the freedom to interpret the common law as the Mississippi court did, and to create appropriate rules for the admission of such evidence without impairing the existing rules applicable to ordinary business records.

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55 This is certainly the case in New York. 5 J. WEINSTEIN, H. KORN & A. MILLER, NEW YORK CIVIL PRACTICE § 4518.03 (1969). "[T]he statute did not *repeal* any prior doctrine permitting admissibility. . . . The shop-book rule, for example, is still viable . . . ." *Id.* (emphasis in original). Also, in construing N.Y. CIV. PRAC. LAW § 4543 (McKinney 1963), it has been stated:

> Article 45 does not purport to be a full codification of the rules of evidence and many common law doctrines are not referred to. It should be interpreted to permit the courts to continue to develop the rules of evidence as they might have without any statutes and rules to meet new problems.

J. WEINSTEIN, H. KORN & A. MILLER, *supra* at § 4543.02. *See also id.* §§ 4517.23, 4518.16, 4518.23, 4540.07.

Wigmore, in speaking about the impact of adoption of one of the uniform statutes on the common law, notes:

> It is . . . sometimes difficult to know whether the statute is to be regarded as merely declaratory of the common law . . . or whether it must be taken as a substitute replacing and excluding the common-law principle. Having regard to the history of the parties'-books exception, it seems safer and more correct, as it certainly is more advantageous, to regard these statutes as intended to enlarge or to replace merely the parties'-books branch of the exception; so that whatever principle there was at common law for the main exception . . . remains unabolished by these statutes. Their clauses, therefore, which deal with such entries of persons deceased or absent, are merely declaratory and cumulative, and the remaining limitations or elements of the main exception at common law, unmentioned in the statute, remain in force as at common law.

5 J. WIGMORE, *supra* note 6, § 1519, at 361. Various jurisdictions have endorsed Wigmore's opinion in cases that define the purpose of their respective statutes: in Ohio, the purpose is "to liberalize and broaden the shop book rule . . . ." Weis v. Weis, 147 Ohio St. 416, 425, 72 N.E.2d 245, 250 (1947); in Pennsylvania, the "purpose of [the act] was to enlarge the old common-law shopbook exception to the hearsay rule . . . ." Fanceglia v. Harry, 409 Pa. 155, 158, 185 A.2d 598, 600 (1962). *See also* Richmond v. Frederick, 116 Cal. App. 2d 541, 253 P.2d 977 (1953); Argues v. National Superior Co., 67 Cal. App. 2d 763, 155 P.2d 643 (1945); Snowcraft & Sons Co. v. Roselle, 77 Idaho 142, 289 P.2d 621 (1955); Chillstrom v. Trojan Seed Co., 242 Minn. 471, 65 N.W.2d 888 (1954); Rossomanno v. Laclede Cab Co., 328 S.W.2d 677 (Mo. 1959); Douglas Creditors Ass'n v. Padelford, 181 Ore. 345, 182 P.2d 390 (1947); Cantrill v. American Mail Line, 42 Wash. 2d 590, 257 P.2d 179 (1953).

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