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DISCOVERY IN MODERN TIMES: A VOYAGE AROUND THE COMMON LAW WORLD

COLIN TAPPER*

Contrary to common belief the legal profession has rarely scorned technological advance, but has been adept to harness its potential both as a means of conducting its own affairs, and as an area where legal problems abound and the traditional practice of the law is apt to be applied. The interface between lawyers and computer technology in particular has been seen, and been seen rightly, to have two facets, the first concerned with legal exploitation of technology, and the second with the resolution of the problems created by the use of that technology.¹

In their practices lawyers use computers for such tasks as time recording, scheduling, accounting, management of communications, word-processing, in-house publication, document management, litigation support, and database searching. They advise on the whole range of legal issues raised by computers such as intellectual property, patent, copyright and trade secrets, in programs and databases; procurement, public and private; liability civil, criminal and regulatory; data protection; and procedure, practice and evidence. Just because lawyers are such voracious users of technology these two facets cannot be kept completely distinct. Thus questions have arisen in relation to copyright in legal databases,² to the procurement of a system for court administration for the City of Los Angeles,³ to the procurement of a small computer for a legal firm in the United Kingdom,⁴ and to alleged negligence in the provision of a system for legal database research.⁵ Perhaps the greatest potential for such convergence is provided by the conduct of litigation, where, “computer-stored information has become involved in every type

¹ All Souls Reader in Law, Fellow of Magdalen College, Oxford.
2. West Publishing Co. v. Mead Data Central Inc., 799 F.2d 1219 (8th Cir. 1986) (a dispute about copyright in the pagination of law reports).
of litigation." This is becoming increasingly automated, and such automation is itself becoming increasingly sophisticated. It is vital that lawyers be completely clear what they may and must do, and what their opponents can and can't do. Lawyers must know how to ensure that needed computer information is easily accessible for case preparation for trial, and admissible in the trial's conduct, if desired. Simultaneously, lawyers need to know their opponent's access to the information, and available checks to their opponent's access.

These questions are currently shrouded in mystery and confusion. Rules which have developed historically are in some disarray, especially so far as the protection of documents from discovery by an opponent are concerned, and have been put under greater strain by the rapid and recent technological changes which have taken place in the conduct of trial preparation. This paper will address these problems, with particular stress on the operation of the doctrine of discovery in relation to the development of computerized litigation support systems, and the extent to which legal professional privilege can provide protection for litigation support materials and under what conditions.

The area is obscure partly because its setting in terms of the development of the relevant rules is itself obscure, and partly because of the impact of modern technology upon those rules undermining some of their conceptual foundations. These issues will be examined separately. The first part will deal with the development of the current rules, and the second with the ways in which modern technology has put their basis and policies into question.

I. THE SETTING

A. The Development of Two Systems

The setting of this topic is largely determined, like so many problematic areas of the common law, by the interaction of the progress and processes of social and legal change, substantial and procedural. The laws of evidence and procedure matured and developed over the centuries, some parts earlier and some parts later than others, but the foundations of the modern law of evidence seem to have crystallized in the late seventeenth and early eighteenth century. In broad and crude terms society was more fragmented, and more primitive than it is today. More people lived and worked in a small local circle, rarely travelling outside

7. Taken in a broad sense to comprehend what in the United States is covered both by attorney and client privilege and lawyers' work product immunity.
it, fewer were literate, and more were more deeply imbued with fundamental religious belief. Businesses were small, employed fewer employees, required less bureaucratic infrastructure in the shape of facilities for credit and insurance, and operated much more on a basis of mutual personal knowledge of customers and suppliers. On the other hand, human vice is perennial, and people were then no less greedy, selfish and deceitful than they are today. In such circumstances the broad trend of the development of rules of evidence for the resolution of disputes was understandable. It has been described as having been apparently founded on the "propositions that all jurymen are deaf to reason, that all witnesses are presumptively liars and that all documents are presumptively forgeries."

These considerations naturally led to a preference for oral examination. If few witnesses can write, the only common measure for getting at the truth is oral testimony, but given the suspicion of lying it must be given on oath. It must also be subject to questioning by the other side so that the jury can form an impression of which side is the more truthful. They have to observe and react rather than to reason in arriving at their verdicts. It is now not difficult to understand why and how a hearsay rule was developed, designed to prohibit the use of out of court or unsworn documents, whose makers had not been cross-examined before the jury. If, by some chance, documents had been drawn and were relevant, then if they had to be used it was better to insist upon the use of originals, as the chances of their being indetectably falsified was thereby reduced. The genesis of the complementary best evidence rule also becomes apparent. Fear of perjury explained the refusal of courts to permit not only parties, but any potential witness interested in any way in the outcome of the suit, to testify. That this is the explanation is illustrated by the otherwise anomalous acceptance of out of court admissions by the parties. Such evidence is unsworn, unexamined and emanates from an interested party, but because it is contrary to his interest and presumed for that reason to be true, it is acceptable. Similar considerations affected the rules of procedure at common law. In order to preserve potential witnesses from pressure and corruption the rule developed that pre-trial pleading should be limited to matters of law upon merely stated facts, and evidence could not be pleaded.

Alongside these rules applied in the courts of common law there had become established the different practice and procedure of the Court of Chancery, originally based upon civil and canon law models. This was a very different sort of procedure under which the interrogation of the par-

ties was a central feature, and which relied to a much greater extent on the use of written material,\(^9\) no doubt influenced by the circumstance that a judge, a literate man, acted as trier of fact rather than a possibly illiterate jury. Under this procedure there was the same fear of perjury, but it manifested itself not so much in evidence being reserved to be given orally at the trial, as by keeping it secret after it had been taken on commission, and making it public for the first time at the trial. In place of the subpoena ad testificandum which secured the presence of the witness at a trial at law, the provenance of testimony in Chancery proceedings was secured at the pre-trial stage by a bill of discovery, or by interrogatories. Because there was, in Chancery, no bar on securing evidence from an opposing party by compulsory process, such discovery of evidence or documents which tended to prove the case of the party seeking them\(^{10}\) was a substantial advantage of Chancery procedure.

In short, English law developed two systems with contrasting strengths and weaknesses. The common-law procedure was regarded as superior so far as proof of facts at the trial stage was concerned.\(^{11}\) In this respect Chancery procedure came to borrow from the common law and it was possible for proof of facts to be conducted according to common-law practice by the use of a feigned issue.\(^{12}\) At the pre-trial stage the balance was reversed and it was perceived that Chancery procedure was superior,\(^{13}\) and here the common-law courts borrowed from Chancery by permitting a bill of discovery to be issued in equity and the use in a suit at law of information compulsorily secured from a party by those means. The action at common law could be stayed in the meantime by a Common Injunction. This procedure was, however, described by the Common Law Commissioners as "cumbersome and expensive."

\(^9\) In Graves v. Budgell, 1 Atk. 444, 445, 26 Eng. Rep. 283, 283 (Ch. 1737), Lord Hardwicke L.C. said

[T]he constant and established proceedings of this court are upon written evidence, like the proceedings upon the civil or canon law. . . .

There never was a case where witnesses have been allowed to be examined at large at the hearing; and though it might be desirable to allow this, yet the fixed and settled proceedings of the court cannot be broke through for it.

\(^{10}\) But not evidence which was relevant solely to the case of the party from whom discovery was sought.

\(^{11}\) In Binford v. Dommett, 4 Ves. Jun. 756, 762, 31 Eng. Rep. 391, 394 (M.R. 1799), the Master of the Rolls admitted that "it is impossible to sit here any time without seeing, that a \textit{viva voce} examination of witnesses is much more satisfactory than depositions", and in Flight v. Robinson, 8 Beavan 22, 34, 50 Eng. Rep. 9, 14 (M.R. 1844), one of his successors, Lord Langdale M.R., agreed, though claiming that the availability of discovery effectively redressed the balance.

\(^{12}\) See 9 \textsc{William Holdsworth}, \textsc{History of English Law} 357 (3d ed. 1938).


\(^{14}\) \textit{Id.} \textit{See also} 3 \textsc{William Blackstone}, \textsc{Commentaries} 382 (1769).
roundly condemned by the Chancery Commissioners in their First Report in 1852:

the right of the defendant at law to stay proceedings in the action by means of the Common Injunction has occasioned great abuses. Bills are continually filed, ostensibly for discovery, the real and known object being to gain delay by means of the injunction. In such suits, the plaintiff’s object is not to obtain a full answer, but to entrap the defendant into putting in an answer technically insufficient; and the statements in the Bill, not being on oath, the case alleged as a foundation for the inquiries may be, and frequently is, wholly fictitious. The practice of the Court, which in this branch more than any other, is full of technicality, is too often made an engine of mere oppression and vexation, involving the parties in litigation on points wholly beside the merits of the case.15

B. Their Unification

It was clearly unsatisfactory to have two such flawed but complementary systems for trials. The first pre-condition for reform, to make the parties compellable in proceedings at common law at the instance of the other, was taken in the Evidence Act 1851. This alone was not enough as the Chancery Commissioners also pointed out.16 Both the Chancery Commissioners and the Common Law Commissioners in their Second Report felt that it was desirable, and even necessary, to go further. Section 6 of the Evidence Act 1851 had given a power of inspection at common law wherever Chancery would have allowed discovery, but a further step was necessary. As the Common Law Commissioners pointed out,

many applications under the statute have failed for want of such a power as courts of equity possess, but which the statute did not confer upon the courts of common law, namely, that of compelling a preliminary discovery by either party of what documents he has in his possession or power relating to the matters in question . . . . Without the power of compelling such a preliminary discovery, the statute above referred to is comparatively valueless. There can be no doubt that it was the intention of the Legislature in framing it, to grant to courts of common law a power of discovery of documents as extensive as that possessed by the courts of equity; but from the defect above pointed out, the intention of the legislature has been frustrated; and it is essential in order to give effect to that intention, that each party should have a right to compel the other to discover and set forth what documents relating to the cause are in his possession and power.17

This final step was taken by sections 50 and 51 of the Common Law

15. First Report of the Chancery Commissioners 23 (1852).
16. Id.
Procedure Act 1854, which gave powers to administer interrogatories and imposed a duty to discover. It was, of course, already recognized in equity that a claim to legal professional privilege would prevail over the obligation to discover. Any suggestion that the statute gave a wider power than that operated in the Courts of Chancery was rapidly rejected, and the court accepted the principles "which have been recognized in the Courts in which this branch of our jurisprudence was originally planted, nurtured and grown up." That branch had adopted a circumscribed approach to the development of legal professional privilege as an exception to the principle of discovery.

Professional privilege is a ground of exemption from production adopted simply from necessity, as forcibly shewn by Lord Brougham in Greenough v. Gaskell, and ought to extend no further than absolutely necessary to enable the client to obtain professional advice with safety: beyond what is absolutely necessary for this purpose, it ought not to be allowed to curtail that most important and valuable power of a Court of Equity, the power of compelling a discovery.

Although a little backsliding in some later authorities at common law was detected in Anderson v. Bank of British Columbia, both Jessel M.R. at first instance and the Court of Appeal expressed the opinion that the point had been concluded by the passage of the Judicature Acts, and in particular its provision that in the case of conflict the rules of equity were to prevail over those at common law. There would indeed have been little point in interpreting the provisions of the Common Law Procedure Act 1854 differently from the position in Chancery since the old practice of applying for discovery in Equity had not been abolished by the legislation of the 1850s, and if discovery were denied at common law it could still be had in equity. It was, however, in exploring the limits of those rules as they had been developed, and in a rationalization of the position arrived at in some of the common law decisions, that James L.J. uttered the generalization which has, in English law at least, given rise to the development of the second branch of legal professional privilege.

18. The Chancery Commissioners describe the exception as one for "professional confidence," First Report of the Chancery Commissioners, supra note 15, at 23.
23. 2 Ch. D. 644 (C.A. 1876).
25. "[T]here can be no doubt that the rules previously existing respecting discovery in the Court of Chancery are binding now upon all the Courts." Anderson, 2 Ch. D. at 658 (Mellish L.J.).
sometimes now referred to as "litigation" privilege:
as you have no right to see your adversary's brief, you have no right to
see that which comes into existence merely as the materials for the
brief.  

C. Documents Held by Lawyers in Preparation for Litigation

The mere fusion of law and equity into one unified system would
have solved the problems of the extent of discovery only if the applica-
tion of the equitable rules were settled, and it quite clearly was not, as a
succession of litigated cases illustrated. There remained clashes of pol-
icy, and a wide variety of different circumstances to be considered. There
was still the deep-seated contradiction between the desire to promote set-
tlements by requiring early mutual disclosure between opposing parties
in order to secure better-informed judgment and negotiation, and the de-
sire to promote settlements by encouraging full disclosure by a party to
his own legal adviser so as to permit his better-informed judgment and
advice. It is widely, but not universally, believed that unless informa-
tion is understood to be capable of concealment from an opponent, pri-
ivate disclosure to the party's own adviser is likely to be inhibited, so the
two policies, the former underlying discovery and the latter underlying
legal professional privilege, are in clear conflict with each other.

A wide range of different factors enters into the definition of the
problem. Documents may emanate from the lawyer, or from the client,
or from the agents of either, or from third parties. They may have come
into existence before the events giving rise to the dispute, or after its
commencement, and in the latter case either before or after the formal
commencement of proceedings. It may be significant when and how an
original document came into existence, for example whether it was solic-
ited by the lawyer or the client, and if so whether its purpose was made
known to the maker. If it is a copy, then it may be significant to know
when and how the copy came to be made, for example whether it is an
oral statement transcribed into writing or whether there is an element of
editing or selection involved, and what degree of copy it is. In the case of

27. See In re Highgrade Traders Ltd., [1984] Butterworth's Company L. Cases 151, 170 (C.A.
1983).  
29. See Mason J. in O'Reilly v. Commissioners of the State Bank of Victoria, 153 C.L.R. 1, 26
30. For the importance of these factors see Wheeler v. Le Marchant, 17 Ch. D. 675, 682, (C.A.
1881). See also Cossey v. London, Brighton & South Coast Ry., 5 L.R.C.P. 146 (1870); Fenner v.
London & South Eastern Ry., 7 Q.B.D. 767 (1872) (as explained in McCorquodale v. Bell, 1 C.P.D.
471 (1876)).
both originals and copies, it may be relevant to know when it came into
the possession or power of the party or legal adviser. Further complica-
tion may exist on account of the interaction of rules of private privilege and public policy, and between discovery and other forms of compulsory process, such as interrogatories, subpoenae duces tecum, subpoenae ad testificandum, the provision of particulars or the compulsory processes of the criminal law. All of these factors in various combinations will define the precise situation which requires resolution. It has been suggested that it is the variable combination of such factors which makes the case law seem so inconsistent.

D. Copies of Unprivileged Originals

It is convenient to start with a particular situation by way of exam-
ple, that in which material itself unprivileged in its original form is cop-
ied for the purpose of litigation. The underlying material may have been oral, for example oral evidence at a trial, or may have been documentary. The law has found difficulty in this area. In England much of the difficulty can be traced to The Palermo, where the Court of Appeal, without hearing argument for the respondent, and without delivering a reasoned judgment, upheld the decision of Butt J. at first instance that copies, obtained from the Board of Trade by one of the parties for the purposes of this litigation, of depositions made for the purposes of a collateral inquiry into a collision at sea, were privileged from disclosure to the other party to the civil action in respect of that collision. The defend-
ants had been unable to secure a copy of these depositions for themselves, since the Board of Trade apparently operated a policy of not providing such copies until and unless a party seeking them, not itself obliged to depose its own crew's statements, had done so. Here there was no such obligation and depositions had not been made by the defendants. They sought them from the plaintiff who had obtained copies for the purpose of preparing for the instant litigation. Butt J. appears to have refused disclosure partly on grounds of public policy and partly because he

34. Because the ship was foreign.
35. A policy of refusing access to documents obtained by compulsory process for one purpose to be supplied for another without consent. This policy was recently adopted by Browne-Wilkinson V.C. in Marcel v. Metropolitan Police Commissioner, [1991] 1 All E.R. 845, in relation to documents obtained by the police under the compulsory powers of search and seizure bestowed upon them by the Police and Criminal Evidence Act 1984, although his decision in the special circumstances of that case was subsequently reversed by the court of appeal, [1992] 1 A11 E.R. 72, C.A.
thought "the doctrine of disclosure has gone quite far enough."\textsuperscript{36} He also rejected arguments based upon the fact that the original depositions had not come into existence for the purpose of being used for litigation, concentrating instead upon the copies, the subject of the application, which clearly had. In coming to that conclusion he may well have been influenced by the two authorities cited to him by the plaintiff. Each is however distinguishable in the relevant respect. In \textit{Southwark \& Vauxhall Water Co. v. Quick}\textsuperscript{37} only one of the documents could be regarded as a copy of something else, namely the transcript of notes of a conversation, but that conversation, notes and transcript had clearly been conducted and made with a view to use in the instant litigation. It is noteworthy that Brett L.J. thought it necessary to refer, not only to the provenance of the transcript, but also to that of the notes from which it was made,

\textit{[t]he object for which the notes were taken, and the transcript made, was that they might be furnished to the solicitor for his advice.}\textsuperscript{38}

The other case was \textit{Nordon v. Defries}\textsuperscript{39} where the issue was again not related to the straightforward copying of a document for the purposes of litigation but rather to the transcription of notes of evidence given in a previous action relating to the same subject matter. The basis for decision was that in such a case the notes clearly came into existence for the purposes of the litigation in which the evidence was given, and that the doctrine "once privileged, always privileged" applied. The case was subsequently overruled by the Court of Appeal so far as it suggested that transcripts of proceedings in open court were privileged.\textsuperscript{40} It may be noted that in the United States such transcripts are protected neither on the basis of attorney and client privilege, nor even as attorney's work product.\textsuperscript{41}

It should further be noted that when in \textit{Goldstone v. Williams, Deacon \& Co.}\textsuperscript{42} the point was taken explicitly in respect of copy depositions, the Court distinguished \textit{The Palermo} by reference to the status of the original depositions, and disregarded entirely the purpose for which the copies were taken. Butt J. himself even refused to extend his decision in \textit{The Palermo} in \textit{Land Corporation of Canada v. Puleston},\textsuperscript{43} to a case

\begin{itemize}
  \item \textsuperscript{36} \textit{The Palermo}, 9 P.D. at 7.
  \item \textsuperscript{37} 3 Q.B.D. 315 (C.A. 1878).
  \item \textsuperscript{38} \textit{Id.} at 320 (emphasis added).
  \item \textsuperscript{39} 8 Q.B.D. 508 (Q.B. Div'l Ct. 1882)
  \item \textsuperscript{40} Lambert v. Home, 3 K.B. 86 (C.A. 1914).
  \item \textsuperscript{41} Lepley v. Lycoming County Court of Common Pleas, 393 A.2d 306 (Pa. 1978).
  \item \textsuperscript{42} [1899] 1 Ch. 47 (Ch. 1898).
  \item \textsuperscript{43} [1884] W.N. 1 (Ch.).
\end{itemize}
where an original diary had been lost and allowed discovery of extracts obtained by the solicitors for the purposes of the action. In so doing he appears to suggest that his reason for the decision in *The Palermo* was that the originals, being in the hands of the Board of Trade, their refusal to produce should have been tackled head-on. It was not made completely clear in *Puleston* whether the extracts themselves were made for the purposes of the litigation, or merely came into the hands of the solicitors for that purpose. Nor was *The Palermo* applied in *Chadwick v. Bowman,* where the issue turned on the authority bestowed by the defendant on third parties in the course of correspondence where the defendant had subsequently destroyed his side completely, but his solicitor had procured copies from the third parties. It might be expected that these would consist of originals of letters written by the defendant and copies of those written to him, but the case is presented in the official reports as if all were copies. In allowing discovery the Court was influenced by the consideration that if privilege were allowed it would be possible for a party to insulate himself from discovery merely by taking a copy once litigation was threatened and destroying the originals.

*The Palermo* is of special interest because the underlying situation of fact is so similar to that in the leading American case of *Hickman v. Taylor.* There too a public enquiry was held into the circumstances of a shipwreck, depositions were taken from witnesses, and then sought by processes of discovery. The resemblance is not however exact, as in *Hickman v. Taylor* the public depositions were made available to both sides, and further depositions had been taken privately by counsel for one of the parties. It was indeed regarded as a material fact that the depositions and witnesses were available to the party seeking disclosure from his opponent. Legally also there was the vital difference that the Supreme Court regarded attorney and client privilege as too restricted to extend to information which an attorney secures from a witness while acting for his client in anticipation of litigation. Nor does this privilege concern the memoranda, briefs, communications and other writings prepared by counsel for his own use in prosecuting his own case; and it

44. 16 Q.B.D. 561 (Q.B. Div'l Ct. 1886).
45. Although unclear in the official version, it seems from the account in 54 L.T. 16 that the documents in question were the mixture of originals and pre-litigation copies constituting the third party's file.
46. 329 U.S. 495 (1947).
47. There was some procedural uncertainty about the technical propriety of the methods adopted, but the Supreme Court was not prepared to be deflected from the questions of principle involved.
48. In origin at least similar to legal professional privilege in England.
is equally unrelated to writings which reflect an attorney’s mental im-
pressions, conclusions, opinions or legal theories.\footnote{49}

Instead the Supreme Court invested the lawyer with a qualified immunity
in respect of his “work product,” an immunity liable to be overturned
only by a positive showing of necessity, or because denial would cause
hardship or injustice. This immunity rests not on the inviolability of
communications between lawyer and client for the purpose of securing
legal advice, but upon “the public policy underlying the orderly prosecu-
tion and defense of legal claims.”\footnote{50} The importance of this decision lies
partly in its break from the traditional privilege, at once investing the
area with greater flexibility, not least in rationale. For this reason the
situation in the United States is more diverse, and the two areas have
been able to develop differentially:

[T]he two concepts are treated quite differently and, in the eyes of the
law, are independent legal concepts reflecting different policy
considerations.\footnote{51}

The doctrine has since been codified and forms the substance of rule
26(b)(3) of the Federal Rules of Civil Procedure. The effect in the
United States has been to bifurcate protection between that for communi-
cations and that for litigation, the one protecting communications for
advice even in the absence of litigation, and the other generally preserv-
ing the lawyer’s brief for litigation from his opponent.

It should nevertheless be noted that the Court remained alert to the
dangers of extending suppression unduly, and stressed that

[w]e do not mean to say that all written materials obtained or prepared
by an adversary’s counsel with an eye toward litigation are necessarily
free from discovery in all cases. Where relevant and non-privileged
facts remain hidden in an attorney’s file and where production of those
facts is essential to the preparation of one’s case, discovery may prop-
erly be had.\footnote{52}

It is against this background that the development of the law up to the
computer age must be considered.

\section{E. Modern Developments}

In England the view continued to be held that, in order to justify
extending privilege, it was necessary not only that the relevant copy of an
unprivileged original be held by the lawyer for the purposes of litigation,
but that it should reveal something of the advice offered to the client by

\footnotesize
\begin{itemize}
  \item \footnote{49}{\textit{Hickman}, 329 U.S. at 508.}
  \item \footnote{50}{\textit{Id.} at 510.}
  \item \footnote{51}{Keary & Trecker Corp. v. Giddings & Lewis Inc., 296 F. Supp. 979 (E.D. Wis. 1969).}
  \item \footnote{52}{\textit{Hickman}, 329 U.S. at 511.}
\end{itemize}
the lawyer, or his view of the case. The technicality so induced is well-illustrated by the seminal decision of *Kennedy v. Lyell*, where Baggallay L.J. found it necessary to distinguish between a statement that a graveyard contained the tomb of 'X', and a statement that a graveyard contained the tomb of 'the said X' (on the basis that the former statement communicated no more than a lay observation of fact, while the latter communicated a professionally formed opinion of law). On that view a photograph of the relevant tombstone might have been discoverable, but even then questions might arise in relation to the selection of tombstones to be photographed as revealing something of the lawyer's approach.

In more straightforward cases of verbatim copying of single documents or of a complete category it seems to have been assumed in England that privilege would not be allowed. Thus in *Lambert v. Home*, Cozens-Hardy M.R. used as a basis of his argument the proposition that

[a] defendant who has obtained at his own cost a copy of a document, not in his possession, which is not in itself privileged, cannot decline to produce the copy, although he has obtained it in anticipation of future litigation.

While the other member of the majority, Buckley L.J. used the proposition that privilege might exist for the copy as a reductio ad absurdum:

no such privilege exists. If it did a copy of a document as distinguished from the original would be privileged.

At around that time there seems to have been some extension of the ambit of legal professional privilege in England, especially in relation to reports commissioned into accidents for the benefit of insurers. This attitude may have influenced the decision of the Court of Appeal in *Watson v. Camell Laird & Co. (Shipbuilders and Engineers) Ltd.* when it held that copies of hospital records secured by the plaintiff were privileged from discovery by the defendant who had been denied access to the records by the hospital. The Court distinguished *Chadwick v. Bowman*

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53. 23 Ch. D. 387, 402 (C.A. 1883)
54. As was indeed decided at a later stage in the same proceedings, *Lyell v. Kennedy*, 27 Ch. D. 1, 26 (C.A. 1884).
56. *Id.* at 91.
57. *Id.*
on the basis that the relevant originals here had never been in the possession of the party from whom discovery was sought, and applied *The Palermo*.

It has to be remembered that, even as late as the decision in *Waugh*, the dominant legal culture still tended to prefer adversarial values of keeping evidence secret before trial to those of early disclosure. Thus Lord Wilberforce referred\(^\text{60}\) to the fact that

a litigant is entitled within limits to refuse to disclose the nature of his case until the trial. Thus one side may not ask to see the proofs of the other side’s witnesses or the opponent’s brief or even know what witnesses will be called; he must wait until the card is played and cannot try to see it in the hand.\(^\text{61}\)

Lord Simon said,

Apart from the limited exception for some expert evidence . . . a party in civil litigation is not entitled to see the adversary’s proof of what his witnesses will say at the trial; there has been no suggestion that he should be so entitled, and any such development would require the most careful consideration based on widespread consultation.\(^\text{62}\)

But the tide was already on the turn. As Lord Edmund Davies averred in the same case, the judges

should start from the basis that the public interest is, on balance, best served by rigidly confining within narrow limits the cases where material relevant to litigation may be lawfully withheld. Justice is better served by candour than by suppression.\(^\text{63}\)

Some judges applied this attitude to the instant question, and in *Buttes Gas and Oil Co. v. Hammer (No. 3)*\(^\text{64}\) Lord Denning M.R. felt empowered by the decision in *Waugh*\(^\text{65}\) to decline to follow *The Palermo* and *Watson* so far as they distinguished between the privilege attaching to originals and copies secured for the purposes of litigation. He also indicated the modern justification and reason for the change:

[I]f the original is not privileged, neither is a copy made by the solicitor privileged. For this simple reason: the original (not being privileged) can be brought into court under a subpoena duces tecum and put in evidence at the trial. By making the copy discoverable, we only give accelerated production to the document itself.\(^\text{66}\)

As his successor as Master of the Rolls has stated,

60. Though with something less than enthusiastic support.
62. *Id.* at 536.
63. *Id.* at 543.
64. [1981] Q.B. 223, 244 (1980).
65. Influenced also by the criticism of these authorities by the LAW REFORM COMMITTEE, 16TH REPORT (PRIVILEGE IN CIVIL PROCEEDINGS), 1967, CMND 3472, at 9 n.*.
Over the last quarter of a century there has been a sea-change in legislative and judicial attitudes towards the conduct of litigation, taking the form of increased positive case management by the judiciary and the adoption of procedures designed (a) to identify the real issues in dispute and (b) to enable each party to assess the relative strengths and weaknesses of his own and his opponent's case at the earliest possible moment and well before any trial. Not only does this tend to make for shorter trials and save costs, even more important it facilitates and encourages settlements. The most important change has been the requirement that, save in exceptional cases, witness statements be exchanged prior to the trial. As there explained, one aspect of this fundamental change, that a witness statement once exchanged could stand as evidence in chief, came first in the Restrictive Practices Court in relation especially to expert economic evidence. The other aspect, especially relevant in this context, that witness statements be exchanged really developed in the 1980s. As the quotation from Lord Simon showed it was originally limited to expert evidence, but has been gradually expanded from international commercial arbitrations, to Official Referee's business, to the Commercial Court, to the Admiralty Court, to the Chancery Division and finally generalized to the Queen's Bench Division, and application throughout the jurisdiction of the High Court. It was at first sparingly applied in fraud cases, but is now commonplace there also. The essence of this procedure is that the exchange of witness statements is ordered before trial, and if not complied with the sanction is prohibition on the use of evidence to prove the relevant facts. This is a powerful weapon, and in Comfort Hotels Ltd. v. Wembley Stadium Ltd. its relation to privilege was defined by Hoffmann J. In that case the defendant refused to comply with an order for compulsory exchange, in part on the basis that it would infringe professional privilege in forcing him to reveal communica-


68. A change described by the usually staid Supreme Court Practice, the White Book, as "outstanding and far-reaching," "embodies a fundamental innovation," "provides a radical alteration," "removes some of the defective factors and the more confrontational aspects of the adversary system of civil procedure" and "greatly improves the pre-trial process." See also Commercial Court Practice Note, [1987] 3 All E.R. 799.

69. See Rules of the Supreme Court (Amendment No. 2), 1986, S.I. 1986, No. 1187, inserting a new Rule of the Supreme Court, Order 38, rule 2A.

70. It also applies in the County Court. See County Court Rules (Amendment No. 4), 1989, S.I. 1988, No. 2426, inserting a new County Court Rule, Order 20, rule 12A.


ocations made to the lawyer for the purposes of the trial. Hoffmann J. ingeniously rebutted this argument by saying that the new rules did not extend discovery, or fetter privilege in any way, they merely attached a condition to the use of oral evidence at the trial, namely that it should have been disclosed to the opponent in advance. In that way he sought to deflect the argument that so radical a change was ultra vires the Rules Committee. He argued in language reminiscent of that of Lord Denning, M.R. in Buttes Gas that

Order 38, r. 2A has the effect of empowering the court to make it a condition of the party's ability to lead oral evidence at the trial that he should have given prior notice of such evidence in the form of a written statement served on the other parties. It does not mean that he can be compelled to disclose any document or information. It is only if he wants to disclose the information by way of evidence at the trial that he may now be required as a precondition to disclose it in written form in advance.  

While it may be true that the law of privilege is not affected by this change, it is far from clear that the law of admissibility is unaffected by it. Hoffmann J. says that it is not as if a party is compelled to exchange a witness statement whether or not he wants to call the evidence at the trial. This may be so, but it does mean that evidence which the party does want to call at the trial has become, at least prima facie, inadmissible, when before the rule it would have been admissible. However any such argument has now become academic as a result of the passage of sub-section 5(2) of the Courts and Legal Services Act, 1990:

Where a party to proceedings has refused to comply with such a requirement or direction, the fact that his refusal was on the ground that the required statement would have been a document which was privileged from disclosure shall not affect any prohibition imposed by virtue of subsection (1)(c).

There can be no doubt that the tide is flowing fast in the direction of fuller pre-trial disclosure and less and less technicality at least in relation to civil proceedings. The recent Civil Justice Review recommended that

[Public policy requires that certain objectives be met, by virtue either of rules of court or of specific intervention by the court. Those objectives are that:

75. Id., as a means of differentiating the case from In re Saxton, [1962] 2 All E.R. 618.
77. The situation in criminal proceedings is subject to different considerations which it is not possible to explore here.
(i) Cases should be disposed of within a reasonable time, whether by settlement trial or otherwise.
(ii) Each side should have full information about the other's case, in order to assist settlement or preparation for trial.
(iii) In all other respects there should be adequate preparation for trial and identification of the relevant issues and of evidence required to resolve those issues.
(iv) Cases which are ready for trial should come on without delay.
(v) The conduct of trials should be expeditious, with issues, evidence and argument presented in as economical a manner as justice permits.78

While it is true that these reforms do not in terms remove the last vestige of argument for the rule that copies of unprivileged documents should attract privilege,79 they have changed the climate to such a degree that some recent case law has been surprising. It began with R. v. Board of Inland Revenue ex parte Goldberg80 where the Divisional Court held that privilege could be claimed in respect of a copy of a document which would have been discoverable in the hands of the client, but which had mysteriously disappeared before trial, although a copy had found its way into the papers of counsel. This was precisely the sort of situation feared by Channel J. in his argument in Chadwick v. Bowman.81 Tasker Watkins L.J. relied heavily on The Palermo and Watson, apparently oblivious of the extension he was making by applying those decisions to documents where the originals had been in the hands of the party resisting discovery, and apparently without reference being made to Lambert v. Home. It is however doubtful whether such reference would have made any difference, since the Court dismissed Lord Denning's reference to Waugh in his judgment in Buttes Gas, seemingly because it was not concerned with copy documents. Waugh was however very much concerned with the reason for a document's coming into existence, which was the reason that Lord Denning, it is submitted rightly, regarded it as relevant.82 Goldberg was too much for the Court of Appeal to swallow, and was disapproved in Dubai Bank v. Galadari.83 In that case a copy of an affidavit was in issue, and it was quite unclear on the facts whether the relevant document was the originally unprivileged copy affidavit,84 or a copy

78. REPORT OF THE REVIEW BODY ON CIVIL JUSTICE, 1988, CMND 394, para. 220.
79. It would even be possible to construct an academic argument that they remove the necessity for discovery by providing an alternative procedure for pre-trial disclosure.
81. 16 Q.B.D. 561 (1886).
84. It is well established that if the original is unprivileged in the hands of the client, or a third
of it made for the purposes of submission to the lawyer. Dillon L.J. was understandably impatient of a rule demanding such absurd and impracticable technicality. The Court held that Goldberg went too far. It seems to have accepted the view advanced in Watson that there is a distinction between cases where the original had, and had not, been in the possession of the party seeking discovery. Here it had, and privilege could not prevail. The Court did however accept one of the arguments advanced by losing counsel in Watson, that merely to photocopy one document could not reveal sufficient of the lawyer's reasoning to justify a claim being made on that basis.

Nothing daunted by this, in yet another case, Ventouris v. Mountain it was held at first instance that documents, even originals, coming into the possession of solicitors for the purposes of litigation would be privileged in their hands, even though not initially so coming into existence. Otherwise Saville J. felt the basic purpose of encouraging parties to consult solicitors would be undermined. He sought to minimize the manifest danger of suppression inherent in such a rule by stressing that if the whole aim were suppression then the privilege would not apply as then there would be no intention to provide legal advice, but this is extremely vague, would be very difficult to prove, and could easily be feigned. He also felt that the dangers were mitigated by the presence of the original maker to give evidence, but this might often not be the case. Fortunately the Court of Appeal was not prepared to accept this reasoning either, and allowed an appeal. In particular Bingham L.J. took the view that it was essential to bear in mind the purpose for which the original document came into existence. In England Waugh establishes that the purpose of the original document's existence is the key consideration. If so, it must be the case that a pre-existing original cannot be privileged simply because it comes into the hands of solicitors in the course of preparing for litigation. If this is the case it must surely follow that copies of such documents must be subject to discovery in the same way, and Bingham L.J. indicated once again that he thought The Palermo and Watson ripe for reconsideration. It should be noted that he also rejected any claim based on the sort of reasoning in Lyell v. Kennedy which he thought inapplicable in an age of indiscriminate photocopying. So it

party, it does not become privileged by being passed to a lawyer even for the purposes of being used in litigation. See, e.g., Pearce v. Foster, 15 Q.B.D. 114 (C.A. 1885).

seems as if verbatim copying of all or only one document may prevent privilege from applying, but that somewhere in between difficult distinctions will have to be made. Bingham L.J. also pointed out that discovery is one thing, but production and inspection are others, and subject always to the discretion of the Court which may take a wide variety of considerations into account.

The most recent decision may have accomplished the last step towards a more rational approach to these questions in the United Kingdom, though it is as yet only a decision at first instance. In *Black & Decker Inc. v. Flymo Ltd.* Hoffmann J. has moved forward another step by holding that where witness statements are exchanged under the provisions of Order 38 rule 2A any documents referred to in such statements also automatically lose any privileged status. This step is quite specifically linked to the general change in attitude:

> [t]he general policy which Ord 38 r 2A embodies is that the parties should so far as possible come to trial fully prepared with all the relevant documents and with information about what the other side's case is going to be, so that no one will be taken by surprise and no adjournments of the trial will be necessary in order to gather information which could have been obtained before.

### F. Commonwealth Approaches

The confusion and vacillation thus generated in English law by the clash of inconsistent approaches and different historical cultures has infected the younger jurisdictions of the Commonwealth. Thus in Canada *Hodgkinson v. Simms* held that photocopies of unprivileged originals taken by a solicitor for the purposes of an action were privileged from discovery, over a strong dissent from Craig J.A. The dissent was however preferred soon afterwards in *Polk v. Royal Trust Corp. of Canada* where Ferg J., took the view that the whole modern trend in Canada was towards greater openness, and that candour in litigation required the disclosure of documents which had originated in the course of criminal investigations in the United States, and had been copied and supplied on a confidential basis by lawyers for use in civil proceedings in Canada.

In Australia the first reaction was the same as in England, and the

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88. [1991] 3 All E.R. 158 (Ch.).
89. *Id.* at 160.
earliest decision, *Shaw v. David Syme & Co.* made clear linkage between the rules relating to copies, and those relating to transcripts of evidence. It arose out of a defamation claim in respect of what had been said in court, and the defendant, after the writ had been issued, and on the advice of his solicitors commissioned a transcript of the evidence to be made from a contemporary shorthand note for transmission to his solicitors. The Court deliberately refrained from deciding on the basis of the lack of confidentiality of proceedings in open court, and instead concentrated on the copy having been made for the purposes of litigation. After consideration of all of the leading English cases the Court held that since the only value of the copy was on account of its accurate transcription of the original it was discoverable if the original were discoverable, and the mere fact that the copy had been made for the purposes of litigation was not the same as its coming into existence for the purposes of litigation within the intended meaning of the older authorities. The final conclusion was unequivocal:

if the original be without privilege and liable to discovery, any copy of it is similarly liable. The mere fact that the original is transcribed or translated into ordinary language cannot alter the lack of privilege which appertains to the original document.

The latter point is, as will be amplified below, of some significance in the context of modern systems of recording and storage. The law then wobbled in Australia just as it did in England. Copies of a notice of injury made to an employer copied for the purposes of personal injury litigation, copies of correspondence with the Queensland Worker’s Compensation Board made for the purposes of a motor accident case, and photostat copies of unspecified documents made for the purposes of litigation were variously held privileged from discovery. The matter was however reconsidered by Clarke J. in *Vardas v. South British Insurance Co.* This was an unusual case since it represented the converse of the usual situation in that it was argued that although the original was privileged the copy was not, as it had been made for a dual purpose one of which was to preserve a record. This must very often be the situation, and in Australia given the stringency of the test for the existence of legal

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93. *Id.* at 342.
professional privilege established in *Grant v. Downes*, communication with a lawyer for the sole purpose of seeking or receiving legal advice, very few copies will ever qualify for protection if considered separately from the status of the original. On the facts as found it was unnecessary to come to a final conclusion on this point, but Clarke J. thought it important and considered all of the relevant authorities, both Australian and English, finally coming to the conclusion that the better view was that privilege could not be claimed in respect of the mere verbatim reproduction of an unprivileged original. In part he adverted to the policies outlined in the most recent English authorities:

> [t]he courts are increasingly concerned to minimize technicalities and to ensure that parties are apprised of the opponent's case prior to the commencement of the trial. Every effort is made, in furtherance of the interests of justice, to avoid the waste of time and cost involved when a party is taken by surprise. A rule attaching privilege to copies of non-privileged documents is not within the rationale of the rule underlying the relevant privilege, conducive to expeditious and fair trials, nor consistent with the fair approach for which *Grant* speaks.

After a full re-examination of the authorities this reasoning was further endorsed by Wood J. in *Nickmar Pty. Ltd. v. Preservatrice Skandia Insurance Ltd.*

**G. United States**

The United States and the United Kingdom have engaged in a form of procedural leapfrog over the years. The United States was first to reform its practice of pleading, but then the United Kingdom went ahead by introducing the Summons for Directions at the end of the century. Just before the second World War the United States introduced a wholly new set of rules to govern Federal Civil Procedure. These rules were designed to liberalize procedure by eliminating the technicalities which had encrusted the old rules such as the limitation to discovery of materials relevant to the discovering party's own case, and the restric-

100. *Vardas*, 2 N.S.W.L.R. at 661. They are also immanent in leading Australian decisions on other aspects of the rules, such as *Grant v. Downs*, and National Employers' Mut. Gen'l Ins. Ass'n Ltd. v. Waind, 141 C.L.R. 648 (Austl. 1979).
101. 3 N.S.W.L.R 44, 62 (C.L.D. 1985).
102. In the latter half of the 19th Century in the wake of the Field Code.
103. At first in 1883 on an optional basis, and then made mandatory in 1893.
104. They became effective in September 1938.
tion to ultimate and not evidentiary facts. Their reputed author said of them that

[t]hey mark the highest point so far reached in the English speaking world in the elimination of secrecy in the preparation for trial. Each party may in effect be called upon by his adversary or by the judge to lay his cards upon the table, the important consideration being who has the stronger hand, not who can play the cleverer game.106

They immediately met an enthusiastic response from the Courts, only too frequently in the past have procedural rules been regarded as ends in themselves upon whose rigid altar has ultimate justice been sacrificed. Having been presented with a brief, simple set of Rules of Procedure, they should be construed as avenues to justice and not dead-end streets without direction or purpose . . . . These Rules should not be whittled away by strained judicial interpretation. They should be interpreted liberally. The purpose of the examination contemplated by these Rules is to narrow the issues, promote justice, and thus not make the trial of a law suit a game of chance of wits. It is in that spirit that the new Rules should be construed.107

It was not long before doubts began to emerge about the success of the rules in eliminating surprise, and suggestions were made that the new rules even went so far as to create new engines for the obfuscation of legal process, and for increasing rather than reducing the burden of trials.108 This induced some empirical investigation to be undertaken.109 Although the investigators tended to find no fundamental flaws in the procedure disquiet continued unabated, and in 1976 the American Bar Association’s Litigation Section set up a Special Committee for the Study of Discovery Abuse. Commentators remained skeptical,110 and judges critical.111 Some changes have been made, but the basic pattern of the rules remains the same, allowing broad discovery, depositions of wit-

109. Speck, supra note 108, provides statistics of the use of different pre-trial processes, and a more ambitious investigation was undertaken some years later by Columbia University. See Maurice Rosenberg, Changes Ahead in Federal Pretrial Discovery, 45 F.R.D. 479 (1968), outlining the experimental design.
111. See, e.g., Justice Powell in Herbert v. Lando, 441 U.S. 153, 179 (1979):
[W]idespread abuse of discovery . . . has become a prime cause of delay and expense in civil litigation . . . . As the years have passed, discovery techniques and tactics have become a highly developed litigation art-one not infrequently exploited to the disadvantage of justice.
nesses as well as parties, interrogatories, and the production of documents for inspection and copying.

It is arguable that the modern English approach under Order 38 rule 2A has leaped ahead again in its more abbreviated and economical method of securing the advantage of pre-trial revelation without the cumbersome and potentially obstructive method adopted under the Federal Rules of Civil Procedure in the United States, this being achieved by putting the onus on each party to initiate the process in relation to his own evidence, rather in the way that English discovery allocates responsibility.

On the specific question of copies of original documents unprivileged in the hands of the parties it seems that the law in the United States is even clearer against privilege\textsuperscript{112} than that in England. Thus in \textit{Gould Inc. v. Mitsui Mining and Smelting Co.}\textsuperscript{113} it was affirmed that other documents received by [the law firm] from its clients which would not be privileged if they remained in the client’s hands, would not acquire protection merely because they were transferred to [the law firm].\textsuperscript{114}

\section*{II. \textbf{NEW DIMENSIONS OF COMPUTER USE}}

The dramatic change of approach to the culture of litigation in the common law world has been matched, if not surpassed, by an equally dramatic change in the business methods of the world to which it applies. The past century has seen the accelerating harnessing of technology to business practices, culminating in the headlong advance of electronic, and especially, computer, technology in modern times. These developments have undermined some of the foundations upon which the legal rules discussed above have been based, and it is worth charting some of the changes. It should be noted however that they are by no means confined to developments in computing. Indeed many of the earlier technologies which have transformed modern life have provided the changed setting, or appropriate analogies, for the impact of the most modern innovations.

\subsection*{A. Changes of Practice induced by Technological Advance}

One of the earliest such changes was the development of mass transport systems giving a boost to international trade, and to the increased

\begin{footnotesize}
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\item \textsuperscript{112} Or work product immunity.
\item \textsuperscript{113} 825 F.2d 676, 679-80 (2d Cir. 1987).
\item \textsuperscript{114} \textit{Id.} at 679-80.
\end{itemize}
\end{footnotesize}
possibility of travel. People were increasingly required to do business with strangers, and even with foreigners. Intermediaries were used more often. Interpretation and translation were more and more often required. The necessity to create documentary records and transcripts of transactions increased. These demands were met by the development of new business methods, such as comprehensive bookkeeping and accounting which also demanded and provided for more extensive documentary recordkeeping. They were assisted by such technological developments as the telegraph and the telephone, and the typewriter. The latter was particularly significant in providing at once a more reliable means and more anonymous technique for recordkeeping. The position of copies was transformed; from being at the mercy of inaccuracy of transcription, they became in many cases a contemporaneously prepared duplicate of the original document. On the other hand their introduction was accompanied by changes in business and social organization which made it increasingly unlikely that the record of a transaction would be made by an active participant in it, so reducing the likelihood of personal knowledge of the maker. This at once magnified the problems of authentication of documents. It became necessary to enquire whether documents were what they purported to be more on the proof of the regular operation of a business practice than upon the personal recollection of the identifiable maker of the relevant document. Business practice also changed to accommodate a new class of intermediary, the secretary, who was able to provide a contemporary record of a transaction, though sometimes only by subsequent transcription of an opaque contemporary record such as a shorthand note.\textsuperscript{115}

Further development has accentuated these features. Organizations grow even larger, business ever more complex, and more sophisticated technology is introduced to cope with it. Thus modern devices for communicating information are increasingly likely to generate their own records automatically without human intervention at all. At a stroke the focus of unreliability is changed from the human being who reports an event to the system which has been set up to do so. Thus in the area of admissibility it became necessary to distinguish clearly between evidence of transactions generated automatically by the computer, for example an automatic log of telephone calls, and those entered by human beings and merely stored on the computer.\textsuperscript{116} A further by-product of the increased use of technology is that further layers of expertise are imposed between

\textsuperscript{116} See the confusion engendered in the criminal area by the failure to appreciate this in R. v. Pettigrew, 71 Cr. App. R. 39 (C.A. 1990), and the somewhat labored effort to resolve the situation in
the original information and a court in the shape of those who are responsible for designing, implementing, and operating the relevant systems, and those who are responsible for extracting and interpreting their output.

The most recent of such changes has been the universal adoption of computers by business. Computers present special problems for the law of evidence and procedure. They are able to hold vast quantities of information, to manipulate it virtually instantaneously, and to present it on demand in any required form. Their utility depends upon these processes being performed quite automatically, and their value depends upon there being as little human intervention as possible. Cost may be minimized by optimizing operations towards the required business result. For example a real-time dealing system will need to attach greater priority to achieving a speedy response than to validating its archival storage. The more sophisticated the machine the more arcane the expertise supporting it, the more difficult it becomes to prove the validity of its operations, and the easier to throw doubt upon some aspect of them in an adversarial situation. Computers are designed to manipulate information and to present it in an apparently pristine form. It may appear to be unchanged. Indeed the computer can often be invisible. All of the outward manifestations of the documentation may mimic a purely manual operation, so that an outsider may not be aware that a computer has been involved at all.117 If, on the other hand, the involvement of the computer is made manifest, then the well-known power and usual efficiency of the machines, at least in the eyes of their operators and third parties, may contribute to the phenomenon aphorised as "garbage in, gospel out,"118 according more credibility to the output of the systems than may be deserved.

B. Use of Technology by Lawyers

As noted at the outset, lawyers increasingly seek to exploit advances in technology, and in particular are making use of all of these devices, and especially the computer in the conduct of their businesses, including

later cases, such as R. v. Spiby, 91 Cr. App. R. 186 (C.A. 1990), and statutory provisions, such as the Police and Criminal Evidence Act, 1984, ch. 60.

117. This is a powerful argument against imposing different régimes of proof for the output of computers, and for other types of business records.

118. This has increasingly replaced the older view based on the more grisly experience of earlier systems that computers are more likely to introduce errors than exclude them. Both views are fundamentally irrational, and explained by general awe and perceived inability to understand the technology.
the preparation of litigation. There are at least four different points at which computers may make an impact upon the preparation of litigation.

First, there is the use of computers by the client either in the original transaction, or by way of recordkeeping, whether automated or with human intervention. It is likely to be most efficient and least costly, and may even be necessary, for the lawyer to use such computer-based materials directly, perhaps by transferring them to his own system.\textsuperscript{119} Such transfer may involve re-keying the original; it may be possible to use scanning; or it may be possible to transfer files directly, with or without the assistance of software to reconcile formatting. Such transfers may themselves, if passing over public networks, require to be encrypted and decrypted for the purposes of such communication. Once arrived they may well need to be held in compressed form in the storage medium, and decompressed for display or printing.

Second, even in the absence of relevant materials being in computer-readable form in the hands of the client, the lawyer may well find considerable advantage in holding such material in such a form for his own purposes of trial preparation. The development of such a system of litigation support is likely to be particularly advantageous when voluminous quantities of material are required to be cross-referenced and collated. At this point questions may well arise as to the design of the particular system to be employed, or the customization of a common basic design to the requirements of a particular case. Where documents not already in computer-readable form are transcribed there are inevitable differences in, at the very least formatting, though these differences will be minimized where the information is held in image, as opposed to character-based, format.

Third, quite apart from the computer's being required passively to store, collate and retrieve relevant information, it may increasingly be needed to prepare evidence in more active fashion. Materials may be so voluminous that the only way of handling them is to subject them to statistical analysis, or to prepare summaries and graphs to represent their contents.\textsuperscript{120} Still more sophisticated applications may involve the techniques of computer modelling and simulation of situations to illustrate their operation. Sometimes the creation of such models and simulations

\textsuperscript{119} In the present state of technology questions may then arise as to alterations necessitated by problems of incompatibility of formats or programs.

\textsuperscript{120} Techniques nowadays encouraged by commentators, see, e.g., Roskill Fraud Trials Committee Report, 1986, recommendations nos. 30, 53, 101-103, and approved and facilitated by legislation, see, e.g., Criminal Justice Act, 1988, ch. 33, § 31.
may depend on the ability to have direct access to an opponent’s computer, or at least his computer-readable data.

Fourth, in many jurisdictions it has now become common for evidence to be presented in the courtroom itself by the use of computer technology. The courts themselves are increasingly equipped for the presentation of evidence in graphic, and frequently computer-assisted, displays. So too evidence may be captured in computer-readable form in the course of a hearing.

It is thus apparent that the extent of access by one party to the computer system and computer-readable data of his opponent may be a critical factor, first in the decision as to how to prepare for trial, and then in its outcome. It is for this reason vital to understand the interaction of the rules which have been developed to govern access to, and the admissibility and authentication of, evidence, and modern technology.

C. Computers and Concepts Underlying Procedural and Evidential Rules

In some ways the conceptual foundations of those rules have been undermined by the way in which modern technology has developed. A few examples can be given. It has been seen that some confusion exists relating to the extent to which copies secured for litigation can be protected from discovery on the basis of legal privilege. As already explained one side-effect of modern technology has been to change the basis in policy for preferring the evidence of the original to that of the copy, namely that a copy may now be produced at the same time as the original, and by the same process, thus eliminating the danger of unconscious alteration during the process of transcription. This danger has now also been eliminated even when duplicates are not simultaneously created. First the technique of photocopying has permitted reliable and accurate copying, thus also eliminating this danger. It has however introduced by way of compensation a better method for disguising the amendment of a document, represented as being a verbatim copy. To that technology the process of scanning existing documents directly into computer-readable storage has been added. Here too there are increased dangers of misrepresentation, and also problems of incompatibility since it is far from the case that all of the features of the original will be reproduced in the scanned version, and any variations will need to be explained and justified. In the case of documents scanned into a computer there is also the

121. All varieties are here comprehended.
much more potent risk of covert alteration. In one recent case\textsuperscript{122} where the information related to a real-time application, the judge held that the original was the version held in computer memory and any print-out amounted only to a copy. In such a case an authenticated hard copy\textsuperscript{123} taken near the time of the transaction would be much more reliable than the electronic trace purporting still to represent the original.\textsuperscript{124}

A further result of modern copying techniques is that it is sometimes impossible to apply the old definitions with any confidence. Thus in \textit{Dubai Bank v. Galadari},\textsuperscript{125} although it was conceded that the outcome depended upon whether the photostat in question was the original, made before litigation was contemplated, or a further copy made for the purposes of seeking legal advice after it had been initiated, it was impossible to determine as a matter of fact which it was.

So far it has been supposed that the copy is a reproduction of the original, at least so far as the text is concerned. But this may well not be the case. If a litigation support system is to be most effective it may be desirable to apply a common format to materials within the system, notwithstanding diverse formats in the original versions. This may involve a certain amount of editing, by addition of new terms, by changing existing terminology, and perhaps sometimes by omission of unnecessary detail, all depending upon the sort of system adopted. In such a case some parts of the document may remain in their original form, and others may have been altered for the purposes of litigation. Such intermixing of privileged and unprivileged material might make it very difficult to disentangle the two versions, and it is possible that under the new law, just as much as under the old,\textsuperscript{126} this will prove to be an obstacle to the application of the normal rules of discovery.

Some more sophisticated approaches to the organization of documents in preparation for litigation, or even without its being in view, may create further problems. It is sometimes useful to use hypertext methods to cross-refer between different documents, or to create further dimensions of new documents. Setting up such systems implies the selection of documents and materials to link together, the design of any such linkage, and its implementation in terms of the choice, design and placing of the symbols cuing the user to the facilities being provided. Here too it seems

\textsuperscript{122} Derby & Co. v. Weldon (No. 9), [1991] 1 W.L.R. 652 (Ch. 1990).
\textsuperscript{123} An early back-up copy would also be preferable, though not so convincing as one in hard-copy.
\textsuperscript{124} Quite apart from the danger of illicit manipulation there is an ever present risk of corruption by technical failure of one sort or another.
\textsuperscript{125} [1989] 3 All E.R. 769, 775 (C.A.).
\textsuperscript{126} See Churton v. Frewin, 2 Dew. & Sm. 390, 62 Eng. Rep. 669 (Ch. 1865).
likely that the design and implementation of such facilities will have a strong claim to be privileged, and the problem of the intermeshing of privileged and unprivileged aspects of the data will arise.

A particular difficulty in relation to computer-readable original documentation held by a client, is that with the development of relational databases, it has become efficient to key information only once in a standard form, and then to draw upon it for the information needed for particular aspects of the business. For this reason, if a report is required for the purposes of subsequent litigation, it makes little sense to distinguish between the purpose of the information's being originally gathered, and the purpose of the litigation.\textsuperscript{127} In a sense the information has been gathered for any purpose which may require access to it, and if this is for use in litigation, it seems odd to enquire whether the report was created for the purposes of that litigation, as some exceptions to the hearsay rule require.

Further problems arise out of the sheer volume of documentation in some modern litigation, especially in the United States where discovery can take several years,\textsuperscript{128} but increasingly also in the United Kingdom.\textsuperscript{129} The cost pressures in such litigation are enormous and the United States government itself has been reduced to abandoning its original programs in some cases on this basis.\textsuperscript{130} In such cases there is always a problem of the form in which discovery should be made, and questions of usability and access to the original database inevitably arise. Yet another consequence of the sheer volume of data is that completely comprehensive and accurate screening becomes virtually impossible, so documents may be discovered and produced for inspection when privilege ought to have been claimed, thus raising questions of how far any privilege has been waived.\textsuperscript{131}

These potential difficulties have been addressed to a greater or lesser

\textsuperscript{127} There is some parallel here with the point taken in Brown v. J.C. Penney & Co., 688 P.2d 811 (Or. 1984), that in relation to admissibility the crucial situation is that when the information is recorded, and not when it is reproduced.

\textsuperscript{128} In Transamerica Computer Co. v. IBM, 573 F.2d 646 (9th Cir. 1978), the defendants discovered 17 million pages of documents claiming privilege for 491,000 pages of documents in a three month period of accelerated discovery. Indeed so numerous were the documents, and so short the time to discover, that privilege failed to be claimed for a further 5800 pages of documents, by hurried oversight. In the same litigation IBM copied 80 million of their opponents' documents. IBM v. United States, 471 F.2d 507 (2d Cir. 1972). In United States v. AT&T, 642 F.2d 1285 (D.C. Cir. 1988), the facts reveal a dispute in which 8 million pages of documents were produced and one and a half million copied.

\textsuperscript{129} In Derby & Co. v. Weldon (No.8), [1990] All E.R. 762, 770 (Ch.) it was stated that in that litigation there were more than four thousand files, some containing over a hundred documents.

\textsuperscript{130} See 471 F.2d at 508.

\textsuperscript{131} Transamerica Computer Co. v. IBM, 573 F.2d at 649.
extent in different jurisdictions, sometimes assisted by verbal amendment to the rules. Thus, in the United Kingdom, the Civil Evidence Act 1968 included a new section\textsuperscript{132} dealing only with the admissibility of statements in records held on computers; while in the United States, rule 34 of the Federal Rules of Civil Procedure was amended in 1970 to include specific reference to data compilations, and generally to extend the rule to "data compilations from which information can be obtained, translated if necessary by the respondent through detection devices into reasonably usable form."\textsuperscript{133} It is worth looking at different aspects of evidence and procedure briefly to note the current state of law relating to computerized records of all sorts, so far as admissibility, authenticity and access are concerned, and then to consider any special problems, especially those arising from the privileged nature of the material, and those of a practical nature in relation to computer-readable materials in relation to litigation, especially litigation support databases.

\textbf{D. Admissibility of Evidence}

In England the admissibility of evidence emanating from computers in civil proceedings is governed by the Civil Evidence Act 1968 so far as it consists of hearsay, and by the common law so far as it does not. Evidence of a statement in a document produced from a computer does not amount to hearsay if it is to be used, not for the purpose of proving the truth of what it contains, but merely for the fact that it exists, or that it exists in a particular form. If the contents of the statement are to be used to prove the truth of what it states, then a distinction is in principle made according to whether or not the information has passed through a human mind before entering the machine. If the machine is operating completely automatically, for example the automatic logging of details relating to telephone calls, then it is admitted as real evidence, and is proved just like the output of any other piece of scientific apparatus.\textsuperscript{134}

If the evidence does amount to hearsay, as will most often be the case, then its admissibility\textsuperscript{135} is governed by the Civil Evidence Act 1968.

\textsuperscript{132} The much-reviled section 5. Civil Evidence Act, 1968, ch. 64, § 5.
\textsuperscript{133} FED. R. CIV. P. 34(a).
\textsuperscript{134} Although there appear to be no civil cases on this point it has become well-established in criminal proceedings, and appears not to depend upon any peculiarity of the statutory provisions which apply there. Indeed these provisions are mistakenly thought not to apply at all to such records; see R. v. Spiby, 91 Cr. App. 186 (C.A. 1990); R. v. Neville [1991] Crim. L.R. 288 (C.A. 1990); but now see R. v. Robson [1991] Crim. L.R. 362 (Cr. Ct.).
\textsuperscript{135} In the higher courts at least, since despite provision in the 1968 Act for it to apply to proceedings at all levels it has never been commenced for proceedings before magistrates, which remain governed by the Evidence Act, 1938, the provisions of which are, unsurprisingly in view of their date of enactment, unsuitable for application to the output of computers.
It was largely because the law of evidence was conceived to be so unsatisfactory in its application to modern business records that the Law Reform Committee was asked in 1964 to consider "what provisions should be made for modifying rules which have ceased to be appropriate in modern conditions." It chose hearsay as its first topic within the field of evidence, and taking as its starting point the Evidence Act 1938 found it defective in excluding "many business records, particularly under modern systems of record-keeping." It explicitly extended its recommendations to mechanically recorded statements, so long as there was a duty to record them. The Law Reform Committee made no proposal to deal separately with evidence derived from computers, but rather intended its general proposals to cater for such evidence.

In general the scheme recommended by the Law Reform Committee was adopted by the government, and enacted as the Civil Evidence Act 1968. So far as evidence derived from computers is concerned the most significant change was the decision to incorporate a special section into the Act to regulate the admissibility of such evidence. The general scheme of the Act was first of all to provide that in civil proceedings hearsay should be admissible only under the provisions of Part I of the Act, by any other statutory provision, or by agreement of the parties. It should be noted that the Act made no attempt to repeal particular pre-existing statutes, but did repeal the principal parts of the 1938 Act. It has been supplemented by a number of generally less far-reaching subsequent Acts. The term "statutory provision" is defined so as to extend to an instrument made under an Act. In many cases in which hearsay is admitted without reference to the Act it must be taken that an agreement by the parties is presumed in default of objection, given the mandatory terms in which the Act is drafted. A further effect of this approach is that all common law exceptions to the hearsay rule are abrogated to the extent that the Act applies. Having reduced the extrinsic avenues for admissibility so drastically the Act provides three new principal routes to admissibility: for first-hand hearsay, records made by one acting under a duty, and statements produced by computers.

Section 5, the principal vehicle intended for the admissibility in evidence of statements from computers, is paramount in civil proceedings,
but is supplemented by section 2 and section 9 which incorporates some exceptions previously operating at common law, and it may operate in tandem with section 4. It should be noted at the outset that the construction of section 5 has attracted remarkably little judicial attention, despite the increasing adduction of evidence derived from computers. This might be regarded as a striking endorsement of its effectiveness, but the opinion has been expressed that the true explanation lies in the unnecessary complexity of the relevant provisions.143

The general subject matter of section 5 is described as “a statement contained in a document produced by a computer.” “Statement” is defined by section 10(1) as including “any representation of fact, whether made in words or otherwise.” It should be noted that this definition is explicitly excluded from the relaxation in favor of representations of opinion made, in respect of other provisions, by the Civil Evidence Act 1972. “Document” is defined to include inter alia:

any disc, tape, sound track or other device in which sounds or other data (not being visual images) are embodied so as to be capable . . . of being reproduced therefrom.144

This seems sufficiently comprehensive to cater to most commonly used forms of computer storage. The exclusion of visual images in the quoted extract is not significant since there is a further provision which explicitly applies to visual images, and would be capable of applying to optical storage technologies. “Computer” is defined as “any device for storing and processing information.”145 This definition seems rather expansive since neither storage nor processing is expressly required to be automatic,146 and even if this were implied would apply to such devices as the more modern electric typewriters and hand-held calculators. It may be better to eschew altogether any attempt at a definition, and rather accept that “computer” is now an ordinary word in the English language which


144. Civil Evidence Act, 1968, ch. 64, § 10(1)(c).

145. Civil Evidence Act, 1972, § 5(6), subject to § 5(3) which governs computers operating in combination.

146. This may account for the different approach adopted by the Data Protection Act, 1984, which instead of referring to computers as such refers instead to “data equipment” stressing the automatic processing of such data.
a judge is perfectly capable of construing. This has the distinct advantage of not confining the definition to the technology of a particular time which could create anomalies.

The most surprising feature of section 5 is that it makes no requirement that the originator of the information processed by the computer should have had, or even be reasonably capable of being supposed to have had, personal knowledge of the truth of that information. This seems quite extraordinarily lax, given that most computer error is either immediately detectable or results from error in the data entered into the machine. So widely has this been accepted that it has become institutionalized into the acronym "GIGO," or "garbage in, garbage out." This laxity is also in stark contrast to the other principal avenues to admissibility under the Act, sections 2 and 4, both of which insist upon personal knowledge in the originator of the information, as do virtually all other hearsay exceptions for evidence derived from computers throughout the common law world.

If the maker of the statement in a document had personal knowledge of the truth of its contents, then the document is, in principle, admissible under section 2 of the Act, provided that direct oral evidence of those matters by the maker would have been admissible. Thus if a clerk allocates serial numbers to products, and enters the numbers so allocated into a database, the print-out may be admissible under section 2 even though the conditions of section 5 have not been satisfied, say because the entry was originally made as part of an experiment which was so successful that it has now been approved as a routine procedure.

Section 4(1) is stated to be without prejudice to section 5, and need not be considered here since section 5 will prevail over it to the extent of any divergence between them. The common-law exceptions preserved by section 9 for admissions, published works dealing with public matters, public documents, records, and reputation to establish good or bad character are expressly exempted from the conditions of section 5 should evidence derived from computers fall within them. Any such evidence need satisfy only the relevant conditions at common law.

The Civil Evidence Act 1968 defines "statement" as "any representation of fact whether made in words or otherwise." In its Seventeenth Report the Law Reform Committee saw no harm in extending its provi-

147. This has become the preferred approach, see, e.g., the Police and Criminal Evidence Act, 1984, and Copyright, Designs and Patent Act, 1988.
148. Civil Evidence Act, 1972, § 9(5).
149. The function of § 9 is limited to identifying the relevant rules rather than to modifying them in any way. See id. § 9(6).
The text of the report makes no suggestion that computers should be excluded from this extension, but by this time the Law Reform Committee had adopted the practice of appending draft legislation to its reports, and the draft so appended explicitly excluded application of section 5 to statements of opinion. Enactment of this draft as sub-section 1(1) of the Civil Evidence Act 1972 has exacerbated the anomalous situation created by the distinctive treatment of hearsay evidence derived from computers and other hearsay. The current position seems to be that if the originator of the opinion would have been permitted to give oral evidence, then the opinion can be given under section 2 of the 1968 Act notwithstanding that it is tendered in the form of the output of a computer. If an expert opinion is tendered under section 4 as a record, then, provided that its originator would have been qualified to give oral evidence of his expert opinion, it seems that it will be admissible if it is not tendered in the form of computer output; but will be inadmissible if it is. This makes no sense at all.

In most Commonwealth jurisdictions it has been found possible to admit evidence of statements emanating from computers. A wide variety of approaches has been taken. In some jurisdictions the common law has been regarded as sufficient. Sometimes the common law was prayed in aid to remedy defects in purposely built statutes, sometimes the jurisdiction merely imported the English legislation, occasionally a re-drafted version was created, and in one case a completely unique approach was adopted. Other jurisdictions were closer to the pattern in the United States in enacting business records legislation permitting computerized records to be admitted on the same terms as other business records. Similar legislation was enacted by the Commonwealth, and by Tasmania, there replacing an earlier provision modelled upon the United States business record legislation.

150. Law Reform Committee, 17th Report, 19—, Cmnd 4489, §§ 23-26, 74(9).
153. This occurred in the Australian Capital Territory, where it became Part VII of its Evidence Ordinance, 1971; in Queensland, section 95 of the Evidence Act, 1977, and in Victoria, section 55B of the Evidence Act, 1958.
155. In South Africa as the Computer Evidence Act, 1983.
156. One of the best examples is to be found in New South Wales in the shape of the Evidence (Amendment) Act, 1976, incorporating a new Part IIC, Admissibility of Business Records, into the New South Wales Evidence Act, 1898, following the local Law Reform Commission Report on Evidence (Business Records), L.R. 17 (1973).
158. In the Evidence Amendment Act, 1981, as Part I, Division IIB of the Evidence Act, 1910.
In the United States the general tendency has been to extend the definitions in the standard business records exception to apply to computerized records. Nowadays this is usually in the form of rule 803(6) of the Federal Rules of Evidence denominated "Records of Regularly Conducted Activity":

[a] memorandum, report, record, or data compilation, in any form, of acts, events, conditions, opinions, diagnoses, made at or near the time by, or from information transmitted by, a person with knowledge, if kept in the course of regularly conducted business activity, and if it was the regular practice of that business activity to make the memorandum, report, record, or data compilation, all 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. The term "business" as used in this paragraph includes business, institution, association, profession, occupation, and calling of every kind, whether or not conducted for profit.159

The rubric was chosen so as to mark the greater width of the definition than would be commonly understood by the simple use of the word "business." The final formulation of the rule itself deliberately increased the guarantee of reliability by requiring it to be the regular practice of the business to make the relevant record.160 The reference to "data compilation" is one of several references dotted throughout the rules161 in an effort to cater to modern business methods, where similar principles are applied.162 It should also be noted that the Federal Rules contain a quite separate requirement for authentication as a condition precedent to admissibility.163 Two of the illustrations to that rule expressly refer to "data compilations,"164 and a third is intended also to cater to them.165 The rules make further explicit provision for proof of summaries,166 and for negative hearsay.167

The courts have adopted the same generous interpretation to this provision as that accorded to its predecessors, and, despite the changes in wording, it has been construed upon the same principles, and often by

160. Thus attempting to preserve the bar on self-serving and presumptively less reliable statements specially prepared for the purposes of the litigation in which they are tendered; see Palmer v. Hoffman, 318 U.S. 109 (1943).
161. See also Fed. R. Evid. 803(7-10), 901(b)(7), 901(b)(8), 902(4).
162. See United States v. Puente, 826 F.2d 1415 (5th Cir. 1987).
164. Fed. R. Evid. 901(7) (public records or reports) and Fed. R. Evid. 901(8) (ancient documents or data compilations).
165. Fed. R. Evid. 901(9) (process or system); see Advisory Committee's note.
166. Fed. R. Evid. 1006.
reference to the very same authorities, as its Federal,\textsuperscript{168} or sometimes state,\textsuperscript{169} precursor. This approach was established very soon after rule 803(6) came into effect in United States v. Scholle\textsuperscript{170} where the defendant, a lawyer accused of drug trafficking, took numerous objections under the new rules. So far as computer records were concerned he objected to the use of printout analyzing the chemical composition of drugs seized throughout the United States arranged by date and location, which had been tendered to show the pattern of distribution of the particular batch of drugs with which he was alleged to have been concerned. The Eighth Circuit relied upon authorities construing the old rules in stressing the ambit of the discretion of the trial court,\textsuperscript{171} and the fact that there is no presumption of the unreliability of computer records.\textsuperscript{172}

Although Rule 1006 regulates the proof of summaries a computer printout will not be regarded as a summary so long as it merely reproduces the original information, even though it might re-order it. It should also be noted that while it is a recognized condition for admissibility under Rule 1006 that original documents be available for inspection, some summaries amount to business records in their own right, and may be proved under Rule 803(6) without reference to any such requirement.\textsuperscript{173}

\textbf{E. Authenticity of Evidence}

Any evidence adduced to a court must be authenticated in some way. A witness normally gives his name and describes his involvement with the facts in issue. A document or other thing cannot authenticate itself at common law, but must be introduced to the court by a human being whose task it is to explain its identity, its nature, its provenance and its relevance. Only if these matters are satisfactorily put before the Court and acceptable to it can such a thing be admitted in evidence. The establishment of such foundations is necessary, and the rules governing this process constitute the rules relating to the authentication of things considered in evidence.

These topics are likely to be particularly contentious and difficult in

\textsuperscript{170} 553 F.2d 1109.
\textsuperscript{171} Scholle, 553 F.2d at 1124 (citing United States v. Johnson, 516 F.2d 209 (8th Cir.), \textit{cert. denied}, 423 U.S. 859 (1975)).
\textsuperscript{172} Scholle, 553 F.2d at 1124 (citing United States v. Fendley, 522 F.2d 181 (5th Cir. 1975)).
\textsuperscript{173} See United States v. Peters, 791 F.2d 1270 (7th Cir.), \textit{cert. denied sub nom.} Odoner v. United States, 479 U.S. 847 (1986) (where invoices summarized slips relating to the cost of labor and materials, but were themselves business records).
their application to evidence derived from computers. In many, if not most, cases the evidence is produced from the custody of a party to the proceedings, who will have an interest to serve and may have an inducement to tamper with the evidence. In many cases the thing produced to the court, most often a print-out, will have been printed for the purposes of the proceedings. Any alteration will have taken place not on the thing produced in court, but on the storage medium from which it has been derived. This storage medium may well itself be, or be derived in its turn from, a record on a magnetic disc. The whole point of such discs is that they should be easy to alter, and unless specific precautions are taken they normally keep no record of having been altered. This means that much less weight can be given on the question of authentication to the appearance of the thing itself, and much more must depend upon the testimony describing the operation of the computer system, and the provenance of the particular things before the court.

So far there are no English cases which deal directly with the problem of the authentication of evidence derived from a computer, but some guidance can be secured from cases concerned with the authentication of tape-recordings. The leading case on this point is *R. v. Maqsud Ali*. It is the more significant since the tape recording there was of a conversation in an obscure Punjabi dialect which could not itself be understood by the jurors who had to be supplied with a specially prepared English translation. This situation is not so far divorced from that of a computer-readable record which can be made accessible to the jury only by the transcription of the magnetic coding on the disc into ordinary characters such as letters, numbers, and punctuation, themselves presented by the application of the coding yielding such things as spacing, lineation, and pagination. The general approach adopted by the Court of Criminal Appeal in that case is of great significance as illustrative of the wise approach generally adopted by the Courts to the treatment of evidence derived from computers. It is encapsulated in the following passage:

> it does appear to this court wrong to deny to the law of evidence advantages to be gained by new techniques and new devices, provided the accuracy of the recording can be proved and the voices recorded properly identified; provided also that the evidence is relevant and otherwise admissible, we are satisfied that a tape recording is admissible in


evidence. Such evidence should always be regarded with some caution and assessed in the light of all the circumstances of each case.176

Such sentiments are equally applicable to evidence derived from computers. It will be noted that stress is placed upon proof of the accuracy of the recording and the identification of the voices. The quality of the translation was also at issue in that case, and a voir dire lasting more than two days was devoted to its resolution. It is at that stage that the battle over authentication will be fought. Unfortunately in those English cases where it has been fought the issues have been clouded by interaction with the "best evidence" rule. In R. v. Stevenson177 the recordings had changed possession in the two years since they had been made, and were rejected on the basis that there was an opportunity to have interfered with the original recording, and clear evidence that some interference may have taken place. The aim of this decision was to ensure that, in the future, tape recorded evidence should be treated with care and circumspection by those who obtained it in the first place. Such a consideration is clearly applicable to evidence derived from records held on computer. Two years later in R. v. Robson & Harris178 when a similar issue came before the Court, Shaw J. decided that the proper course was for the trial judge to determine whether a prima facie case had been made out that the tapes were authentic. Such a case would involve evidence of the history of the tapes from the actual process of recording up to the time of their production in court. Although in the case itself he had in fact gone on to consider further expert evidence tending to refute the authenticity of the tapes, and then some rebutting expert evidence in their support, and came to a decision on the balance of probabilities, he felt that this was inappropriate. The question of authenticity should be decided first by the judge on a prima facie basis, and could then be ventilated before the jury in the same way as any other question of fact to be decided at the trial. Similarly, in a case involving evidence derived from computers it might be necessary to prove the procedures for collecting the data, those governing their checking and entry into the computer, any further manipulation, checking and storage, the security of the computer from the time the data were entered until the time they were removed to secondary storage, the means and security of such storage, and the process of removal, and subsequent custody until presentation to the Court.

These matters are simplified by the provision of a certification proce-

177. [1971] 1 All E.R. 678 (Ass.).
dure in sub-section 5(4) of the Civil Evidence Act 1968 which provides:

In any civil proceedings where it is desired to give a statement in evidence by virtue of this section, a certificate doing any of the following things, that is to say -

(a) identifying the document containing the statement and describing the manner in which it was produced;
(b) giving such particulars of any device involved in the production of that document as may be appropriate for the purpose of showing that the document was produced by a computer;
(c) dealing with any of the matters to which the conditions mentioned in subsection (2) above relate,

and purporting to be signed by a person occupying a responsible position in relation to the operation of the relevant device or the management of the relevant activities (whichever is appropriate) shall be evidence of any matter stated in the certificate; and for the purposes of this subsection it shall be sufficient for a matter to be stated to the best of the knowledge and belief of the person stating it.

The following subsection also assists by creating presumptions in favor of the satisfaction of the conditions of admissibility of various matters which section 5 requires to be proved, thus firmly casting a burden of disproof upon an opponent. Such a burden is, of course, extremely unlikely to be capable of being disproved without access to full records of the operation of the computer at an early stage, thus emphasizing still more the problems of securing access to evidence held on a computer by way of discovery.

As noted above the Federal Rules of Evidence in the United States require that business records be authenticated, and in United States v. Scholle some attempt was made to distinguish between computer printout and other records:

[The complex nature of computer storage calls for a more comprehensive foundation. Assuming properly functioning equipment is used, there must be not only a showing that the requirements of the Business Records Act have been satisfied, but in addition the original source of the computer program must be delineated, and the procedures for input control including tests used to assure accuracy and reliability must be presented.]

It may have been for this sort of reason that the Court insisted that the defence be given adequate notice of the nature of the evidence to be adduced, and thus an opportunity for rebuttal.

179. Sanctioned by criminal penalties in respect of wilful falsehood, Civil Evidence Act, 1968, § 6(5).
180. 553 F.2d 1109 (8th Cir.), cert. denied, 434 U.S. 940 (1977).
181. Id. at 1125. See also American Oil Co. v. Valenti, 426 A.2d 305, 310 (Conn. 1979).
It seems however that even these vestigial checks are unlikely often to be insisted upon very rigorously. Thus it has since been doubted whether there are any special rules for computer printouts,\textsuperscript{182} and in another recent case the admission of a routine printout was upheld despite denial of access by the defendant to the relevant program.\textsuperscript{183} It is, of course, still necessary to authenticate the printout,\textsuperscript{184} and in \textit{United States v. Weatherspoon}\textsuperscript{185} the proving witness testified not only to the nature of the relevant input procedure, but also to its accuracy and to the procedures for checking its accuracy.\textsuperscript{186} Nevertheless it has been held that the authenticating witness need have no knowledge of the accuracy of any individual records nor to have prepared the printout tendered at the trial,\textsuperscript{187} nor is it necessary to put the program itself into evidence,\textsuperscript{188} nor even after the objection has been made that the accuracy of the output depends as much upon the accuracy of the program as of the input data is it necessary to call the programmer.\textsuperscript{189} Indeed in one case where the raw output of one computer, automatically monitoring telephone dialling, was used as input to another, automatically generating billing data, the output of the latter was held to be authenticated even though the witness was unable to identify the brand, type and model of each computer, or to vouch for the working condition of the specific equipment during the billing periods covered.\textsuperscript{190}

It was held that the rationale of this exception to the hearsay rule required that arguments for a level of authentication greater than that regularly practiced by the company in its own business activities go beyond the rule and its reasonable purpose to admit truthful evidence.\textsuperscript{191}

The basic conditions for admissibility were re-stated in \textit{Rosenberg v. Collins}\textsuperscript{192} to be

(i) that the records be kept pursuant to some \textit{routine} procedure;
(ii) that they be created for motives tending to promote accuracy (and

\textsuperscript{182} United States v. Vela, 673 F.2d 86, 90 (5th Cir. 1982), casting doubt on the extract quoted from \textit{Scholle, supra} text accompanying note 180.
\textsuperscript{183} United States v. Croft, 750 F.2d 1354, 1365 (7th Cir. 1985).
\textsuperscript{185} 581 F.2d 595 (7th Cir. 1978).
\textsuperscript{186} In \textit{Croft} similar matters were adumbrated, but less thoroughly.
\textsuperscript{187} Rosenberg v. Collins, 624 F.2d 659 (5th Cir. 1980).
\textsuperscript{188} United States v. Sanders, 749 F.2d 195, 196 (5th Cir. 1984).
\textsuperscript{189} United States v. Young Bros., 728 F.2d 682 (5th Cir. 1984).
\textsuperscript{190} \textit{Vela}, 673 F.2d at 90. See \textit{also} State v. Knox, 480 N.E.2d 120 (Ohio Ct. App. 1984).
\textsuperscript{191} \textit{Vela}, 673 F.2d at 90.
\textsuperscript{192} 624 F.2d 659 (5th Cir. 1980).
thus not extending to those prepared especially for the purposes of litigation); and
(iii) that they should not themselves be mere accumulations of hearsay or uninformed opinion. 193

Most objections have concentrated either upon a combination of the first and second, or upon the third of these, though rarely with very much success. It has been held here, just as under other provisions in the United States, that the test is not whether the printout has been prepared especially for the litigation, but whether the information which it presents was being used regularly for the purposes of the business,

It is not necessary that the printout itself be ordered in the ordinary course of business, at least when the program that calls forth the data only orders it out rather than sorting, compiling or summarizing the information. 194

In that case the printout in question made the basic information more comprehensible to the jury by expressing numeric customer codes as their ordinary English equivalents, and by re-ordering the information so as to group together records relating to the same customer. The requirement that the record should have been made at or near the time of the matter recorded is interpreted in a similar spirit, and the view has been taken that the court should distinguish for these purposes between the "record" and the "printout":

the "record" is stored in the computer in a form that is not comprehensible to human beings by sight, sound, taste, smell or touch. The printout is not the record; the printout is the means of making the record available for perusal by human beings. 195

The sensible policy has prevailed that

[i]t would restrict the admissibility of computerized records too severely to hold that the computer product, as well as the input upon which it is based, must be produced at or within a reasonable time after each act or transaction to which it relates. 196

There is a discrepancy, however, between the holding in the English case of Derby & Co. v. Weldon (No. 9) 197 that the original documents were the versions held in the memory of the computer, and the United States where, by contrast the Federal Rules provide specifically that

[i]f data are stored in a computer or similar device, any printout or other output readable by sight, shown to reflect the data accurately, is

193. Id.
194. Sanders, 749 F.2d at 198.
It is not however completely clear that this would help when the suspicion is of a discrepancy between the versions held in the computer at different times, rather than between the copy produced by the computer and the data in memory which are purported to be reproduced. Although it is not made explicit in the report in Derby it seems likely that many of the transactions in question were made by means of the computer acting on-line in real time. If this is accepted then under English procedure the plaintiff was obliged to discover and the defendant entitled to check where a real dispute arose. At this stage the judge's discretion is limited. Once the extent of the relevant documentation has been established then the judge has more discretion whether or not to order production for inspection and copying.

In United States v. Sanders attention was also paid to the third condition, and it was stressed that the entries in question emanated from the defendant, being claims for reimbursement under the Medicare scheme, and were effectively admissions. The intervention of a bureau to prepare these claims in machine-readable form was discounted on the basis that the bureau was acting as the agent for the defendant principal.

It seems that no further conditions will be countenanced, and in McAllen State Bank v. Linbeck Construction Co. attempts to import the common law requirements of standard equipment, prepared by persons who understood it and whose duty it was to operate it were rejected.

F. Access to Evidence

As explained above the process of discovery originated in the Courts of Chancery, and its operation was concisely summarized in Flight v. Robinson:

The general rule is, that a Defendant is bound to discover all the facts within his knowledge, and to produce all documents in his possession, which are material to the case of the Plaintiff.

The modern position is governed by the Rules of the Supreme Court of Judicature, Order 24, as follows:

[A]fter the close of pleadings in an action begun by writ there shall, subject to and in accordance with the provisions of this Order, be dis-

198. FED. R. EVID. 1001(3).
199. Mainly forward dealings in commodities and foreign exchange.
200. This interpretation is strengthened by the importance attached to non-interference with the computer's current operations.
203. 8 Beav. 22 (1844).
covery by the parties to the action of the documents which are or have
been in their possession, custody or power relating to matters in ques-
tion in the action.²⁰⁴

It will be noted that since there is no explicit reference to computers or
printouts everything must depend upon the construction of the word
"documents." When this question arose before the Australian courts in
Cassidy v. Engwirda Construction Co.²⁰⁵ in relation to its application to a
tape recording Hoare J. adopted a liberal interpretation upon the basis that

[n]othing is more likely to destroy the effectiveness of the law and our
legal system than a timid, restrictive, interpretation of procedural
provisions.²⁰⁶

Exactly the same view, and result, was reached when the same question
was ventilated in England in Grant v. Southwestern & County Properties
Ltd.²⁰⁷ where it was held to be a sufficient identifying characteristic of a
document that it teach something, and that it is immaterial whether it
deliver its learning to ear, nose or "any other sense." Nor is it material
that the information be held in an unintelligible form;

[i]t is . . . quite clear that the mere interposition of necessity of an
instrument for deciphering the information cannot make any difference
in principle. A litigant who keeps all his documents in microdot form
could not avoid discovery because in order to read the information
extremely powerful microscopes or other sophisticated instruments
would be required.²⁰⁸

Or, one might add, if they were held in an electronic form in a computer
from which they could be rendered intelligible only by the application of
a program calling up a display or commanding a printout. Grant has
itself now been approved in obiter dicta by the High Court of Austra-
ilia,²⁰⁹ and by a direct decision of O'Bryan J. in the State of Victoria
where he remarked that

new technology - and I include a tape recording as being within that
description - should not be allowed to limit the obvious purposes of
Order 31. The word "document" in rule 12 should be construed to
include any material contained in a permanent form whether in writ-
ing or otherwise which can be released for inspection by some appro-

(Austl.).
²⁰⁷. 1975 Ch. 185 (Ch.).
²⁰⁸. Id. at 198.
²⁰⁹. See Australian Nat'l Airlines Comm'n v. Commonwealth of Australia, 132 C.L.R. 582, 594
priate equipment.\textsuperscript{210}

It should be noted that not only do these rules provide for discovery in the sense of the revelation of the existence of relevant documents, but also for their inspection and copying,\textsuperscript{211} and if necessary for their production for this purpose at such time and place as the Court think fit.\textsuperscript{212} In modern law, service of lists of documents on discovery replaces the need to serve specific notices to produce, and also helps save unnecessary cost in establishing authenticity.\textsuperscript{213} The major constraint on these powers is that a party is not obliged to permit inspection of any document for which a valid claim of privilege may be maintained.

As noted above, the change to rule 34 of the Rules of Civil Procedure in the United States was designed, in the words of the Advisory Committee's note, "to accord with changing technology," and reflects the fifth recommendation of the Manual for Complex Litigation that

\begin{quote}
[d]iscovery requests relating to the computer, its programs, inputs and outputs should be processed under methods consistent with the approach taken to discovery of other types of information.\textsuperscript{214}
\end{quote}

It was accordingly held in \textit{Adams v. Dan River Mills Inc.}\textsuperscript{215} that notwithstanding that a computer printout had been supplied the plaintiff was entitled to have the information in computer-readable form so as to be able to perform the requisite statistical analysis with the minimum of cost. Conversely where the request was for "ledgers and journals" the Court was not disposed to agree that there was any doubt that this covered computer print-out when the relevant information was held in a computer rather than in hard copy.\textsuperscript{216} Still less had it any sympathy toward a claim that an order in respect of computer tapes did not cover the data sets generated from those tapes. The Court was clear that

\begin{quote}
[i]t would be a dangerous development in the law if new techniques for easing the use of information become a hindrance to discovery or disclosure in litigation. The use of excessive technical distinctions is inconsistent with the guiding principle that information which is stored, used, or transmitted in new forms should be available through discovery with the same openness as traditional forms.\textsuperscript{217}
\end{quote}

While the rules under the Internal Revenue legislation are different

\begin{itemize}
\item \textsuperscript{210} Overlander Australia Ltd. v. Commercial Union of Australia (S.C. Victoria March 11, 1982).
\item \textsuperscript{211} Rules of the Supreme Court, Order 24, Rule 9.
\item \textsuperscript{212} \textit{Id.}, Order 24, Rule 11(1).
\item \textsuperscript{213} \textit{See id.}, Order 27, Rules 4 and 5.
\item \textsuperscript{214} \textsc{Manual for Complex Litigation} § 2.715 (Draft Jun. 1981).
\item \textsuperscript{215} 54 F.R.D. 220 (W.D. Va. 1972).
\item \textsuperscript{216} Emerick v. Fenick Indus., 539 F.2d 1379 (5th Cir. 1976).
\end{itemize}
in detail, the same philosophy prevails, and the Service has been held entitled to be supplied with original tapes rather than printouts or duplicates where desired for legitimate purposes.218

The fourth use of information from computers mentioned above was use at the trial itself as part of the presentation of the case. This is increasingly being undertaken both in the United States and in the United Kingdom. Thus in People v. McHugh219 it was held that a computer simulation of a car accident could be used in court as part of the presentation of a case, the court taking the view that it was simply an active way of representing the same sort of information that might otherwise be discerned from a more conventionally produced chart. It was said that

[a] computer is not a gimmick and the court should not be shy about its use, when proper. Computers are simply mechanical tools - receiving information and acting on instructions at lightning speed. When the results are useful, they should be accepted, when confusing they should be rejected.220

It is significant that it was further ordered that the program be made available to the prosecution in advance of the trial, so as to avoid delay in evaluation.

The predominant condition for allowing discovery is one of relevance rather than one of admissibility, and in Dunn v. Midwestern Indemnity221 it was held at the outset that computer information and machine records are not per se irrelevant. Discovery is however limited to evidence, and does not extend to law. In Indiana Coal Council v. Hodel222 discovery was sought of a database containing material on the legislative history of relevant statutory provisions, but this was denied on the simple ground that it was not discoverable subject matter.223

G. Problems of Privilege and Immunity

Where a case has been prepared by lawyers using a litigation support system held on a computer into which all of the pre-trial documentation has been fed, it is obvious that access to that database will be of the greatest assistance to an opponent. Not least for that reason such access is likely to be resisted by its creator and user with all the means that can be mustered. Prominent among these is likely to be a claim for legal

220. Id. at 722-23.
221. 88 F.R.D. 191, 194 (S.D. Oh. 1980).
223. The argument that it could be protected under rule 26(b)(3) as confidential research material was however rejected. See id.
professional privilege in England; and attorney and client privilege, or immunity for lawyers' work product in the United States. The opponent may seek discovery to secure an early sight of the relevant documents available to be used against him; he may seek access in computer-readable form so that he can use the documentation more easily, and less expensively, himself; he may hope to be able to use the system devised by his opponent, so as to test its capacities and results; or he may hope to deduce from the organization of the system something of his opponent's thinking about the case. It remains to be seen how far these aims can be resisted by the invocation of claims to privilege or immunity.

This has been the subject of an interesting line of cases illustrating the tension between the different concepts at work in the area. First, it has to be established whether the material is inherently within the scope of this sort of protection, and even if it is, whether or not it has been waived. In some cases it may be found that discovery would trench upon revelation of the lawyer's line of thought, but even then if the computer-based data is intended to be used either directly at the trial, or as the basis for some expert report, perhaps based on a computer analysis, projection, model or simulation, then there may again be a pressing necessity to reveal to the opponent, overriding the presumptive claim to privilege or immunity.

As noted above, in the United States a narrow view is taken of what constitutes privilege between attorney and client, and it certainly does not extend to facts as opposed to opinions and advice. In Hoffman v. United Telecommunications, Inc.224 it was held not to extend to facts relating to the design of the opponent's computer file. It was nevertheless held that such information could fall within the work-product immunity in an appropriate case.225

One possible inhibition on the ready disclosure of information to an opponent is that privilege is fragile, and it may be argued that privilege has been waived. It may be waived in the underlying information if it is supplied to the opponent in hard copy form. Thus in National Union Electric Corp. v. Matsushita Electric Industrial Co.,226 in the course of "a massive anti-trust case"227 the defendant sought the creation by the plaintiff of a computer-readable tape containing information already supplied in conventional hard copy form of statistical accounting information broken down by model, price and volume of the plaintiff's

225. Id. As will be seen this may depend upon what use is to be made of the data at the trial.
227. The Court's own characterization. Id. at 1258 n.1.
production of sales of television receivers. The information would clearly be of more use to the defendant in that form since it would then be able to use sophisticated computer analysis to extract material from the data to sustain its arguments, on such matters as market share and pricing policies and effects. A peculiarity of this litigation was that the very same information had been supplied in hard copy form in response to the defendant’s interrogatories.\textsuperscript{228} It was thus clear that there was no intrinsic objection to the discovery of the raw data.\textsuperscript{229} It was significant that the Court found as it did only because no work product privilege arose in relation to the selection of these materials. Nor was there any attempt to secure the benefit of any system of classification devised by the plaintiff, since the form of the interrogatories had determined such questions. In fact the case had been prepared by the plaintiff with the aid of a litigation support system, for which documents had been selected and classified. It was regarded as significant that no attempt had even been made to secure access to that database.\textsuperscript{230}

It seems that in the United States the absolute privilege existing between attorney and client is more fragile than the qualified work product immunity.\textsuperscript{231} It also seems that waiver of the client’s privilege for communications with an attorney will not necessarily effect a waiver of the lawyer’s immunity under the work product doctrine, as the mere showing of a voluntary disclosure to a third person will generally suffice to show waiver of the attorney-client privilege, it should not suffice in itself for waiver of the work product privilege.\textsuperscript{232} So it does not necessarily amount to a waiver of work product immunity to reveal the documents to a party with a similar interest for the purposes of related litigation. Similarly it has been held that there is no waiver where documents inadvertently disclosed in one piece of litigation, and then made the subject of a special protective order, are required in another piece of litigation relating to similar subject-matter.\textsuperscript{233} On the other hand, where the claim to immunity rests simply upon the selection of material for input to a litigation support database it has at least once been held that the immunity does not fall into the stronger class of “opinion work product,”\textsuperscript{234} but into the less protected class of “fact work

\begin{itemize}
\item \textsuperscript{228} Though this had not at first been appreciated by the Court, see id. at 1259.
\item \textsuperscript{229} See id. at 1259 n.6.
\item \textsuperscript{230} See id. at 1260.
\item \textsuperscript{231} See Note, Developments in the Law - Discovery, 71 HARV. L. REV. 940, 1044-45 (1960).
\item \textsuperscript{232} United States v. AT&T, 642 F.2d 1285, 1299 (D.C. Cir. 1988). See also Hercules Inc. v. Exxon Corp., 434 F. Supp. 136, 156 (D. Del. 1977).
\item \textsuperscript{233} IBM v. United States, 471 F.2d 507 (2nd Cir. 1972).
\item \textsuperscript{234} As to which it was said in In re Murphy, 560 F.2d 326, 336 (8th Cir. 1977), that immunity
product," and to have been waived for the purposes of other proceedings by disclosure to another opponent, despite a specific reservation attached to such disclosure that it was not to be regarded as waiving work product claims.\(^{235}\) This seems flatly inconsistent with the determination in *Sporck v. Peil*\(^ {236}\) as will be seen below, and was not applied in *Santiago v. Miles*.\(^ {237}\)

Although the plaintiff also argued in *National Union Electric Corp. v. Matsushita Electric Industrial Co.* that production of the selected documents in machine readable form infringed its immunity in respect of its attorney's work-product, this was implausible since any intellectual work had already been completed in complying with the interrogatories, and could be considered to have been waived by such compliance.

Had such factors been present it seems that the court would have held otherwise, as in the case of *IBM Peripherals*\(^ {238}\) where it was held that

the trial support system created by IBM's counsel reflects their mental impressions, theories and thought processes, and the Court is not satisfied that information contained in that system can be segregated from such lawyer's mental impressions and theories.\(^ {239}\)

In that case the Court was rejecting interrogatories designed to elicit information relating to the design of the database. Although that may be an even stronger case, there is no reason to suppose that it will not equally apply to a situation where such creative effort is deduced from the appearance of discovered data rather than explicitly demanded. It was indeed decided in *Sporck v. Peil*\(^ {240}\) that the selection of documents of a factual nature from a vast collection would not only amount to lawyer's work product so as to attract the privilege, but would reside in the more secure category of "opinion" work product which may be protected even after a showing of substantial need and undue hardship.\(^ {241}\) This has however been described as a limited exception, and to depend upon "the existence of a real, rather than speculative concern that the thought processes of . . . counsel in relation to pending or anticipated litigation was "very nearly absolute . . . and can be discovered only in very rare and extraordinary circumstances.""

\(^{235}\) In re *Chrysler Motors Corporation Overnight Evaluation Program Litigation*, 860 F.2d 844 (8th Cir. 1988).

\(^{236}\) 759 F.2d 312 (3rd Cir.), cert. denied, 474 U.S. 903 (1985).

\(^{237}\) 121 F.R.D. 636 (W.D.N.Y. 1988).


\(^{239}\) *Id.*

\(^{240}\) 759 F.2d at 315.

\(^{241}\) According to the distinction expressed in *FED. R. CIV. P.* P. 26(b)(3).
would be exposed." The precise extent of this exception is thus controversial, and has been controverted in this very context. In *Santiago v. Miles* access was sought to two categories of data. The first was a database selected according to criteria established by counsel to assist with preparation for a discrimination suit in respect of job assignments in a prison. The second category consisted largely of some of the raw data in the first database. This had been supplied to the prison administrators for routine purposes. The Court held as to the former that it was covered by the limited exception in *Sporck* to the general rule of disclosure as the criteria of selection had been devised by counsel to help with the law suit. It was then claimed that since the second set had been derived from the first, it thereby acquired protection. This was rejected on the basis that these data had been compiled initially for business purposes, and the mere institution of litigation for which they were also required, was not enough to invest them with immunity. The Court was able to come to this conclusion the more readily as the second set of data was derived from the first on the basis of programs which had not been devised by counsel, and were not even seen by him. It is interesting in view of the English authorities discussed above to note that the primary purpose of creation of the data was regarded as relevant, and indeed crucial, and the mere fact that they were subsequently required for litigation did not displace this consideration. Again in the light of the English attitude towards more readily permitting discovery of documents intended to be revealed in litigation, it is interesting that *Sporck* was distinguished in *In re San Juan Dupont Plaza Hotel Fire* on the basis that there any indication of thought processes would be revealed in any event.

In some situations the Court may be more favorable to the disclosure of information relating to the structure of a database than its contents, as in *United States v. Liebart* where the authorities wished to keep confidential its computerized list of those who had not filed tax returns.

A further twist to the skein becomes apparent if the file is going to

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242. Gould Inc. v. Mitsui Mining & Smelting Co., 825 F.2d 676, 680 (2d Cir. 1987). It was held not only that the *Sporck* exception was limited, but that the criterion for disregarding it and applying the main rule permitting discovery was dependent upon the equities of the case, and in assessing them attention should be directed to whether or not they were otherwise available or beyond reasonable access to the party seeking discovery.


244. Indeed of which he appears to have known nothing at first hand.

245. 859 F.2d 1007, 1018 (1st Cir. 1988).


be used to provide evidence at the trial, as then information should be provided. This is, at least in part, so as to provide a basis upon which cross-examination can be conducted, as it has been remarked that,

any use of computerized data presents some obstacles to effective cross-examination, even if otherwise admissible, because of the difficulty of knowing the precise methods employed in programming the computer as well as the inability to determine the effectiveness of the persons responsible for feeding data into the computer.

Such objections are likely to be particularly strong in a case where the computer is to be used in a more sophisticated pre-trial application than merely storage of material, and is instead to be used to conduct some operation on the materials it contains, for example modelling of the subject-matter of the dispute. In a case involving the computation of the exhaustion of stocks it was said that

[i]t is quite incomprehensible that the prosecution should tender a witness to state the results of a computer's operations without having the program available for defense scrutiny and use on cross-examination if desired. We place the Government on the clearest possible notice of its obligation to do this and also of the great desirability of making the program and other materials needed for cross-examination of computer witnesses, such as flow-charts used in the preparation of programs, available to the defense a reasonable time before trial.

This has remained the firmly expressed view in civil cases as well as criminal and in City of Cleveland v. Cleveland Electric Illuminating Co., it was said that where

expert reports are predicated upon complex data, calculations and computer simulations which are neither discernible nor deducible from the written reports themselves, disclosure thereof is essential to the facilitation of "effective and efficient examination of these experts at trial..."

Similarly in Dunn v. Midwestern Indemnity the Court permitted discovery of

any material relating to the record holder's computer hardware, the programming techniques employed in connection with the relevant data, the principles governing the structure of the stored data, and the operation of the data processing system. When statistical analyses have been developed from more traditional records with the assistance of computer techniques, the underlying data used to compose the sta-

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248. Note how this parallels the procedure in England where privilege is claimed in respect of material subject to disclosure under Rules of the Supreme Court, 1965, Order 38, Rule 2A.
252. 88 F.R.D. 191 (S.D. Oh. 1980). The same objection was raised in Adams v. Dan River Mills Inc., 54 F.R.D. 220 (1972), and dealt with in the same way.
tistical computer input, the methods used to select, categorize, and evaluate the data for analysis, and all of the computer outputs normally are proper subjects for discovery.  

Although it is frequently argued that revelation of the computer-readable database will reveal the lawyer's conceptualisation of his case, in *Fauteck v. Montgomery Ward* it was pointed out that this argument has a limited application in cases where the analysis of the database is going to be presented at the trial by an expert witness, since in that case Rule 26(b)(4) is designed to deal with such material. The Court was also willing to undertake its own in camera review as a check. There was also testimony that in the class of litigation in question the type of analysis was well-known and would be unlikely to reveal any sort of special approach.

In *Dunn* the possibility that the discovery of the computer system would disclose trade secrets and proprietary information was raised, but this is also recognized by the Rules as a possible objection to discovery, and the point was simply remanded for determination upon the production of evidence, the party resisting discovery bearing the burden of establishing the basis for the objection.

**H. Practical Problems**

Even if the required data is admissible, authentic, accessible, and free from any claim to protection based on privilege or public policy, there may still be practical objections to providing the information desired, either at all or sufficiently speedily or comprehensibly to be useful. It is convenient to consider these objections in relation to the cost of providing the information in the required computer-readable form, the trouble of so doing, and any special dangers which may be created.

The cost of providing the information in computer-readable form is often a matter of contention. This may well involve some preliminary investigation into the true amount of the cost which is sometimes hotly contested by the parties. It should also be borne in mind that it will often be cheaper to use computers to extract information than to do so manually, since as the Supreme Court of the United States has remarked:

although it may be expensive to retrieve information stored in computers when no program yet exists for the particular job, there is no reason to think that the same information could be extracted any less
expensively if the records were kept in less modern forms. Indeed, one might expect the reverse to be true, for otherwise computers would not have gained such widespread use in the storing and handling of information.\(^{257}\)

It may nevertheless be argued that the cost of meeting the request is disproportionate to the amounts involved in the litigation. Thus in *Dunn v. Midwestern Indemnity*\(^{258}\) a single instance of discrimination was the basis for a claim to discovery of the entire computer systems and records from four insurance companies regulating insurance practices in a district of Dayton, Ohio. Although the Rules of Civil Procedure explicitly permit discovery to be refused or modified on grounds of cost,\(^{259}\) the Court was reluctant to accept that argument since it might provide an incentive for parties to adopt structures for computer-based records, specifically designed to be costly to respond to such requests.\(^{260}\)

As between the parties the allocation of cost depends upon a number of factors, such as who has the initial obligation to provide the information, thus in the numerous actions where this information is needed to establish the class for a class action suit it seems that the cost can’t be imposed on a third party.\(^{261}\) One restriction upon the application of the discretion on discovery under the provisions of rule 26(c) may be the extent to which the parties have initiated the exercise. Thus in *Penk v. Oregon State Board of Higher Education*\(^{262}\) the plaintiff had requested the updating of the defendants’ records to help in the prosecution of its case, and it was held that if this meant that the defendant was thereby compelled to improve its records beyond what would be required in the ordinary course of its business, then it was legitimate to require the plaintiff so requesting to pay half the cost of the update.\(^{263}\) On the other hand where there are no special requests it is not unreasonable to expect the responding party to bear the costs of maintaining records in the ordinary way indicated by the nature of its business, and to make normal business provision against the contingency of having to produce such information in computer-readable form in the event of foreseeable litigation.\(^{264}\) In *Bills v. Kennecott Corp.*\(^{265}\) the Court listed the factors relevant to the


\(^{258}\) 88 F.R.D. 191, 198 (S.D. Oh. 1980).

\(^{259}\) FED. R. CIV. P. 26(c)(1).


\(^{261}\) *In re Franklin Nat’l Bank Sec. Litig.*, 574 F.2d 662 (2d Cir. 1978), *reh’g granted*, 599 F.2d 1109 (1979).

\(^{262}\) 816 F.2d 458 (9th Cir.), *cert. denied*, 484 U.S. 853 (1987).

\(^{263}\) Even though the sum was very substantial, $100,000, and the defendants proposed themselves to make use of the updated information in the course of the trial.

\(^{264}\) *See In re Franklin Nat’l Bank Sec. Litig.*, 574 F.2d at 676.

exercise of this discretion:

information stored in computers should be as freely discoverable as information not stored in computers, so parties requesting discovery should not be prejudiced thereby; and the party responding is usually in the best and most economical position to call up its own computer stored data.

In the instant action, this Court has been persuaded by the following additional factors in exercising its discretion to deny defendant's motion to shift the costs of discovery: (1) The amount of money involved is not excessive or inordinate; (2) The relative expense and burden in obtaining the data would be substantially greater to the requesting party as compared with the responding party; (3) The amount of money required to obtain the data as set forth by defendant would be a substantial burden to plaintiffs; (4) The responding party is benefitted in its case to some degree by producing the data in question.266

The next question involves the trouble to which the party is put in providing the information in computer readable form. In exactly the same way as with questions of cost, the amount of disruption may be a highly contentious preliminary issue.267 To some extent this interacts with questions of cost. In *National Union Electric Corp. v. Matsushita Electric Industrial Co.*, 268 the plaintiff's objections, once the work product and attorney client privilege claims had been stripped away, amounted first to a claim that they were not being asked to discover something in existence before the litigation commenced, but rather to produce something new, at least so far as it was a computer-readable version, and second, that it would impose an undue burden on the discovering party. It was however held that the balance of convenience favored the defendant as he was willing to meet any additional costs incurred as a result of the need to produce the data in machine-readable form.269 Although this is clearly a step in the right direction, it still seems rather inequitable in considering only the marginal cost of providing the information, whereas the fairer solution is to divide the total cost, a distribution subsequently adopted in this context.270 No issue arose here of any logistical difficulty in complying with the request as it involved no more than directing the output of an existing file to disk, rather than to a printer. Even where more substantial effort was involved, as in

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266. 108 F.R.D. at 464.
269. *Id.* at 1262.
In re Air Crash Disaster at Detroit, 271 because the relevant information was not initially in computer-readable form, the court was prepared to order its discovery in that form on condition that all of the costs were met by the party seeking discovery, and that the process was not "unduly burdensome." 272 Where there is a disproportion in time and trouble, just as much as where there is a disproportion in expense the Court will be inclined to order discovery in favor of a disadvantaged claiming party. 273 On the other hand, this argument will not succeed if the system has been inefficiently designed by the advantaged resisting party just so as to defeat legitimate claims for discovery, as

[t]o allow a defendant whose business generates massive records to frustrate discovery by creating an inadequate filing system, and then claiming undue burden, would defeat the purposes of the discovery rules. 274

This was also emphasized particularly strongly in Daewoo Electronics Co. v. United States:

[i]t raises the specter of a society in which decisions may be unexamiable because they are accomplished by electronic means too complex and unique to be transmitted in a comprehensible way even to those citizens sufficiently knowledgeable to analyze the relevant data. In this cybernetic new world the effort needed to transmit and explain the basis for the decisions would interfere with the making of other decisions, so that all functioning comes to depend on insulation from critical examination. 275

This is the logical end of the position taken by the government and this is the reason why it must be rejected.

In the recent English case of Derby v. Weldon (No. 9) 276 the request went further than merely to receive a computer-readable version of information already supplied. In particular the identity and volume of the documents to be discovered was in dispute, and for this reason the defendant sought direct access to the plaintiff's computer together with full operating instructions so as to be able to search for relevant documents. There were difficult logistical questions for this reason as the plaintiff's computer had been upgraded 277 during the period in question, and exten-

272. Id. But note that in United States v. Davey, 543 F.2d 996, 1000 (2d Cir. 1976), it was accepted that no such production of something not already in existence could be required under the Internal Revenue legislation.
277. More than once, and a further upgrade was being conducted at the time of litigation. Much
sive re-programming would be required to secure appropriate access to pre-upgrade material. Access to the current machine was also a problem since it was in constant use, and overloaded so that it would be extremely time-consuming and disruptive to secure access to reconstruct extensive bodies of material as required by the defendant. All of these questions were allocated to the Master for investigation and order, using the sanction of costs to secure compliance.

It is suggested in the Manual for Complex Litigation that

[b]uilding on the growing use of computerized litigation-support systems for storage and retrieval of documentary evidence, counsel should consider in appropriate cases establishing joint computer-based depositories, at least with respect to indices, abstracts, and currently-generated documents, subject to the development of a protocol to protect “work-product” uses that each may wish to make of the materials.278

It is however hard to see such co-operation being likely given the current highly adversarial attitude towards discovery. It seems that, at most, it may sometimes be possible to establish individual depositories to which opponents may have access without disrupting the work of the responding party. It has indeed been suggested that such independent depositories are a more cost-effective way of meeting the problem.279

A final consideration, admittedly of rare occurrence is that the problem will transcend one merely of cost or trouble, and will actually lead to the likelihood of physical damage or risk to some other major interest. Thus in Derby there was also evidence that the condition of some of the archival material was so bad as to expose the disk reader to the possibility of damage if an attempt were made to read the disks, certainly if more than once.

In the United States this consideration also has been found to be addressable through the sanction of costs. In United States v. Davey280 the defendant claimed to be fearful of loss or damage to its tapes if handed over to the government.281 In those circumstances it was decided that

[s]ince the duplication of the tapes is desired by the taxpayer solely to protect it against the risk of loss or damage while the tapes are in the government’s custody and not because it will have need for the tapes during that period, we doubt whether the cost of such added protec-

of the information required was archival in character, and it had apparently been unnecessary to provide for complete data compatibility with this material.

280. 543 F.2d 996 (2d Cir. 1976).
281. Though it adduced no evidence to justify its fears, and the government adduced evidence to the contrary.
tion represents the type of burden that might be imposed on the government.\textsuperscript{282}

It does seem however as if all of these practical problems are susceptible of practical solutions, ordered either by the Master in England, or in the United States under a protective order.

\section*{III. Conclusion}

It turns out that the voyage has become one of circumnavigation. What started as a conflict between common law and chancery, oral evidence and pre-trial discovery, adversarial and inquisitorial procedure has simply re-emerged in the tension between the need to preserve the position of the trial lawyer and the exigencies of the efficient management of litigation. Just as the more policy-orientated approach of equity eventually overcame the technicality of the common law, so it seems likely that the exigencies of modern stream-lined procedure will prevail over the secretive approach to the conduct of litigation. This is to be welcomed. The legal profession as a whole will benefit from earlier and fuller discovery. The lawyer who takes the initiative by installing a state of the art litigation support system will not suffer. He will have initiated the system, he will understand it best, and if his opponent is too inefficient to have created his own, then there can be little objection to his having access which he will be unable to use so well, so soon, or so conveniently, and for which he will be required to pay half of the total cost.

It is encouraging to find courts adopting so progressive a stance in these matters, but not very surprising as they have more to gain than anyone from the more efficient conduct of litigation.

\textsuperscript{282} Id. at 1001.
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