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SOME REFLECTIONS ON LEGAL INFORMATION RETRIEVAL

CLAYTON A. HUDSON, LL.B.\(^6\)

Although the study of the role of modern electronics in law is relatively new, there is already a plethora of literature on the subject. Ranging from prolix, highly complex and often unintelligible dissertations concerning symbolic logic, Boolean Algebra, and the unravelling of impossible evidentiary problems\(^1\) to curt newspaper reports which tell of major breakthroughs and jurisprudential miracles,\(^2\) these writings all tout the utility of the computer in the legal system. Unfortunately, there are few writings which are not redundant.\(^3\) This paper is not an attempt to summarize what is happening in this field; this has been done many times elsewhere.\(^4\) It is an attempt to offer some arguments both jurisprudential and practical, in support of the use of computers for the storage and retrieval of legal information. This will undoubtedly add to the already formidable stock of words on the subject. It is hoped that something of value will be suggested and if the reader is appalled by statements which seem somewhat fanciful, protection is sought behind the words of Prof. J. D. Morton who, when introducing his unique theory of the Criminal Law, counselled:

Such conclusions as may be drawn will be speculative rather than authoritative and will no doubt be dismissed in many quarters as unfounded. I do not invite the reader to believe but rather to think about what I shall have to say.\(^5\)

PART I

A BRIEF DISCUSSION OF THE HISTORY OF LEGAL INFORMATION STORAGE AND RETRIEVAL IN ANGLO-AMERICAN JURISPRUDENCE

The following brief outline is an attempt to link the development of the common law with changes in communications media. It is the author's contention that the theory of the "law" advancing as a result of the sophistication of information storage and retrieval devices is

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\(^{2}\) E.g. The Philadelphia Inquirer, Sunday July 17, 1966, Kelowna Courier, June 18, 1966. Business Week, Oct. 1 1966, all of which predict, implicitly at least, that all the problems now facing the legal profession will be solved once the computer has been installed.

\(^{3}\) Compare the Kayton and Myer articles, supra note 1 for virtually identical coverage of the same problem.

\(^{4}\) The best summary of advances in electronics and the law will be found in a now defunct legal periodical, MULL, (MODERN USES OF LANGUAGE IN LAW), which over a period of three or four years has kept reasonably abreast of current trends and projects.

as valid as any other theory.\textsuperscript{5} The following discussion sketches the development of the common law from the point of view of communications media.

In any social unit, the rules that give order and structure to the unit are only those rules which can be readily recalled by persons given the task of enforcement. In a primitive tribal society this task is a fairly simple one. The society usually contains but a small populace and depends for its existence on extremely simple economic systems. Being illiterate, the society has no written codes, but is forced to rely for its rules of order on the collective memory of the people. Those whose responsibility it is, if such a responsibility exists, to pass judgment upon an individual's conduct are in little danger of making a wrong decision. They, as well as all the members of their society know what the result ought to be.\textsuperscript{6} Further, the collective memory of these people is extensive. Events which happened tens, indeed hundreds of years previously are vividly remembered.\textsuperscript{7} Thus the collective memory is extended and refined from generation to generation. It is this simple form of "precedent" which gives the legal systems of primitive societies their bases.

As various primitive communities begin to interact and become economically interdependent, the customary laws of these communities come into conflict. The tribal nature of the unit begins to disappear. Wars and discord follow. It is not until a new order is imposed upon all the communities that a peaceful and ordered society emerges. However, because of the increased size of this society and because of the complexity and bulk of the new rules, brought about by the necessity of assimilating divergent cultures, the collective memory of the people is simply not efficient or accurate enough to store and retrieve the new data. It is at this point that an extension to man's memory becomes necessary. From the middle ages to the present, Western man has depended on his "memory extensions" for the storage and retrieval of the rules of society.

Anglo-Saxon Society was both tribal and illiterate. This affected the law in two ways. First, it tended to be local in nature. Any conflicts which arose within the social unit were settled from within. The laws of one unit could not easily be enforced against members of another unit and when such enforcement was attempted, war was usually the result. Second, the source of the law was the local custom and that custom was contained in the collective memory of the people.

\textsuperscript{5} For example, Maine's theory with respect to legal fictions, equity and legislation.

\textsuperscript{6} For an instructive survey of the role and methods of customary law in a primitive community see B. Malinowski, \textit{Crime and Custom in Savage Society}, (Littlefield, Adams & Co., 1966). It is interesting to note that in the society which Malinowski studied there was no enforcement agency such as we know it. Though the accusation usually came from someone else, the transgressor of the social rule judged himself and carried out the sentence be it punishment or death.

The nature of this system disposed itself very well to self-help remedies. No judges or advocates were necessary. A wrong, when committed, was known to all the community and so usually, the wrongdoer. Likewise, the customary solution was known to all. Even though the gravity and punishment of an offence varied from community to community, even from class of individual to class of individual,\(^8\) nevertheless, the code of offences and remedies for a particular locality was known to all in that locality. When a dispute arose, the injured party merely confronted the wrongdoer with his version of the facts. This was the procedure whereby the substantive law or custom was arrived at by the parties. Where a peaceful solution could not be reached, either because of the nature of one or both of the parties or because the customary law was not adequate to deal with the problem, a blood-feud between the parties would usually result.\(^9\) Suffice it to say that generally, the customary solution was not arrived at by any sort of inductive or deductive reasoning, it was a matter of public knowledge, the accumulated memory of events and disputes taking place over a long period in the community.

Even before the coming of the Normans, this manner of storing and retrieving the rules was becoming inadequate. External forces were making themselves felt on the small communities. There had been spasmodic attempts at central government. The powerful church organization was making inroads into the local law. Day to day life was becoming more than merely a local experience. Finally William I came, conquering and organizing England and imposing the first strong central government on the people. The complete revamping of society was not imminent, as the continued supremacy of the central government depended on its ability to reach out to every corner of the Kingdom. The omni-presence of the King might have been achieved by military occupation, but a far more lasting and peaceful, as well as financially rewarding method was chosen, that is, the usurping of the customary law, replacing in its stead the King's Law. Through the instrument of Crown appointed justices sitting in Crown sanctioned courts, the King systematically gained control of the whole legal institution. For example, the removing of pleas of the Crown from the jurisdiction of the local sheriff to that of the Justice in Eyre accelerated the shift favouring a centralized power.\(^10\) From Henry II to the middle of the fourteenth century, the General Eyre then grew in scope including, through the instrument of legal fictions, and other means, more pleas of the Crown and royal claims to revenue.\(^11\) By the end of

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\(^9\) It was to avoid just such a result that the Anglo-Saxon local courts (i.e. of the shire, hundred, township or vill) existed, however they were more of the nature of administrative tribunals than courts. See KIRALFY infra, note 11 at 89-91.

\(^10\) PLUCKNETT, supra, note 8 at 105.

\(^11\) A. KIRALFY, POTTER'S INTRODUCTION TO ENGLISH LAW AND ITS INSTITUTIONS (Sweet & Maxwell, 1958) 115-117.
the middle ages, the Anglo-Saxon local law had all but vanished, replaced by a primitive, though recognizable, form of the Common Law.

This change from customary to Common Law, albeit necessary, was not without its drawbacks, the most important of which was that the source of the law had to be changed. No longer could custom be the container of the rules of the society for each community had its own version of the rules and the impossibility of applying such a system on a country-wide scale soon became apparent. The early Norman Kings had sought to apply customary law, but legislation in these areas, encompassing the whole Kingdom, soon took its place. A new source had to be found.

The conception that the King was God's representative on earth solved this problem. God and the Law of Nature became the source of the law, while the King and his appointees became the interpreters of that Law.

Though a jurisprudential problem had been solved, a practical problem remained. The very fact that a single law sought to embrace such a large geographic area made the old method of storing the rules inadequate. The collective memory did not have the capacity to cope with the new complexity of the rules. But, even if it did, it was the King and his appointees and not the general populace who were being called on to remember the rules and enforce them. It was at this point that a memory extension became necessary, and written records were kept in order that the law could be more readily recalled by the court.

The legal memory extension of the middle ages was the Year Book. Though the Year Book is considered the ancestor of our modern day report, there is little similarity between the two. Very rarely did the former ever report a decision on a point of substantive law. The usual contents of the Year Book were discussions between bench and bar or speeches by Serjeants and judges on procedural matters and other topics of a strictly practical nature. This data was obtained by copying the notes of a clerk or lawyer who had been present when the discussion or lecture took place. Throughout the middle ages, the Year Book was the primary tool for bringing or defending an action.

It should be noted that some features of the customary law were extant until quite recently, e.g. "Gavel Kind" and "Borough English", see Megarry & Wade, The Law of Real Property (2nd ed. Stevens & Sons Ltd., 1959) 20-22.

For a list of these enactments see Plucknett, supra, note 8 chaps. XIX-XX.

The Plea Rolls, the official records of the courts, were not as important to the development of the medieval Common Law as were the Year Books. The Plea Rolls, being the official reports were virtually inaccessible to the profession, whereas the Year Books were compiled for lawyers, by lawyers. They reported on that which would interest the practitioner—see N. Holdsworth, Sources and Literature of English Law (Clarendon Press, 1952) 82-83.

For an instructive discussion of the evolution of the Year Book see Plucknett, supra, note 8 at 268-273.
By comparing the Anglo-Saxon to the medieval legal system we can see that there had been a substantial change in the storage and retrieval of the legal rules. In the former period, Custom had been the source of the law. This Custom was stored in the collective memory of the people and was retrieved by consulting the memory of the disputants and/or the local tribunal. In the latter period, the sources of the law were God and the Laws of Nature which were stored in the minds of the King and his justices. In order to retrieve this law, the court consulted the Year Books which would indicate the proper mode of bringing the action on a given set of facts. Once the action had been "pigeon-holed" into the right procedural path, the substantive rules automatically followed.

Towards the end of the middle ages some subtle changes took place in the common law, most important of which, as the later Year Books indicate, was that the courts were beginning to bring down decisions on questions of substantive law based on arguments of counsel, the pleadings of the case being treated as merely ancillary to the issue. This new innovation should not be under-estimated, for it was the precursor of four hundred years of Common Law Jurisprudence. It came about for a number of reasons.

The church, which had been in constant conflict with the state throughout the middle ages was beginning to lose its temporal sway. The state had been systematically reducing the power of the church. For example, the ecclesiastical privilege of Benefit of Clergy continued to decline throughout this period. Finally, in the reign of Henry VIII, the last confrontation between church and state took place. The state emerged victorious.

In order to minimize the influence of the church on the law it became necessary once more to change the source of the law for if the medieval sources, i.e. God and the Laws of Nature were to continue, the shadow of the church would remain over the state. This anti-papal movement, contemporaneous with the new nationalism, gave rise to the positivist theory of the law. The following quotation from Hobbes, is indicative of the new approach.

Civil law is to every subject those rules which the commonwealth has commanded him, by word, writing, or other sufficient sign of will, to make use of for the distinction of right and wrong—that is to say, of what is contrary and what is not contrary to the rule.

From this time onward, the law was deemed to flow from the Sovereign, not through him. The statutes and cases were no longer considered merely representations of the law, but became the law itself. The medieval judge had been required to interpret the Laws of Nature, the modern judge was required to find, in the statutes and the cases, the law of the state.

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17 HOLDSWORTH, supra, note 15 at 86-88.
18 See PLUCKNETT, supra, note 8 at 439-441 and KIRALFY, op. cit.
20 As judicially noted by men such as Coke and Blackstone, see 1 Co. Rep. at f. 52a.
That the courts were deciding points of substantive law undoubtedly would never have come about without the introduction of the printing press. The medieval lawyer had used the Year Books as an extension of his memory, as a tool for retrieving the law, they did not contain the law. The precedents in the Year Books were passed on from generation to generation by manual copying. Such a means of communication produced many inaccuracies and inconsistencies. This was of little consequence as long as the judge interpreted the law, on the basis of past decisions, but as the judge's function became one of finding the law in past decisions, such a poor quality of communication became intolerable.

The ability of the printing press to reproduce exact replicas of decisions and statutes solved the communications problem. But more important, the very fact that the reproduction was perfect in every way, gave to the decision or statute an aura of permanence and authority. Once the words spoken by the judge, had been reduced to print, they somehow became dissociated from the particular human conflict from which they arose and became part of that impersonal body of "dicta" known as the law.

From Plowden and Coke to the present day, decisions of the courts have been printed in reports and while the authorities upon which the courts relied may from time to time be questioned, the accuracy of the reporting very rarely is. In fact, the doctrine of stare decisis is predicated to the view that the Reports are the law and that there the Law is accurately reproduced.

That the Year Books were the predecessors of our modern reports is thus not completely true. The Year Books reported procedure and the intricate manoeuvres required to get a case into court. The Reports reported decisions on substantive law. Whereas the Year Books were employed to formulate the issue, the Reports resolved that issue. In form it may be said that the Year Books were similar to the Reports. In function, however, they were not.

It was not long after the advent of printing that the functional equivalent of the Year Books appeared. In 1516 Fitzherbert's Abridgment was printed containing extracts from some of the later Year Books and from Bracton's Notebook. Following this, many such memory extensions were published; Comyn's Digest, Bacon's Abridgment and Halsbury's Laws of England, exemplify a few of the more

21 In this and subsequent pages the reader will sense a definite McLuhan bias, see generally M. McLuhan, THE GUTENBERG GALAXY (U. of T. Press, 1962).
22 See PLUCKNETT, supra, note 8 at 271-272.
23 The most obvious example of communications noise is the "static" which you often notice when making a telephone call. If the static is bad enough it tends to make communication between the parties impossible and as a result no message gets through. See N. Wiener, THE HUMAN USE OF HUMAN BEINGS (CYBERNETICS AND SOCIETY) (2nd ed. Doubleday & Co., 1954) ch. 1.
25 HOLDSWORTH, supra, note 15 at 86-87.
26 HOLDSWORTH, supra, note 15 at 106.
famous. These aids have provided and still provide access to the law at the same functional level as did the Year Books in medieval times. They instruct the lawyer on how to formulate the issue.

At this point it may be instructive to compare the medieval to the modern situation in respect of the storage and retrieval of legal rules. In the medieval period, the sources of the law were God and the Laws of Nature. These rules were stored in the memory of the court as represented by the King and his justices. In order to retrieve the rules, the lawyers consulted the Year Books which gave them "precedents" on which to formulate an issue. If the issue was successfully formulated, the law for all intents and purposes had been retrieved. In the modern period, the source of the law is the state. The rules are contained in the decisions of the courts and in the statutes. To retrieve the rules, the lawyer consults abridgements, digests, indices and citators, which aid him in formulating the issue. Once the issue has been formulated he goes to the cases or statutes which give him substantive decisions on these issues.

Though this is ostensibly the method of legal research today, it is slowly losing credence among legal practitioners. There have been instances where the court has openly declared that a long standing principle is not the law and has overruled it.27 The far more common method of circumventing past precedents which the court does not wish to follow is accomplished by distinguishing the past precedent28 or by simply ignoring it.29 Further, neither the Supreme Court of the United States,30 nor the House of Lords31 consider themselves bound by their past decisions. With these facts in mind, the present day lawyer cannot be chastised too severely for his want of faith in traditional legal research methods. But what is to be their substitute?

Each of the three legal systems discussed previously presupposes that the laws applicable to society reflect adequately the mores of the people in that society. It is when, as now, the laws do not reflect what is generally considered to be the proper rules of society that the utility of the law decreases. During the Print Era, the positivist could rightly claim that the statutes and cases were the law and that they did reflect social norms. Communication was slow and imperfect. The effect on the individual of events taking place outside the country was minimal. Today, however, this is simply not the case. We are

27 The most famous such case, a decision which is still having violent repercussions in the United States is Brown v. Board of Education, where the Supreme Court of the United States 347 U.S. 493, (1954) 74 S. Ct. 686 declared that the separate but equal doctrine enunciated in Plessy v. Ferguson 163 U.S. 537 (1896) was not valid. 28 See Quinn v. Leathem [1901] A.C. 95 (H. of L.), where the Earl of Halsbury distinguished, on the facts, the case of Allen v. Flood [1898] A.C. 1 which to another court might have been "on all fours". 29 In Canada, in expropriation cases, the courts are in the habit of adding 10% to the award for "compulsory taking". There is no statutory authority justifying this practise. See The Queen (Ex. Rel. A.-Co. Can) v. Supertest Petroleum Corp. Ltd. [1954] 3 D.L.R. (Exch.) 245 and Drew v. The Queen (1961) 29 D.L.R. 2d 114. 30 See Hertz v. Woodman 218 U.S. 205, 212 (1910) and also Blanstein & Field "Overruling" opinions in the Supreme Court (1958) 57 Mich. L. Rev. 151. 31 Extra-Judicial Utterance of the House of Lords, Fall 1966.
in the age of instantaneous communication. We can even watch “live war” on television. In short, our lives are daily influenced by events occurring outside the legal jurisdiction in which we live. The law, unfortunately, is not so influenced. The courts and legislatures, until a few years ago, refused to acknowledge the fact that western man’s actions were governed by extra-jurisdictional events as well as jurisdictional ones. The Ontario Liquor Control Laws as well as sec. 149, the Gross Indecency Section of the Criminal Code of Canada and the court’s interpretation of it are examples of how the Print Culture legal system is out of touch with the modern electronic society.

How then, can the legal institution of today store and retrieve the data necessary to bring itself more in line with what society is doing? The answer is for it to employ for itself the same means of communication which society employs, that is—modern electronics. But in so doing, the admission must be made that the source of the law is no longer the books which contain the statutes and cases, but that the true sources of the law are the mores of society as a whole and that the cases and statutes are but reflections of those mores. Furthermore, the legal institution must have access to the cases and statutes of other jurisdictions for it is the sum total of the reflections which give the true picture.

Most Law Reform Commissions are conscious of the need to canvass the cases and statutes in other jurisdictions in order to arrive at recommendations with respect to changing or not changing the law. Yet, they are greatly restricted in their ability to do so for it is a time-consuming and often impossible task to find, through the abridgements, digests and indices, relevant legislation and judicial decisions. Usually it is more a matter of luck than of diligence if a comprehensive volume of literature is found. The problem is that the Law Reform Commissions are forced to rely on the tools of the Print Era to keep abreast of the changes in the Electronic Era. This is an impossible task. There is a gap here which cannot be closed until a more efficient method is devised for the storage and retrieval of legal information.

Such a method has been devised and though it is in its infancy, it shows signs of changing the whole concept of information retrieved in law. Further, only by means of this new tool can the lawyer hope to become acquainted with the possible policy decisions and sociological facts which a court or legislature might take into consideration when dealing with his case. It is only by means of a computer, that large files containing cases, statutes and other legal literature can be searched speedily and economically.

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32 To use McLuhan’s terminology.
33 This is not to say that the mores of a particular locality, e.g. South Africa, are the sources of the law.
34 The author here is reminded of some research he did where he was required to produce a reasonably complete list of statutes dealing with “preventative detention” for “dangerous offenders”. It was only by chance that he came upon a 1960, Columbia Law Review article which cited all the American Legislation on the subject.
The capabilities of the computer in respect of legal information retrieval will be discussed later.\textsuperscript{35} If, however, as the author believes will be the case, the computer's capacity for storing and retrieving information is utilized in law a new jurisprudence will emerge, an Electronic jurisprudence.

It can be argued that the storage and retrieval capabilities of the computer merely provide the means for the continuation of a positivist approach to the law and that it simply helps the lawyer and judge "find" the law more easily. This argument ignores the basic precept that in the Electronic jurisprudence, the mood of the people can be picked up and instantly applied. Thus, while allowing that a certain amount of weight be given to "precedent" the precedents will not be decisive, no matter how complete the precedent search has been.

The source of the law then will become the general social values (as it is to a certain extent today). The law as written will be merely the reflection of these values which at a given time is the law, but which will be constantly changing. The only means of access to this constantly fluctuating bulk of data will be the computer. Thus retrieving law will no more be a matter of consulting memory extensions, such as digests, abridgements, and indices. The lawyer will simply ask the computer for the relevant law. His reply will be a mixture of law, fact, social norms and so on. The law will no longer be a definite body of legal dicta on paper which are to be found in a finite number of books stored in a library. The law will be all the many external events which dictate society's structure. It is only with the aid of the computer that this data can be stored and retrieved. It is only with this aid that the law will keep pace with society.

PART II

COMMUNICATION'S NOISE IN THE RETRIEVAL OF LEGAL INFORMATION

1. Case Law

In a legal system such as ours, the words uttered by the court are considered of such importance that they are given the force of binding authority. This necessitates the perfect reproduction of the words into the reports if the myth that the reports contain this law is to be perpetuated. Even if it is acknowledged that the contents of the reports merely reflect the law, it is still important that the reflection remain unsullied. Thus the onus is on the reporter to report decisions of the court in precisely that language used by the court. When the exact language of the court is not used, "communications noise" has been introduced into the system.

In 1950 the English court of King's Bench handed down an important decision in the law of contract. In \textit{Leaf v. International
the court held that, in a case of innocent misrepresentation of fact, the equitable remedy of rescission is open to a buyer of goods as long as this right is exercised within a reasonable time. In this case the buyer believed that he had purchased a painting by Constable and the vendor thought he had sold one. In fact, they were both mistaken. The painting was not a Constable. The court held that though the buyer would have been entitled to rescission, he had waited beyond a reasonable length of time and was now estopped from bringing suit. It is not this result however, but the concluding remarks of Lord Denning which are of interest in the present context.

As reported in [1950] 2 K.B. 86 at 91 Lord Denning states, ". . . In my judgement he cannot now claim to rescind. His only claim, if any, as the county court judge said, was one for damages, which he has not made in this action. In my judgement, the appeal should be dismissed." But in [1950] 1 All E.R. 693 at 695 he is reported as saying ". . . In my judgement, he cannot now rescind, and the appeal should be dismissed." In the All E.R., the words dealing with the damage claim have been omitted. The question then is which version is the authentic one? Or more properly, which version is the law?

Most lawyers would agree that because the King's Bench Report is the official report, that it represents the law. If this is so, then a new remedy has been introduced into the law of contract—that is—an innocent misrepresentation of fact now gives rise to a claim for damages. This proposition has no foundation either by legislative enactment or by Common Law. It might be argued that since the case did not stand for this principle and since Lord Denning's remark, whether reported or not, is mere obiter dicta, that it is trivia to raise the discrepancy. It is just such trivia on which much of our law is based. The 1618 decision in Southern v. How is a case in point.

This case was reported in two places, by two different reporters. Both reports coincided in their versions of the facts and the outcome of the action. In both reports, Doderidge, J. is quoted as citing a case (no name) in support of his decision. In both reports the facts of this cited case are the same, A sold X goods which X believed to be the goods of B. It is at this point that the reports diverge. In one, it appears that the cited case was decided in 33 Eliz. Common Pleas and that X had a cause of action against A for deceit. In the other, it seems that the cited case was decided in 22 Eliz. Common Pleas and that B had a cause of action against A. Subsequently, the latter version of the cited case was adopted by the courts and accepted as precedent for the action of passing off. Moreover, the element of deceit, which is implicit in that case no matter which...
version is considered, is soon completely ignored. Which version of
the cited case was wrongly reported is not known, but it is entirely
likely that the latter version was the result of an inattentive or
inaccurate reporter since before this time the action of passing-off
was unknown. Thus a bit of obiter dicta, perhaps not correctly re-
ported, became the precedent for a very important cause of action.

In the same way, Lord Denning’s remarks in the King’s Bench
Report could become the basis for a new common law remedy, a not
unlikely prediction.

The foregoing indicates the importance of how a decision is
reported. Now consider, what is reported. What is the influence of
the unreported decision?

In his paper, “The Way of the Iconoclast” Lord Denning relates
an experience of his when practising at the bar. He had, it seems,
appeared on behalf of a large vending machine company which sought
to enforce one of its hire-purchase agreements. The vending machine
under dispute was very faulty indeed, but the contract contained the
usual far-reaching exculpatory clause and the court found for the
company and as a result held the purchaser bound to pay. The Court
reporter apparently was displeased with this decision and refused to
report it. In subsequent litigation, involving the same hire-purchase
agreements and the same faulty vending machines, counsel for the
company was obliged to carry copies of the trial transcript from court
room to court room. Surely the decision was law, the reporter
simply did not think that it should be.

This “willful blindness” on the part of the reporters and editors
of the law reports is the exception rather than the rule. Usually, cases
are left unreported simply because they are not felt to be of sufficient
importance to warrant publication. This, however, is a value judg-
ment made by the editors and it is not uncommon to see a case
reported many years after it was decided because at the time of the
decision it was not considered important enough.

In Ontario, as in England, the unreported case has the same
force as a reported case. Thus, it becomes desirable that the lawyer
have these decisions at his disposal. In fact, very few lawyers can
find such cases. It is only large law firms engaged in a substantial
amount of litigation who have any useful number of unreported deci-
sions at their disposal. A small law firm is at a decided disadvantage.

If inaccurate reporting and editorial discretion cause problems at
the primary source of legal dicta, the retrieval devices, the abridge-
ments, digests, citators, at the secondary level magnify the problem
tenfold. The communications noise introduced into the legal system
by these devices is substantial. One author’s opinion on what a case
stands for will differ from another author’s whose opinion in turn
will differ from the the court’s. The confusion here is introduced by
advertent action on the part of the author. What if the confusion is
inadvertent? This occurs when the author is inattentive or careless.

42 e.g., Millington v. Fox (1838) 3 My and Cr. 388.
43 Reported (1960) 3 Syd. L.R. 209.
An example of the inadvertent introduction of communications noise into the legal system may be found at page 482 of the second edition of Glanville William's "Criminal Law, the General Part".44

In Dr. Williams' discussion of non-insane automatism, he cites a case *H.M. Advocate v. Ritchie* (1925) S.C. (J) 45. On consulting the volume cited, the researcher will not find *H.M. Advocate v. Ritchie* nor will he find the case anywhere in the report. Further, the case is nowhere cited or judicially noted. Is the case a figment of Dr. Williams imagination? Fortunately no.

If the researcher were to diligently peruse all the Scottish reports around 1925, eventually he would come across the 1926 volume of the Scots Law Times. Though he would not find it recorded in the index to the cases, if he were to turn to page 308 he would find the case *H.M. Advocate v. Ritchie*. How the case was originally found and how it was mis-cited is a mystery only Dr. Williams can answer.

By and large, however, lawyers are cognizant of the shortcomings of retrieval devices. The myth of the infallibility of the text is not nearly so firmly entrenched as the myth of the infallibility of the report. Further, even if the retrieval devices introduce substantial communications noise into the legal system, it is only at the primary level, i.e., at the point where the decision is handed down, where these retrieval devices can be by-passed instead of being patched up. It is by employing the information retrieval capabilities of the computer that these problems may be solved.

If every decision of the courts were to be placed in a computer file,45 then it would not matter which decisions were reported and which were not. After the lawyer had analyzed his problem, he could simply query the computer to give him any cases on point. Further, the accuracy problem would be gone forever since once the judge had signed his name to the authorized version of his opinion, there would be no more human intervention between the opinion and the reader.46 It is submitted that unless something like this is done in the near future, the case law system will become an anomaly. With the reported decisions representing a continually decreasing percentage of those cases actually decided, a point will soon be reached where the reported case simply does not indicate what is happening in our courts.

2. Statute Law

The retrieval of legislation likewise causes problems. A look at the Ontario Statutes may prove instructive. It should be realized that compared with the legislation of many other jurisdictions Ontario's is both extremely well organized and easily retrievable.

The legislature of Ontario revises and consolidates its body of legislative enactments approximately once every ten years, the last revision occurring in 1960. This "Consolidation" contains only those

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44 1961, Stevens & Sons Ltd.
45 This is now possible at a very small expense. See Part III infra.
46 See Part III infra.
acts which are of "general application". What is to be included is at the discretion of the legislative commission who, in the past, have seen fit to exclude just about every private act and many public acts. Thus the enactments of "general application" in Ontario are contained in four, fifteen hundred page volumes entitled R.S.O. 1960. There is a fifth volume which contains an index, some miscellaneous acts of dubious origin, and the schedules to the statutes. In this manner, the practising attorney gets an up-to-date, low cost consolidation and revision of the enactments which are likely to be of interest to him. Though, on the surface, it appears as if Ontario has the solution to the statutory retrieval problem, on deeper penetration it is apparent that there are two key problems.

1. The index and citators to the statutes of Ontario are geared to the latest revision and consolidation. However, as already pointed out, the R.S.O. 1960 does not contain every enactment but only those of "general application". Thus any statute not contained in the R.S.O. 1960 is not referred to by the retrieval devices. Therefore, unless the enactment is known by the researching lawyer, it is likely "lost" and irretrievable.

2. The Index to the R.S.O. 1960 is, to say the most, not very effective. The index is merely an alphabetical list of all the statutes contained in the revision. Then, under the name of each act are the name of other acts which the editors believe might interest the researcher. For example, under the Limitations Act appears a reference to, among others, the Medical Act. Finally, listed alphabetically are the marginal notes to the statutory sections in the act. Thus, for example, in the index under the Medical Act, the word "Action" appears with five phrase references following it, each one is the marginal note to the section to which it refers. From this it can be seen that the index is only as good as the marginal notes, which, unfortunately, are notoriously bad. What then, is the solution?

The solution is, as with cases, to place all the statutes on magnetic computer tape. The computer can be programmed not only to retrieve every act in force, but also to compile an index without any human intervention. Many jurisdictions have already done this. In short, the answer to the communications noise problem in legal information retrieval is to eliminate as far as is possible human error between the source of the data—i.e. the judicial opinions and statutory sections and the receiver—i.e. the researching attorney. To this end, only the computer is suited. Just how it is so suited is the subject of the final part of this paper.

48 e.g., An Act respecting Champerty—origin 33 Edw. I.
49 This is fully discussed in Part IV infra.
50 New York, Pennsylvania, Ohio, Texas, Hawaii, and so on.
PART III

LEGAL INFORMATION RETRIEVAL: PRESENT AND FUTURE

Information retrieval devices are meant to provide accurate and swift access to the data from which they are derived. The catalogue card index provides access to the books in a library. The professional periodical provides access to recent developments in the profession. The statute citator provides access to the latest cases on and amendments to legislative enactments. Ideally, the retrieval device performs two functions. On the one hand, it directs the researcher to all the data relevant to his enquiry, on the other, it eliminates the necessity of perusing irrelevant data. Today, however, due to the information explosion, traditional retrieval devices are proving themselves unequal to these tasks. Those engaged in research are spending increasingly greater periods of time consulting retrieval devices with the result that there is less time for the actual study of the data retrieved. Moreover, the data retrieved is often irrelevant while much relevant data remains unfound. To combat these problems, information retrieval experts have turned to electronics and the computer. In law, the result has been two theories of information retrieval as applied to the computer technology. The following is a discussion of these two methods.

1. Full Text Retrieval

Given an infinity of time, the ideal legal research method would circumvent all retrieval devices. The lawyer would read statute by statute and case by case the entire body of data. By matching his enquiry against the material contained in the data base he would eventually retrieve all the material he deemed germane. As a practical matter in a manual retrieval system this method is totally unworkable. Where, however, a machine performs the actual "reading" of the data base, full text sequential scanning becomes possible. The computer simply matches the words in the enquiry against the words in the data base and where there is a "hit", the document is retrieved. Because of the speed of the computer, this matching process can be performed on an average data base in a number of hours, thus avoidance of traditional retrieval devices is at least technically possible.

51 This computerized legal information retrieval system was developed at the Health Law Centre, University of Pittsburgh, Pgh, Pa. At the present time they are operating on a commercial scale and information regarding the system is available from them on request. This dissertation on their system is the result of a three month sojourn by the author at the Health Law Centre. Any of the inaccuracies herein contained are the author's. For an early, but still current document on the "Pittsburgh System" see Kehl, Horty, Bacon, and Mitchell. An Information Retrieval Language for Legal Studies (Sept. 1961) 4 COMMUN. ASSOC. COMPUTING MACHINERY, 380-389. For an updated report on information retrieval generally see: Man's World of Facts, Special Report: Information Retrieval, (Nov. 1967) 10:4 I.B.M. DATA PROCESSOR.
At the present time a data base, for the purposes of full text computer storage and retrieval, consists of all the statutes or cases of a jurisdiction. The complete statutes of Ontario would be one data base, while the Decisions of the Supreme Court and Court of Appeal would be another. For the sake of illustration consider a data base composed of statutes.

As the words “full text” imply, every word of every section of every statute is transcribed onto a computer storage device, usually magnetic tape. Every letter, number, punctuation mark and blank space in the body of statutory material will appear on the magnetic tape as a configuration of magnetic spots. At the present time this transcription of the data from written volume to magnetic tape is performed manually. Using specially equipped typewriters which produce uniquely designed alphanumeric characters readable by man and machine alike, the material is typed on to ordinary paper pages. (This stage could be eliminated if a machine could read the data directly out of the statute volumes. However, because of the variation in type faces now employed, this is not possible.) Once typed, the pages are placed on a machine called a “page-reader” which actually reads and transcribes the contents onto magnetic tape. When all the material in the data base is thus transcribed, the result is the text tape. With the completion of the text tape, the input phase of the operation is over.

It is possible, once the text tape is created, to run a computer search on the data base. In fact, in the early days of full text information retrieval, the text tape was searched. Soon, however, it became obvious that the sequential search of the data base, even by an extremely rapid mechanical tool was expensive, time-consuming and impractical to say the least. An alternative had to be found and so the machine concordance concept was born.

 Concording

Many books have been concorded. In lieu of an index the editors compile an alphabetical list of all the words which they consider unique. Beside each word chosen they note the page or pages on which that word is to be found. The concording of a statutory data base for the purposes of computer retrieval is no different except that the concording function is performed by the machine.

To concord, the text tape is mounted onto the computer which is instructed to compile another tape consisting of an alphabetical list of all the words in the text tape along with their locations in the text tape. In doing this, however, the machine is told to ignore all common words, e.g., “and”, “but”, “if”, “no”, “also”, etc. The result

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52 Other “storage devices” are punch cards, paper tape, disks and data cells as well as the memory of the computer itself. Both disks and data cells are used in full text retrieval, but for the purposes of this discussion will not be referred to.

53 e.g., the I.B.M. selectric typewriter.
of this latter instruction is to reduce by fifty percent the number of words concorded.

This process may become clearer if illustrated. For the sake of the illustration suppose the word “orderly” appears three times in the whole of the data base [text tape]. In the concordance tape “orderly” would appear followed by three sets of numbers, for example 691.3.8, 824.5.2 and 939.7.4. The first three digits indicate the number of the document in which the word appears, i.e., documents 691, 824 and 939 contain the word “orderly”. (In the case of a statutory file, at the present time, each section is designated as a document. Thus, document 691 is the 691 section on the text tape.)

The next digit, 3, 5 or 7, indicates the line in the document (or section) in which the word appears. The last digit, 8, 2 or 4, indicates the number of words which “orderly” is from the beginning of the line. This concordance tape then, once complete, contains every unique word in the statutory file along with “pointers” which can, when required, locate these words in the text tape. The file is now ready to be machine searched.

The Search

The computer searches the data base by comparing the words in the query to those in the concordance tape. When a “match” is made, the location on the text tape of the word matched is stored in the computer’s memory. The computer then matches the numbers stored in its memory with the location numbers on the text tape and when there is a “match” the data (statutory section) contained at that location is printed out at the computer’s output terminal. Consider again the word “orderly”. The computer would search the concordance tape until it arrived at the word “orderly”. The numbers 691.3.8, 824.5.2, and 939.7.4 would be stored in the computer memory. The text tape would be run through and documents 691, 824 and 939 would be printed out.

This obviously oversimplified example only partly indicates the remarkable search capabilities of the computer. Querying simply with “orderly” when you are interested only in “hospital orderly” would retrieve all sorts of irrelevant data such as “orderly conduct” and “orderly fashion”. If, however, you require in your search query that the words “hospital orderly” appear together and in that order, information of no interest to you is unlikely to be retrieved. In short, search queries may be framed to include or exclude any reasonable number of words and require that these words are arranged in designated sequences. This enables a lawyer cognizant with computer query technique (a skill easily learned) to search exhaustively a data base of statutes or cases. But, what of the results?

Advantages and Disadvantages of Full Text Retrieval

(i) The fact that full text retrieval is word oriented, indeed alphanumeric character oriented, is a mixed blessing. On the positive side, particularly when dealing with a statutory file, the ability
to retrieve documents which contain specific words is invaluable. A few of the many experiences cited by the Health Law Centre, University of Pittsburgh, should illustrate this.\(^5\) While giving a group of state civil servants instructions on how to search and otherwise make use of their new computerized statute file, the demonstrator queried the computer with the civil service positions occupied by various members of the audience. Some of the statutory sections retrieved indicated that many of those present had authority and responsibilities of which they had no idea. It follows, from an administrative law point of view, that likely as not a few of these men were acting ultra vires of their authority as well. The necessity of clearing up this type of situation needs no emphasis. A search of the Pennsylvania statutes requesting all the documents which contain the words “eminent domain” indicated that so many authorities had the power to expropriate and that the methods of taking were so various that a full scale revision of eminent domain legislation was called for.

Less dramatic, but just as meaningful, are the searches performed to locate words which a legislature wishes to replace. They might for instance wish to replace “retarded child” with the more fashionable phrase “special child”. The computer can locate the desired word or phrase swiftly and with one hundred percent accuracy. Manually this job is arduous and the results imperfect.

On the negative side, the very qualities that give this information retrieval system such utility are the fibre of its weakness. Because it is word-oriented, the researcher must consider all the synonyms and equivalent of the word or concept with which he is dealing. He must think of misspellings and hyphenated words. He must think of archaic and stylized language. In short, he must be, or as a minimum, have access to a thesaurus geared to the data base being searched.\(^5\) Further, although this problem may be manageable when dealing with the fairly static language of the legislative draftsman, it becomes impossible when faced with the mutable language of the judiciary. Unless and until there is a thesaurus actually built into the computer memory or attached in some way to each file’s concordance tape, the computer search will prove so inflexible in query ability as to be impractical.

(ii) The transcription to magnetic tape of a data base composed of cases or statutes is a costly affair. So costly in fact that unless there were some serious legislative or judicial retrieval problem it is unlikely that the province or state would undertake such a project. Only at a time when input costs become reasonable

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\(^5\) These are contained mainly in their promotional literature, but see Cooley, *The Computer—an Indispensable Aid to Statutory Revision and Drafting*, (1967) U. Pitt. L. Rev. 310.

\(^5\) The Health Law Centre has such a manual thesaurus compiled on the Pennsylvania statute data file.
will it be possible to convince budget conscious legislators that full text retrieval is a desirable research tool.\footnote{At the present time only ten states or one sixth of the North American jurisdictions have their statutes on computer tape.}

This time, may not be too far off! As previously indicated the input function is performed by transcribing the material in the statute volume or case report onto magnetic tape via the "page-reader", which "reads" man and machine readable pages. If the page-reader's reading capabilities were broadened to include the characters employed in statute volumes and case reports or, if the type-faces of these publications were standardized, then the expensive stage of preparing the machine readable page would be eliminated.

(iii) There is however an argument which contends that even at the present high cost of input, the statute law of a jurisdiction should be computerized. This argument presupposes the periodic revision and compilation of the statutes and points out that the cost of creating a statutory magnetic tape file can be easily absorbed at the first such revision for the following reasons. Once the statutes have been placed on magnetic tape, this tape can be periodically brought up to date by making amendments, additions or deletions to the data base. This, in effect, produces an unofficial revision and consolidation every time it is done, usually once a year. Thus for search purposes at least the statutes are yearly revised and consolidated. From this tape, using the photo-offset printing process, the entire body of legislation could be printed.\footnote{The printing job done by computer set type and a computer print out should not be confused. If a computer were used to set the type in a statute volume the reader could not tell whether it was manually or automatically type set.} This process is now used by many newspapers and magazines. There is no reason why it could not be applied to law.

(iv) The last consideration and perhaps the most telling criticism of the full text retrieval system is the lack of interplay between the researcher and the retrieval device. Given one of the traditional retrieval devices, the researcher can "play" with it. By a process of trial and error he consults one term or phrase, then another, until it pinpoints his problem. Not so with the computer. Once the question is put to the computer, it is asked for good. If the researcher wishes to modify his request, he must re-submit it and it will be run against the file again. This lack of feedback\footnote{Wiener, supra, note 23 at 28 et seq.} between man and the machine is enough to permanently impeach the system unless something is done. No matter how bad manual retrieval devices appear to be, at least they are flexible. The computer system is rigid. This problem has not gone uninvestigated and one computerized information retrieval system has done something about it.\footnote{Biological Abstracts, see I.B.M. DATA PROCESSOR, supra, note 51 at 28.} In this system the re-
searcher makes his enquiry which is intercepted by another person who is cognizant of the data file and its setup. It is this middleman's job to help frame the question after which the computer is queried and the result sent to the researcher. To a small extent the middleman by providing feedback gives the system some flexibility.

This is not the whole answer. More flexibility is still necessary, perhaps actual feedback with the machine; at the present, however, this is not possible.

2. **Abstract Retrieval**

Any computerized legal information retrieval system which relies on a data base composed of material "abstracted" from the original text of the documents must of necessity be an abstract retrieval system. The reasons for such a system are twofold. First, the cost of input and search is low, for only a fraction of the total number of document words are transcribed to magnetic tape. Second, as a result of an abbreviated data base, search time is greatly reduced. With this in mind two retrieval systems have been developed, both for the purposes of retrieving case law. One employs a data base consisting of headnotes and/or Reporter's Abstracts; the other a statistically determined relevant word concordance.

a. **Headnotes and/or Reporter's Abstracts**

This method of retrieval pre-supposes that the editors of the reports glean all the useful information out of a case and place it in the abstract and headnote. However well or poorly founded such an assumption is, is a matter of opinion. Suffice it to say that the speed and low cost of retrieval is offset by a certain amount of inaccuracy or incompleteness of retrieval.

Input and search of this system is substantially the same as in full text retrieval, the only possible deviation being that, because of the decreased bulk of the data base, it may be economical and practical to search the text tape without having to go through the extra stage of having to compile and search a concordance tape. This, however, is a matter of little importance for discussion here.

b. **Partial Full Text**

The other abstract retrieval system, termed "Partial Full Text" by Prof. Kayton, is indeed a hybrid of the full text method. As with the full text system, the Partial Full Text eliminates the common words (50% of the data base) from the concordance tape.

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60 What follows may not be precisely what is done by Law Research Inc. of New York or by Mr. Latta of Edmonton, Alberta, the two other commercial legal retrieval centres besides the Health Law Centre. However, this is the impression which the author gets of their system. See Latta, Information Retrieval: An Automated System for Case Law, (April 1967) 10 CAN. B.J. 110.

61 KAYTON, supra note 1 at 19.
Unlike the full text system, it eliminates a further twenty percent of the words (leaving thirty percent for search purposes) which are deemed, statistically, not to be of sufficient importance. The search procedure here is the same as employed by the full text method, but as with the "headnote and abstract" method the results of the searches are somewhat less than complete. The basic difficulty with both these systems is that they rely for much of their effectiveness on human value judgments which, once made, are irrevocable. If anything important is missed by the editor in the headnote or abstract, then it is lost forever for the purposes of machine search. If the statistics deem some word of little searchable significance which in reality is important though, say, of infrequent use, then that word is lost forever for the purposes of machine search. This is obviously a problem which does not arise with full text retrieval. Apart from this, any computerized legal retrieval system which is less than full text is not likely to be enduring. Photo-offset printing settles this. As previously indicated, more and more photo-offset printing is being done by computer. If and when law publishers decide it is feasible to employ such a method to set statute volume and case report type, they will have a text tape at their disposal. It is remembered that the prohibitively expensive feature of full text retrieval is input cost. Here input cost has been done away with. All that is left to be done is the concording. Further, the speed of abstract retrieval searches, as compared with full text, is of negligible utility. No problems which require extensive legal research are of such urgency that three hours or as many days make any difference. If any method is to replace manual researching, it will be full text; anything less will give insufficient completeness.

To sum up then, none of the present methods of computerized information retrieval is of universal practical application. Of all the methods extant the full text retrieval method is the only method with present as well as future practical application, especially in the field of legislation. None of the computerized methods so far take the place of the good manual retrieval devices and it is likely to be a while before any do.

PART IV

CONCLUSION

Modern electronics will have an important, and vital role to play in the future of legal information retrieval. Manual retrieval devices are proving barely able to cope with the ever increasing flow of data. Furthermore, these devices tend to be oriented toward one jurisdiction only whereas the policy of the legislatures and even the courts

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62 This method was developed by Miss Sally Dennis for a joint I.B.M., American Bar Foundation Project.
is more often influenced by extra-jurisdiction judicial decisions and legislative enactments. What then is the future? What kind of information retrieval system will there be?

With the increase in the use of the photo-offset printing process, before long there should be computer text tapes of most important legal data. Any data remaining untranscribed in due course will be placed on magnetic tape. Thus, all legal data, including case reports, statutes, texts and legal periodicals, will eventually be stored on magnetic tape. These text tapes will contain the full text of the documents, not abstracts. It will be possible to get full text print-outs of the material at the output terminal of the computer or to print the data in the traditional book form.

To retrieve this data, with one exception, the system now employed in full text retrieval will be used. Either the computer memory itself or the data file will contain thesaurus which will relieve the researcher from the onerous chore of having to think up every word which may be of use in his enquiry. The computer, given a search word, will consult the thesaurus for synonyms and equivalents. Any found will be searched on the concordance tape in the same manner as the search word.

An important aspect of the computer retrievable data file will be a librarian fully conversant of the material. This would be impossible at a central storage and retrieval installation. Instead, each jurisdiction will maintain and operate its own legal information storage and retrieval data centre. For example, the Ontario government would maintain and operate a computerized legal library storing all the statutes and regulations of Ontario, the decisions of the Ontario Supreme Court and Court of Appeal (and perhaps even the lower courts), any legal periodicals published in the jurisdiction and so on. In other words, each jurisdiction would keep an up to date file of all legal data coming under its ambit.

When this is the case, a reasonable amount of feedback between the researcher and the retrieval device is possible. For, as with the Biological Abstracts, when an enquiry is made, the man in charge of the data file intercepts the request and converses with the enquirer. This dialogue may be by telephone or by telex. When the researcher, with his knowledge of the problem, and the data file manager, with his knowledge of the data file, agree on the manner in which the question should be asked, the amended enquiry is fed into the machine which retrieves the data.

But besides the fact of researcher-retrieval device feedback and data file maintenance, there are other reasons for this decentralization. Primarily, as legal libraries go today, the only data which is kept up-to-date and easily retrievable is that data relevant to the jurisdiction in which it is situated. For instance, in Toronto, it is

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63 Or some other computer storage device.
64 At the Health Law Centre, University of Pittsburgh.
65 IBM DATA PROCESSOR, supra note 51 at 28.
66 This may not be universally true, but from the author's limited experience it is true of two jurisdictions, Ontario and Pennsylvania.
not easy to get hold of up-to-date American statutes with a few exceptions, e.g., New York, without actually writing away to the state whose legislation you require. Further, the librarian, who may never have had to deal with such legislation is at a loss to tell you its status or how to deal with it. If, on the other hand, you were to deal with the state and the state librarian directly then this would not be the case.

Second, the space occupied by volumes of statutes and case reports, not to mention other legal literature, is reaching the critical point. If a law library had the ambition to possess all the legal literature of the Common Law jurisdictions, it would first have to find room for several million volumes. Maintaining the up-to-date status of one jurisdiction's legal literature is a substantial problem. With a decentralized retrieval system this would be as far as the problem would go. Space would be saved and the quality of the data file maintained would be improved.

Computers, electronic gadgets, the decentralized law library are new to the law. Automated legal information retrieval is still in its formative stages. In the not so distant future these devices will be as commonplace and as useful to the lawyer as the case report or the textbook. They will be as much a part of the "practice of law" as the attache case.