Trusting Records:
The Evolution of Legal, Historical, and Diplomatic Methods of Assessing the Trustworthiness of Records, from Antiquity to the Digital Age

by

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A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

in

THE FACULTY OF GRADUATE STUDIES

(Individual Interdisciplinary Studies Programme)

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

October 1998

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Date 23.12.98

Abstract

A trustworthy record is one that is both an accurate statement of facts and a genuine manifestation of those facts. Record trustworthiness thus has two qualitative dimensions: reliability and authenticity. Reliability means that the record is capable of standing for the facts to which it attests, while authenticity means that the record is what it claims to be.

The trustworthiness of records as evidence is of particular interest to legal and historical practitioners who need to ensure that records are trustworthy so that justice may be realized or the past understood. Traditionally, the disciplines of law and history have relied on the guarantee of trustworthiness inherent in the circumstances surrounding the creation and maintenance of records. For records created by bureaucracies, that trustworthiness has been ensured and protected through the mechanisms of authority and delegation, and through procedural controls exercised over record-writers and record-keepers.

As bureaucracies rely increasingly on new information and communication technologies to create and maintain their records, the question that presents itself is whether these traditional mechanisms and controls are adequate to the task of verifying the degree of reliability and authenticity of electronic records, whose most salient feature is the ease with which they can be invisibly altered and manipulated.

This study explores the evolution of means of assessing the trustworthiness of records as evidence from antiquity to the digital age, and from the perspectives of law and history; and examines recent efforts undertaken by researchers in the field of archival science to develop methods for ensuring the trustworthiness of electronic records specifically, based on a contemporary adaptation of diplomatics. Diplomatics emerged in the seventeenth century as a body of concepts and principles for determining the authenticity of medieval documents.

The exploration reveals the extent to which legal, historical, and diplomatic methods operate within a framework of inferences, generalizations and probabilities; the degree to which those methods are rooted in observational principles; and the continuing validity of a best evidence principle for assessing record trustworthiness. The study concludes that, while the technological means of assessing and ensuring record trustworthiness have changed fundamentally over time, the underlying principles have remained remarkably consistent.

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Introduction

Trust is "confidence in or reliance on some quality or attribute of a person or thing, or the truth of a statement."[1] When something is said to be trustworthy it means that it deserves, or is entitled to, trust or confidence. When a record is said to be trustworthy, it means that it is both an accurate statement of facts and a genuine manifestation of those facts. Record trustworthiness thus has two qualitative dimensions: *reliability* and *authenticity.* Reliability means that the record is capable of standing for the facts to which it attests, while authenticity means that the record is what it claims to be.

These two qualities -- reliability and authenticity -- are of particular interest to legal and historical practitioners. Since antiquity, records have been preserved as arsenals of law and history. The complementary relationship between the disciplines of law and history is evident in their evolution. From antiquity until the fifteenth century, the two disciplines were linked together through the rhetorical tradition. During the sixteenth and seventeenth century, as historical and legal scholarship gradually moved away "from the literary analysis of classical texts and toward an assessment of the accuracy of somewhat more recent historical data,"[2] the examination of records as evidence became a central concern of both disciplines. Historians and lawyers alike "sought to date documents and assess the good faith, knowledge, and credibility of those who initially had prepared them."[3] The need to authenticate medieval documents in particular led to the development, in the seventeenth century, of the science of diplomatics. By the eighteenth century, diplomatic science had been introduced into European faculties of law and by the nineteenth century, it had become one of the ancillary disciplines of history. It formed, moreover, a part of the foundation for the discipline of archival science, which emerged in the same period.

The needs of law and history are, similarly, complementary. Legal and historical practitioners need to ensure that records are trustworthy so that justice may be realized or the past understood. Traditionally, they have relied on the guarantee of trustworthiness inherent in the circumstances surrounding the creation and maintenance of records. For records created by bureaucracies, that trustworthiness has been ensured and protected through the mechanisms of authority and delegation and through procedural controls exercised over record-writers and record-keepers. Reliability typically has been associated with the creation of a record, and refers to the completeness of its intellectual form and the degree of control exercised over its creation procedures, while authenticity has been linked to the record's mode, status, and form of transmission, and the manner of its preservation and custody.

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[1] *Oxford English Dictionary*, vol. 2 (New York: Oxford University Press, 1971), s.v. "trust."
[2] Barbara J. Shapiro, *Probability and Certainty in Seventeenth Century England: A Study of the Relationships between Natural Science, Religion, History, Law and Literature* (New Jersey: Princeton University Press, 1983), 164.
[3] *Ibid.*

As bureaucracies rely increasingly on new information and communication technologies to create and maintain their records, the question that presents itself is whether these traditional mechanisms and controls are adequate to the task of verifying the authenticity and degree of reliability of electronic records whose most salient feature is the ease with which they can be invisibly altered and manipulated. The technological complexity and dynamic nature of electronic record-keeping systems necessitate new legal interpretations of what constitutes "a circumstantial guarantee of trustworthiness" and "best evidence". Legal commentators note that, with the increasing use of computer-generated evidence in the courtroom, courts must determine, "whether the legal system is in need of new rules of evidence or stricter foundation requirements to deal adequately with computer-generated evidence."[4] Recent historical literature addressing the implications of information technologies for historical methodology also reflects historians' concern that the complexity and volatility of electronic records may defeat their efforts to establish the authenticity of such records and to assess their likely degree of reliability.

During the spring of 1996, the trustworthiness of electronic records became a focal point of hearings held by the Canadian Commission of Inquiry into the Deployment of Canadian Forces to Somalia.[5] The Commission was established in 1995 for the purpose of investigating "the chain of command system, leadership, discipline and actions and decisions of the Canadian Forces, as well as the actions and decisions of the Department of National Defence in respect of the Canadian Force's participation in the peace enforcement mission in Somalia during 1992-93." As part of its investigation, the Commission requested access to National Defence Operations Centre (NDOC) logs, which were maintained in an automated database and which contained a record of all message traffic coming into National Defence headquarters from Canadian Forces' theatres of operation. During its review of the logs, the Commission discovered "a number of unexplained anomalies, including entries containing no information, entries missing serial numbers, and entries with duplicate serial numbers. The concern was that there may have been deliberate tampering with these logs."[6] Subsequent investigations "revealed no evidence to support the theory that tampering had occurred, but could not eliminate the possibility."[7] The investigations did reveal, however, a number of other serious problems with the NDOC logs, most of which appear to have resulted from a lack of standard operating procedures with regard to the log, a completely ineffective security system, and a lack of system audits, among other things. The Commissioners determined that, "NDOC logs are not a reliable record of transactions at the operations centre. Even apart from the question of deliberate tampering, the logs were

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[4] Mark A. Johnson, "Computer printouts as evidence: Stricter foundation or presumption of reliability?" *Marquette Law Review* 75 (Winter 1992): 439.

[5] [Canada], *Dishonoured Legacy: The Lessons of the Somalia Affair. Report of the Commission of Inquiry into the Deployment of Canadian Forces to Somalia*, vol. 1 (Ottawa: Minister of Public Works and Government Services Canada, 1997), xxx.

[6] *Ibid.*, vol. 5, 1218.

[7] *Ibid.*

compromised by problems with the data-base system and the absence of proper procedures for the operators."[8]

On the basis of its analysis, the Commission concluded that the Department of National Defence had failed to ensure the maintenance of a complete record of in-theatre message traffic to Headquarters. Specifically, it had failed to institute standard operating procedures to ensure that the logs were accurately recorded; to provide personnel with a clear understanding of the purpose of maintaining the logs; to provide adequate training to duty officers; and to use system audits to ensure that the record was being properly maintained.[9] Their findings led the Commission to recommend that the proper maintenance of NDOC logs be ensured by implementing the following:[10]

> (a) an audit procedure to ensure that standard operating procedures provide clear and sufficient guidelines on the type of information to be entered and how the information is to be entered;
>
> (b) an adequate data base system, which includes software controls to ensure accurate data entry in each field and appropriate training for operators and users of this system; and
>
> (c) increased system security to an acceptable standard compatible with the objective of national security, including restricting access to authorized persons using only their own accounts and passwords, and extending the use of secure (hidden) fields to identify persons entering or deleting data.

The problems identified by the Commission implicate both the reliability and the authenticity of the NDOC logs. The absence of standard operating procedures for recording entries in the log compromised their reliability while the lack of system audits and security procedures compromised their authenticity. The Commission's recommendations demonstrate the connection that continues to be drawn between the trustworthiness of records and the integrity of procedural controls over their creation and maintenance as well as underscore the increasingly instrumental role technology will play in implementing and enforcing those controls.

The findings also imply that legal and historical practitioners will find it more and more difficult to reconstruct past events on the basis of surviving electronic records. Notwithstanding their concern over this prospect, many historians also believe that the computer may actually enhance the authenticity and degree of reliability of records because electronic systems are capable of capturing more of the context in which electronic records are created and used within bureaucratic organizations than was possible with traditional recordkeeping systems. While

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[8] *Ibid.*, 1219.
[9] *Ibid.*, 1244.
[10] *Ibid.*, 1245.

neither the legal nor the historical discipline has identified a comprehensive set of methods for ensuring, or enhancing, the reliability and authenticity of electronic records, both agree that such methods need to be built into the design of electronic information systems.

Such need is also a recurring theme in the archival literature since, as preservers of records, archivists have a vested interest in ensuring the creation and maintenance of reliable and authentic records. In recent years, some archivists have undertaken to re-assess and adapt the concepts, principles, and methods of diplomatic science to meet the needs of contemporary recordkeeping. In so doing, they have succeeded in transforming it from a tool for retrospectively assessing the trustworthiness of medieval records into a standard for the creation and maintenance of reliable and authentic electronic records.

The purpose of this dissertation is to explore the trustworthiness of records as evidence, both electronic and non-electronic, from the perspectives of law and history, and to examine recent efforts to develop methods for ensuring the trustworthiness of electronic records specifically, based on diplomatic concepts and principles. Its objectives are:

1. to examine the evolution of means of assessing the trustworthiness of records as evidence in law and history;

2. to analyze legal, historical and diplomatic criteria and methods for establishing the trustworthiness of records as evidence;

3. to assess the impact of information technologies on each discipline's methods; and

4. to examine the extent to which these methods are adequate to the task of establishing warranted claims to knowledge about the past.

The dissertation is organized into four chapters. The first chapter will trace the evolution of means of assessing the trustworthiness of records as evidence in law and history and will include the birth of diplomatic science in the seventeenth century. The second, third and fourth chapters will analyze the criteria and methods established by law, history, and contemporary archival diplomatics, respectively, for determining the trustworthiness of records in general, and electronic records specifically.

The chapter on legal methodology will focus on the rules governing the admissibility of documentary evidence at common law and in Canadian statutory law, i.e., rules relating to modes of authentication, the production of documentary originals (the best evidence rule), and the business records exception to the hearsay rule. To assess the extent to which new technologies for creating and storing records have affected these rules, the chapter will also examine the revisions to the Canadian

Evidence Act proposed by the Uniform Law Conference of Canada to address electronic record issues.

The chapter on historical methodology will focus on the checks and controls associated with the analysis of historical sources, i.e., the techniques of external and internal criticism that are designed to test the authenticity and degree of reliability of records in general and organizational records in particular. To assess the impact of new technologies on these techniques, the chapter will also examine two recent court cases that have focussed on electronic record issues and that have involved historians as plaintiffs.

The chapter on contemporary archival diplomatics will focus on a research project conducted by a research team at the University of British Columbia aimed at identifying methods for establishing the reliability and authenticity of electronic records based on diplomatic concepts and methods. This project was chosen for two reasons: first, it constitutes the only systematic attempt to explicitly apply archival diplomatics to an electronic recordkeeping environment; secondly, as a member of the research team, I was closely involved in the project from its inception to its conclusion and contributed substantially to its analysis and findings.[11]

Each disciplinary chapter will examine, not only the methods and rules for assessing record trustworthiness but, also, the assumptions and generalizations concerning observation, recording, and bureaucratic recordkeeping that underpin them. Such examination will demonstrate how the criteria for record trustworthiness have changed over time and gauge the extent to which legal, historical, and diplomatic methods for evaluating it are adequate to the task of establishing warranted claims to knowledge about the past. The conclusion will summarize the themes that have emerged in the course of this exploration of record trustworthiness.

This dissertation is intended to contribute to scholarly research, not through the discovery of new knowledge but, rather, through its integration and synthesis of existing knowledge. Its general aim is to analyze and present that knowledge in a new way. Its specific aim is to establish a sound historical, conceptual, and interdisciplinary foundation on which to discuss issues surrounding record trustworthiness and its limits. An historical perspective will provide a corrective to the

[11] Because the UBC research project was a wholly collaborative effort, it is difficult to identify individual contributions to it. For the purposes of clarifying my own role, it is worth pointing out that, in collaboration with the other members of the research team, I defined the concepts and terms used in the project; developed the activity and entity models showing the management of an agency's archival fonds; wrote the procedural rules for those activities; and co-authored or authored the various progress reports and the final project overview. Specific contributions to the UBC project that came about as a consequence of my dissertation research included: the rationale underlying the definition of record used in the project; the evolution of classification and registration as manifestations of the archival bond and as means of establishing record trustworthiness; the rationale underlying the categorization of metadata; and the concept of a trusted third party in electronic data interchange and its connection to the concept of archival custody.

narrowly present minded approach frequently taken to technology issues in general and to electronic recordkeeping issues in particular. Donald Davis has observed that an historical understanding, "can help prevent tunnel vision in which one sees only a single goal or problem and is oblivious to the larger picture; it can promote informed knowledge about the context of a situation and reveal the full range of complexities."[12] A conceptual focus will facilitate a deeper understanding of the issues by penetrating beneath the surface of particular methods and techniques to reveal their underlying purposes. Finally, an interdisciplinary perspective will promote a more socio-cultural understanding of the history, nature and meaning of electronic records as evidence and provide insights that may not be readily apparent from the limited perspective of the legal, historical or archival disciplines. This will permit, in turn, a more meaningful evaluation of current approaches to, and critiques of, record trustworthiness. If electronic records are to serve as trustworthy evidence, it is in the interest of all three disciplines to become more literate about the nature of electronic records, to identify the kinds of procedural and other controls over record-keeping that are likely to ensure a reasonable degree of trustworthiness, and to recognize the limits of such controls.

[12] Donald Davis, "Ebla to the Electronic Dream: The Role of Historical Perspectives in Professional Education," *Journal of Education for Library and Information Science* 39 (Summer 1998): 232.

Chapter 1

The Evolution of Methods for Assessing the Trustworthiness of Documentary Evidence: From the Justinian Code to Langlois and Seignobos' *Introduction to the Study of History*

Since antiquity, the need to establish the trustworthiness of records as evidence has been recognized. Many of the concepts and methods associated with record trustworthiness today originated in Roman law. Over the centuries, they were augmented, extended, and transformed as they were gradually incorporated into the common law and the newly emerging discipline of history. By the end of the nineteenth century, these concepts and methods were well established and laid the foundation for the modern methods that will be examined in detail in the following chapters. The purpose of this chapter is to trace the evolution of the main concepts and methods for assessing the trustworthiness of records as evidence during the period of time bracketed by the compilation of the Justinian Code in 529 A.D. and the publication of Langlois and Seignobos' *Introduction to the Study of History* in 1898.

In Roman law, the trustworthiness of records as evidence was embodied in the concepts of perpetual memory and public faith. Luciana Duranti explains the meaning of perpetual memory in the following way:

> The most ancient archival documents, either in the original or as transcriptions of lost originals, contain a formula, usually placed at the end of the salutation: *in perpetuum, ad perpetuum, or ad perpetuam rei memoriam*. This formula established the function of the document with respect to the fact it was about. Because only the present can be known, a device was necessary to freeze the fact occurring in the present before it slipped into the past, and the document, as embodiment of the fact, had the function of converting the present into the permanent.[1]

Perpetual memory was linked originally to records and subsequently to archives. In both cases, the concept was not intended to communicate the idea of eternity or eternal preservation, but, rather, the idea of continuity, stability, endurance, and trustworthiness.[2] The preservation of evidence and memory were inextricably linked through the concept of perpetual memory.

If perpetual memory expressed the role of a record with respect to the fact it was about, the concept of public faith expressed the role of the archives in relation to the society it served.[3] A record endowed with public faith was one capable of constituting

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[1] Luciana Duranti, "The Concept of Appraisal and Archival Theory," *American Archivist* 57 (Spring 1994): 331.
[2] *Ibid.*
[3] *Ibid.*

proof of whatever it was about and Roman jurists such as Ulpianus asserted that such faith could only be conferred on a record that had been preserved in a public place, i.e., a temple, public office, treasury or archives. In the Justinian Code, archives are defined as " '*locus publicus in quo instrumenta deponuntur*' (the public place where records are deposited) often with the addenda '*quatenus incorrupta maneant,*' '*fidem faciant,*' and '*perpetua rei memoria sit*' (so that they remain uncorrupted and serve as authentic evidence, and so that a continuing memory of the acts to which they attest be preserved.)"[4] Public faith thus referred to the authenticating function of archives. As Duranti explains, depositing records in an archives:

> was a procedural requirement for all completed acts meant to generate consequences .... In other terms, the requirement existed only for documents of actions intended to create, maintain, modify or extinguish relationships among physical or juridical persons. Such a passage enabled the acts to have continuing effects by endowing them with authenticity. It did not change their nature, but made their reliability enduring by confirming it and guaranteeing its preservation.[5]

Because archives had the capacity to authenticate records, both public and private, only those "persons or corporations invested with sovereign power had the right to establish one in their own jurisdiction."[6]

The Roman law of evidence reinforced the privileged status accorded to documents invested with public faith. According to J.T. Abdy, among the means of proof accepted by the *Corpus Juris Civilis*, "public documents [i.e., documents produced from the custody of, or created by, government officials and therefore invested with public faith] were considered of so high a nature, that not only did they prove themselves, but greater weight was attached to them than was given to any other species of evidence, whether oral or written. On the other hand, private instruments [e.g., letters, memoranda, and all sorts of informal writings] were never admissible, if they were not properly subscribed and witnessed, i.e., by three witnesses".[7] M. Carr Ferguson has identified a third category of document recognized by Roman law, i.e., quasi-public documents, consisting of documents that had been properly notarized. If sufficiently attested, they were ordinarily granted the weight of public documents.[8]

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[4] Luciana Duranti, "Medieval Universities and Archives," *Archivaria* 38 (Fall 1994): 41.

[5] Luciana Duranti, "Archives as a Place," *Archives and Manuscripts* 24 (Nov. 1996): 246-47.

[6] Duranti, "Concept of Appraisal," 332. In Roman times and during the early Middle Ages, sovereignty was owned exclusively by the emperor and the pope and by persons to whom they endowed that right, such as notaries. In the thirteenth century, however, sovereignty was extended to monasteries and city-states. Thereafter, continuing custody by a monastery or city-state could endow a document with public faith.

[7] J.T. Abdy, *A Historical Sketch of Civil Procedure Among the Romans* (Cambridge: MacMillan and Co., 1857), 120.

[8] M. Carr Ferguson, "A Day in Court in Justinian's Rome: Some Problems of Evidence, Proof, and Justice in Roman Law," *Iowa Law Review* 46 (1961): 753.

Practical rules to ensure the trustworthiness of records and recognize forgeries were also introduced in the *Corpus Juris Civilis*. Among the titles in the Digest, Code, and Novels dealing with evidence, are rules referring to the authentication of documents (C.4.21.20; Nov. 73), attestation (C.4.21.20; Nov. 73), signatures (C.4.21.17, 20), seals (C.6.22.8), registration (C.4.21.17; Nov. 73.8), comparison of handwriting (C.4.21; Nov. 49.2; Nov. 73), the requirement to produce documentary originals (D.22.4.2), the protocols necessary in notarial documents, and the regulations affecting notaries (Nov. 44), the faith reposing in public and quasi public documents (D.22.3.10; C.2.1.2, 6; C.4.21.4, 17, 20; C.7.52.6; C.8.18.11; Nov. 17.47.1; Nov. 49.2), and forgery (C.9.22; Nov. 80.7).[9]

The problem of forgery appears to have been widespread in Roman times. Duranti observes that,

> The problem of distinguishing genuine documents from forgeries was present in the earliest periods of documentation, but until the sixth century no attempt was made to devise criteria for the identification of forgeries. Even legislators did not demonstrate interest in the issue basically because of the legal principle commonly accepted in the ancient world that authenticity is not an intrinsic character of documents but is accorded to them by the fact of their preservation in a public place, a temple, public office, treasury, or archives.[10]

However, when private persons began to deposit false records in public archives to lend them public faith, it became necessary to introduce a number of sanctions to ensure the authenticity of records. According to Ferguson, three different methods of preventing forgery are discernible. The first guard against forgery was the requirement that documents of a public or quasi-public nature be executed with great formality, sealed with wax in such a way that the document could not be altered, and witnessed by several responsible witnesses. The second guard applied primarily to private documents whose genuineness was disputed by one of the parties. In such cases, "the question was resolved by a comparison of handwriting with a genuine specimen ...A required minimum of three handwriting experts gave their opinions after taking the oaths of impartiality". [11] A final deterrent "was the punishment of forgery or any concealing, destruction, or falsification of documents under the *lex Cornelia*. Punishment could range in various cases from corporal punishment to death, depending on the rank of the accused and the nature of the forgery."[12]

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[9] Cited by C.A. Morrison, "Some Features of the Roman and the English Law of Evidence," *Tulane Law Review* 33 (1956): 579-80.

[10] Luciana Duranti, "Diplomatics: New Uses for an Old Science [Part I]," *Archivaria* 28 (Summer 1989): 12 (hereafter cited as "Diplomatics I").

[11] Ferguson, "Day in Court," 755-56.

[12] *Ibid.*, 755-56; see also *ibid.*, 770.

The concept of public faith thus was expanded to include the preparation of records in accordance with legally prescribed forms to permit public officials to determine their authenticity. The significance that now attached to documentary form had a number of consequences. First, it created a need for expertise in the compilation of certain legal documents, out of which grew the notarial profession. Secondly, only original documents or authenticated copies of those documents were granted any probative capacity. This adaptation reveals the roots of the common law's "best evidence" rule as it still relates to the production of documents. Thirdly, creators of records began to separate documents prepared by notaries in accordance with prescribed forms from other documents. A split between the so-called "archives treasure," consisting of the documents embodying completed acts and endowed with public faith, and the "archives sediment," consisting of the documents generated in the routine conduct of affairs, became increasingly apparent. The former were consciously set aside and preserved as continuing proof of past events; the latter were allowed to accumulate and eventually disappear.[13] As a consequence of this split, public faith gradually extended to documents kept in secure custody over a long period of time. According to the Roman jurist Tertullianus, antiquity provided records with the highest authority because the more removed the records were, in the past, from the facts to which they attested, the more impartial they could be considered. Their trustworthiness derived from the fact that they were not generated for a present purpose. This "antiquity" criterion of public faith survives today as the ancient document rule in evidence law.[14]

The middle ages inherited many of these legal concepts, though they necessarily underwent some adaptation. While public archives continued to perform an authenticating function, their number diminished between the fourth and the ninth centuries. During that period "only the papal archives survived as a major public repository."[15] Thomas Noble suggests that, "one of the characteristics of the transition from Roman to mediaeval times was a ...change in probative value from the public document in the archives to the private copy in the hands of the recipient."[16] As a consequence, the trustworthiness of a record came, increasingly, to depend on its method of compilation and the authority of its writer.

In Italy and the countries of written law bordering on the Mediterranean, the highest degree of trustworthiness was conferred on documents compiled by notaries. Since Roman times, it had been accepted that records created by and maintained in the custody of a person endowed with public faith by a sovereign authority were capable of

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[13] The distinction between the archives treasure and the archives sediment corresponds to the distinction M.T. Clanchy draws between *documents*, which were created for ephemeral purposes, and *records*, which were intended to be preserved for posterity. See M.T. Clanchy, *From Memory to Written Record: England 1066-1307*, 2nd ed. (Cambridge: Cambridge University Press, 1993), 145.

[14] Duranti, "Concept of Appraisal," 332-33.

[15] Thomas F.X. Noble, "Literacy and the Papal Government in Late Antiquity and the Early Middle Ages," in *The Uses of Literacy in Early Medieval Europe*, ed. Rosamund McKitterick (Cambridge: Cambridge University Press, 1990), 89

[16] *Ibid.*

making public faith. Notaries (*tabelliones* in Roman times) were endowed with such faith and invested with the competence for both compiling and preserving authentic documents. Despite the erosion of much of the apparatus of central government in the post-imperial period, a professional notariate seems to have continued to exist, or at least re-emerged, by the ninth century in Italy.[17] According to Peter Burke:

> From the eleventh century, if not before, Italy - or at least, the many towns of the north and centre - was becoming what might reasonably be called a 'notarial culture', with a high proportion of notaries in the population (eight per 1,000 in Florence in 1427), thanks to the high demand for the registration of wills, contracts of marriage, apprenticeship and partnership, and other legal 'acts' and 'instruments.' Italy was not alone in this respect. The notarial culture seems to have extended over much of the Mediterranean Christian world in the later Middle Ages.[18]

By the middle of the twelfth century, the growing demand for notaries who, in addition to running their own businesses, held positions in the papal and imperial chanceries and in the offices of city-states, resulted in the establishment of a course of study in notarial arts at the University of Bologna. The compilation of documents and, thus, methods of authentication, became standardized across much of Europe as a consequence. During the same century, Armando Petrucci observes, "the private document drafted by a notary underwent a profound transformation from the *charta*, whose credibility as legal proof rested on the subscriptions to the text, to the *instrumentum*, which had the force of legal proof because it was drafted by a professional invested with *public fides*."[19]

The validity of a notarial document derived, not only from the authority of the notary who compiled it, but, also, from the technical form of its composition. The signing and dating of documents provided specific indicators of their authenticity. According to M.T. Clanchy, "a notary provided safeguards against forgery usually by writing the document in his own hand and by appending to it his name and an individual *signum* which he drew with a pen. If dispute arose, the notary could be cross-examined or, if he were dead, reference could be made to other documents signed by him or to a register in which an exemplar of his style and *signum* was recorded."[20] In addition, each document was precisely dated by the year, month, day, and, for some transactions, even the hour, at which it was issued or received, as well as the place at which it was issued or received, for the purpose of settling potential subsequent disputes about its authenticity. The fact that a notary signed a document did not mean that the statements

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[17] Wendy Davies and Paul Fouracre, eds., *The Settlement of Disputes in Early Medieval Europe* (Cambridge: Cambridge University Press, 1986), 210.

[18] Peter Burke, "The Uses of Literacy in Early Modern Italy," in *The Social History of Language*, ed. Peter Burke and Roy Porter (Cambridge: Cambridge University Press, 1987), 23.

[19] Armando Petrucci, "The Illusion of Authentic History," in *Writers and Readers in Medieval Italy: Studies in the History of Written Culture*, ed. and trans. Charles M. Radding (New Haven: Yale University Press, 1995), 243.

[20] Clanchy, *Memory to Written Record*, 304-305.

in it were true in themselves, simply that they were considered to be true in the eyes of the law.[21]

By the end of the twelfth century, the notarial system had extended from Italy to southern France and become firmly established in those regions. It extended as well to some parts of northern France, notably Flanders and Normandy and somewhat later, notaries began to establish themselves in Germany. But their influence in these regions was restricted. The notarial system also began to appear in England in the thirteenth century, but here too, it remained a foreign custom and notaries were usually only employed in the drawing up of certain restricted types of diplomatic documents and certain types of private contracts of an international character. [22]

In those countries that did not adopt the notarial system, the affixing of a seal was the most generally used method of authenticating documents. The sealing or signing of a document by its sender or promulgator had been the two most important methods of documentary validation since Roman times. The practice of using seals for this purpose fell away in the period of the German conquests, and was limited for several centuries to the royal chancelleries. It was revived, however, during the eleventh century and flourished between the twelfth and fifteenth centuries.

The rise of the seal ushered in a new era for written documents. According to Arthur Giry:

> The seals of sovereigns, barons, prelates, churches, and municipalities were from the very beginning used to guarantee the authenticity, not only of those instruments in which the owner of the seal bound himself or was otherwise a party; but also of all documents to which it was desired to give (in legal phraseology) an "authentic" character -- including contracts and deeds of private persons (other than the owner of the seal). It was natural, particularly in the regions where notaries public were unknown, for such private persons to have recourse, when executing documents that affected legal rights, to those superior authorities whose seals could give authenticity to the document.[23]

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[21] *Ibid.*, 305.

[22] For a detailed study of the role of notaries in England during the thirteenth and fourteenth centuries, see C.R. Cheney, *Notaries Public in England in the Thirteenth and Fourteenth Centuries* (Oxford: Clarendon Press, 1972). For their role in England since the reformation, see C.W. Brooks, R.H. Hemholz and P.G. Stein, *Notaries Public in England Since the Reformation* (London: Erskine Press, 1991).

[23] Arthur Giry, *Manuel de Diplomatique*, trans. and quoted in John Henry Wigmore in *Evidence in Trials at Common Law*, vol. 7, edited and revised by James H. Chadbourn (Boston: Little, Brown, 1978), para. 2161.

In law, a clear distinction was drawn between the seals of superior authorities and those of merely private persons. As Giry points out, although a private person could use his own personal seal to indicate his personal sanction or liability on private letters, receipts, and so on:

> deeds or like instruments, which bore no other mark of validation than the seal of a private individual were not deemed to be drawn in "public form" and were treated in law as merely "documents under private signet," as the modern expression has it. ...Ever since the beginning of the 1200s we find the laws and treatises using the expression "authentic seal" ("sigillum authenticum"); under this term the lawyers recognized only the seals of persons or groups having a legal jurisdictional authority, viz., sovereigns, feudal lords, bishops, churches, and municipalities. "[24]

The vogue of the seal eventually diminished after the fifteenth century with the rise of the written signature and the use of paper as a writing material.

From the twelfth century onwards, written proof had become widespread, even in agreements between ordinary people and methods for ensuring its legal trustworthiness were well established. Nevertheless, the evidential capacity of written proof, i.e., its ability to establish a fact in an actual legal dispute, remained a matter of some debate in both Roman-canonical law and customary law. In the system of legal proofs that emerged in the twelfth and thirteenth centuries as part of the transformation of the law of evidence, public documents were accorded full proof in a court of law; private documents were accorded half-proof. A public document was supposed to prove itself, i.e., provided that it gave no indication of falsification, its contents were accepted as valid in the absence of proof to the contrary. The proviso, however, was a significant one. As Levy explains it:

> Two opposing tendencies emerge in the twelfth century; one of them favoring written proof and distrusting testimony because of the fallibility of human memory ...; the other, to the opposite effect. The latter view prevailed. Between 1206 and 1209, a decretal of Innocent III gave the preference to depositions of four witnesses over the provisions of a notarized document confirmed by the declarations of a notary.[25]

The principle that oral testimony prevailed over written proof passed into the customary law and was expressed in sayings such as 'witnesses prevail over letters' or 'viva voce witnesses overcome letters.' Levy attributes the distrust of written proof to the fact that,

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[24] *Ibid.* For a more detailed history of the seal, see Thomas Frederick Tout, "The King's Seal and Sealing as a Means of Authentication," in *Chapters in the Administrative History of Mediaeval England: the Wardrobe, the Chamber and the Small Seals* (New York: Barnes & Noble, [1967]).
[25] Jean-Phillipe Levy, "The Evolution of Written Proof," *American University Law Review* 13 (1964): 146.

in the Middle Ages, in the learned Roman-canon law, the written document was seen as a kind of testimony. According to Levy, "canonists of the twelfth and thirteenth centuries, post-glossators of the fourteenth, call 'attestationes,' or even 'testimonia' what are in reality only written documents."[26] Viewed from that perspective, documents clearly constituted an inferior form of proof because they could not be interrogated in the way a witness could be:

> The truth is that for the men of the Middle Ages, written proof, as in the case of proof by testimony, is two different kinds of one and the same type of proof the nature of which is testimony. But while in the one case the witnesses are living and present, in the other case they are absent and as if dead. One speaks of the "vox mortua instrumentorum" which is opposed to the living voice of witnesses. A true witness can be examined face to face; one can question him, notice whether he hesitates or vacillates, if he flushes, if he grows pale: one can ask him the source of his knowledge of the facts. ...
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> Furthermore, several witnesses, two at least, are necessary, and their statements must agree; while a written document remains impassive. The parchment on which it is inscribed is "only the skin of a dead beast" on which "the pen of the scrivener can note anything."[27]

The distrust of documentary modes of proof was understandable, given that many medieval charters were forged and the authenticity of genuine ones was often difficult to prove. Medieval forgeries are difficult to evaluate because although in many cases, both the document and the information in it were spurious, in other cases, while the document itself was spurious, its contents could well have been accurate in the essentials of the information recorded. Clanchy has described the forgery or "renewal" of documents during the medieval period as a product of the cultural transition "from oral memory to written record." Monks were among the most prolific fabricators of charters, a fact Clanchy attributes partly to the monastic tradition and its preoccupation with posterity.[28] Forgeries represented an attempt by monastic charter makers to fill the gaps and correct

> the anomalies in written record which kings and other past benefactors appeared to have negligently left. It was the responsibility of the beneficiaries and not of the donor to see that adequate documents were supplied. In the non-literate past, people had been accustomed to the flexibility of speech and memory and they applied similar criteria at first to written record. A charter was inaccurate and should be corrected if it failed to give the beneficiary a privilege which the donor had obviously

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[26] *Ibid.*, 145.
[27] *Ibid.*, 147-48.
[28] Clanchy, *Memory to Written Record*, 146-49.

> intended it to have, had he still been alive to express his wishes. Writing, or the lack of it, should not be allowed to annul or invalidate previous pious gifts. From this point of view 'forgery' is an inappropriate term to apply to renewals of evidence which were intended to ensure that a monastic house was adequately provided with charters to defend its patrons and saints against rivals. ...where there was doubt they were determined to establish the truth for posterity. By truth about the past they meant what really should have happened. For a monastic house there was a providential truth, which was higher than the random facts. [29]

Viewed from this perspective, monastic forgery -- the manufacture of evidence to serve the purposes of posterity – constitutes a creative adaptation of the Roman concept of perpetual memory.

Rules for the prevention and detection of forgery had been introduced by canon lawyers in Italy and were widely known throughout Europe. In a *summa* dating from the last quarter of the twelfth century, Huguccio, the best canonical authority on forgeries, recommended that, where there was doubt about the authenticity of a decretal, the papal registers should first be consulted.[30] The papal chancery had begun to keep registers containing the unabridged transcription of the most important records created in the chancery from around the fourth century. The registration of documents was modelled on Roman imperial practice and served the purposes of perpetual memory by preserving evidence of the positions the papacy had taken and that it might need to refer to in the future. If the document could not be found in the papal registers (a common occurrence since only the most important documents were registered), other tests with regard to "the style and substance of the text, the physical characteristics of the parchment, the *bulla* and its attaching thread" were recommended. These rules "were subsequently promulgated generally by Innocent III, who had been Huguccio's pupil at Bologna."[31]

These rules were difficult to enforce however, particularly in England, where there were no systematic registers of ecclesiastical documents. Instead, English canonist glossators "recommended testing forgeries by the customary oral method of swearing oaths and producing witnesses."[32] Moreover, even Innocent III is known to have been deceived at least on one occasion by forged papal bulls. In a case in the Roman *curia* in 1205, Thomas of Marlborough, abbot of Evesham, submitted, as evidence of a claim, two papal bulls in the name of Constantine I, who had been pope from 708 to 715. The bishop of Worcester challenged the bulls on the grounds that

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[29] *Ibid*, 322, 149.
[30] *Ibid.*, 323.
[31] *Ibid.*, 233-24. Innocent III's measures for the prevention and detection of forgery are described in Reginald L. Poole, *Lectures on the History of the Papal Chancery Down to the Time of Innocent III* (Cambridge: The University Press, 1915), 151-60.
[32] Clanchy, *Memory to Written Record*, 324.

they were "'forgeries in parchment and script, thread and *bulla*.'" [33] The documents were then handed to Innocent III who felt the parchment, tugged on the *bulla* and thread and, on the basis of that physical examination, pronounced the bulls genuine. According to Clanchy, "the papal judgment in Evesham's favour encouraged Thomas to copy the bulls of Constantine I ...into his chronicle for future reference. The copies demonstrate that the bulls were undoubtedly forged and ...it is likely that [Thomas] had played a major part in deceiving the pope."[34] The case "suggests that, although by 1200 the papal *curia* had developed rules for detecting forgeries of recent decretals, it had no effective means of checking documents which claimed to be hundreds of years old." Clanchy observes:

> neither the papal curia nor lesser courts had anything to gain by scrutinizing forged charters with strict regularity. Decisions had to be reached in cases even when both parties produced forged documents. Conventions seem to have existed among the higher clergy within which forgery, while not being openly approved of or acknowledged, was at least tolerated. Every ruler in Europe, from the pope downwards, had suspect title-deeds if historically authentic writings were to become the yardstick of authority.[35]

As Clanchy makes clear, "it was not that literate standards of documentation were unknown, but rather that they could not be uniformly or readily applied to particular cases, because literate ways of doing business were still too novel."[36] In legal disputes, therefore, parties continued to rely heavily on the authority and the testimony of witnesses in order to establish the authenticity of documents making political or religious claims.

The discovery of a coherent and internally consistent method for assessing the trustworthiness of documents created in a past for which there were no living witnesses depended upon a scholarly awareness of the difference between the past and the present and on the capacity of documents to reveal historical facts as well as legal facts. Movement in this direction is discernible from around the fifteenth century with the emergence of Renaissance humanism. As Donald Kelley explains:

> Renaissance humanism represented not merely new knowledge of and new appreciation for classical antiquity ...but a major reorientation in thought. What happened, in brief, was that the mere problem of gaining access to the past began to supersede the problem of how to make use of it. Increasingly, scholars were struck by the distance and the disparity between themselves and men of former ages. ...Even those humanists who ...tended to idealize antiquity could not avoid the fact of historical change, so conspicuously reflected in the vicissitudes of literary style,

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[33] *Ibid.*
[34] *Ibid.*
[35] *Ibid.*, 325
[36] *Ibid.*

> social customs, and religious practices. ...Wrestling with this anthropological dilemma ...led them toward what was, in effect, a principle of cultural relativity.[37]

Philology, a creature of Renaissance humanism, provided a specific impetus to the elaboration of a more sophisticated method for determining the trustworthiness of a document, based on an assessment of the plausibility of its content relative to the legal, historical, and social context in which it was generated. By focussing scholarly attention on the language, form and historical context of documents, philologists "established a new logos upon the assumption that language reproduced, if it did not actually create, the configurations of reality." [38] The establishment of the new logos was a result of a new respect for particular facts and for original sources. Though their understanding of them was limited, philologists introduced the concepts of cultural context and anachronism into scholarly discourse.

Lorenzo Valla's critique of canon law and, in particular, his exposure of the fraudulent Donation of Constantine, the cornerstone of papal supremacy, is one of the most famous examples of philological criticism in the fifteenth century.[39] The history of the donation is neatly summarized by Olga Zorzi Pugliese:

> it was an age-old belief that the Emperor Constantine the Great (d.337) had donated temporal power to Sylvester I, Bishop of Rome (314-55), after recovering from leprosy. This gift, supposedly granted back in the fourth century, was the justification many popes of the late Middle Ages had cited, either sincerely or through guile, for their intervention in political affairs and their claim to the right to investiture. However, the document reporting the alleged donation, that is the *Constitutum Constantini* charter, was actually drawn up in the eighth century, probably in Rome, and an abridged version of it was incorporated into Church law, through Palea's interpolations, four hundred years later in the mid-twelfth century. The document consisted of a series of declarations which Constantine supposedly made in the year 313; in them he stated the primacy of the Church of Rome and of its head, declared the power of the pope to be superior to that of the emperor, announced his decision to transfer the

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[37] Donald R. Kelley, *Foundations of Modern Historical Scholarship: Language, Law and History in the French Renaissance* (New York: Columbia University Press, 1970), 23-24.
[38] *Ibid.*, 24.
[39] A noteworthy example from the fourteenth century is Francesco Petrarch's analysis, in 1355, of the authenticity of a privilege granted by Caesar Augustus and Nero in the first century, exempting Austria from the jurisdiction of Emperor Charles IV. Petrarch identified a number of anachronisms in the document that proved the document was a forgery. See Peter Burke, *The Renaissance Sense of the Past* (New York: St. Martin's Press, 1970), 50-54.

seat of the empire to Byzantium, and granted land and other privileges to Sylvester. [40]

Earlier scholars had questioned the legality of the donation but Valla's *The Falsely-Believed and Forged Donation of Constantine*, published in 1440, provided the most definitive and exhaustive proof that the document was fraudulent and that the donation had never been made.

Apart from his conclusion, what is most striking about Valla's treatise is the philological means by which he argued his case. Almost one-third of the treatise is devoted to a careful analysis of the text of the donation document. His analysis uncovers a number of cultural anachronisms, linguistic discrepancies, and geographical oddities. For example, the charter refers to the pope's bejewelled diadem when, in fact, silk caps were still worn by pontiffs at the time; the word *datum* (given or dated) appears in a closing phrase of the text, when such usage was reserved for the drafting of letters to be delivered to a specific addressee; the charter makes mention of Constantinople even though the city had not yet been founded and at that time the site was known as Byzantium.[41]

Valla also discovered examples of implausible linguistic practice, such as the use of the word *satraps*, to describe the political organization of the Empire; the word would have been alien to the vocabulary employed in the fourth century.[42] Valla also drew attention to the charter's narrative structure which is reminiscent of the biblical story of Naaman the Syrian who, upon being cured by Elisha, offers him gifts, a resemblance which suggests the charter's mythical quality.[43] Finally, Valla finds reason for suspicion in the fact that the text itself is located in the interpolations rather than in the body of Gratian's *Decretum* (the collection of Church laws). The charter is nowhere to be found in the oldest compilations of Church law. [44]

Apart from the internal evidence provided by the language and form of the charter text, Valla discovers a dearth of external documentation that would support the view that the donation had taken place. Historical works written at the time made no mention of the event. As Valla declares, "Let all the Latin and Greek histories be consulted, let all the other authors who mention this period be cited: you will not find a single discrepancy regarding this matter ...[the] historian would not have kept silent about the donation of the Western Empire had it taken place."[45] Nor, argued Valla, had any commemorative coins come down: "If ever you had ruled over Rome, an infinite number of coins would be found commemorating the Supreme Pontiffs, whereas none

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[40] Olga Zorzi Pugliese, "Introduction," in Lorenzo Valla, *The Profession of the Religious and Selections from The Falsely Believed and Forged Donation of Constantine*, edited and translated by Olga Zorzi Pugliese, 2nd ed. (Toronto: Centre for Reformation Studies, 1994), 23.
[41] *Ibid.*,24-25.
[42] *Ibid.*, 25.
[43] *Ibid.*, 25.
[44] *Ibid.*, 24.
[45] Valla, *Donation of Constantine*, 101, IX, 31.

are to be found either of gold or silver, and no one remembers having seen any."[46] Valla also puts forward legal arguments, asserting that the donation was contrary to human and divine law as well as to human nature since rulers invariably aim at enlarging their territory rather than giving it away. From the point of view of verisimilitude and common sense, therefore, the donation lacked plausibility.[47]

Donald Kelley summarizes the key components of the philological paradigm that emerges through Valla's treatise as follows:

> First, ...Valla demanded a return to human "reality," for he was convinced that knowledge could be attained only through the examination of particular things. ...In the second place, Valla called for a return to original sources; for style was an organic part of doctrine, and antiquity had to be allowed to speak in its own inimitable accents. ...Lastly, and inevitably, Valla adopted an attitude that was both pluralistic and relativistic. Every age had literally to be understood in its own terms, and truth could no more be separated from its cultural environment, or from its cultural style, than form could be separated from matter. Thus Valla's method was fundamentally comparative as well as historical. Valla's historical thought was founded, in short, upon the recognition of a principle of individuality, of a determinable process of temporal change, and of a kind of cultural relativism.[48]

Valla's treatise proved that textual criticism could "erode or even destroy the claim to authority for a document which for centuries had been accepted despite some doubts. A single scholar could now cast doubt even on essential parts of tradition."[49] From that point forward, philology, or source criticism, became an increasingly accepted means of determining the trustworthiness of historical documents and is intimately connected to the beginnings of a critical historical method.[50]

Some of the most significant developments in the evolution of the historical method occurred in the context of the flowering of historical legal studies. Academic jurists of the sixteenth century, especially those of France, were deeply influenced by humanism in general and philology in particular. Jean Bodin's writings on the principles of public law, for example, were based on a historical "comparison and synthesis of all the juridical experience of all the most famous states."[51] As Bodin and others turned to

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[46] *Ibid.*, 101-2, IX, 32.
[47] Pugliese, "Introduction," 25-26.
[48] Kelley, *Foundations of Modern Scholarship*, 45-6.
[49] Ernst Breisach, *Historiography Ancient, Medieval, and Modern*, 2nd ed. (Chicago: University of Chicago Press, 1994), 161.
[50] Interestingly, Valla's treatise was not itself viewed as an historical controversy but, rather as a legal one. According to Julian Franklin, "the issue was less narration of the past as such than the present jurisdiction of the Church." Julian H. Franklin, *Jean Bodin and the Sixteenth-Century Revolution in the Methodology of Law and History* (New York: Columbia University Press, 1963), 121.
[51] *Ibid.*, 2

the sources of the past, questions about the trustworthiness of those sources, inevitably, were raised: questions concerning the types of sources and their relative authority, the tests of documentary authenticity, and the indications of an author's biases. Aspects of these questions had certainly been discussed earlier but it was only with the juristic revolution that these questions were systematically related and developed as a methodology of criticism.[52]As Barbara Shapiro notes, "[b]oth as historians and lawyers, French scholars searched for reliable witnesses and sought to date documents and assess the good faith, knowledge, and credibility of those who initially had prepared them."[53]

The trustworthiness of historical sources was challenged most strenuously by the Pyrrhonists, a group of radical skeptics who questioned the very grounds of historical belief.[54] The Pyrrhonists believed that historical knowledge was not possible because all such knowledge was filtered through unreliable sources. The sources of unreliability, they argued, were manifold: a witness to an event who is a participant in that event might be able to provide more accurate detail about it, its underlying motives, and so on, but he is likely to be partial since he is a participant in that event. On the other hand, a witness who is not a participant in the event has the advantage of disinterestedness but the disadvantage of not possessing any privileged access to the event.

The Pyrrhonist attacks on the grounds for historical belief were, fundamentally, attacks on the trustworthiness of historical sources as testimonies of past events. As Jacques Le Goff reminds us, the importance of testimony to historical methodology can be traced back to Greco-Roman antiquity and, more specifically, to Herodotus, for whom "testimony *par excellence* is personal testimony, the kind in which the historian can say: 'I saw, I heard'":

> ...the "great" historians of Greco-Roman antiquity dealt exclusively or preferentially with the recent past. After Herodotus, Thucydides wrote the history of the Peloponnesian War, a contemporary event, Xenophon dealt with the Spartan and Theban hegemonies, which he had witnessed firsthand (404-362 B.C.), Polybius devoted his *Histories* chiefly to the period from the Second Punic War (218 B.C.) to his own time (c. 145 B.C.), Sallust and Livy did the same, Tacitus went back to

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[52] *Ibid.*, 4.

[53] Shapiro, (see introduction, n. 2), 164.

[54] Franklin traces the roots of historical pyrrhonism back to the sixteenth century and the writings of Cornelius Agrippa and Francesco Patrizzi. Arnaldo Momigliano situates it in the seventeenth and eighteenth centuries and the writings of La Mothe Le Vayer , Pierre Bayle and Daniel Huet. See Franklin, *Jean Bodin and the Sixteenth Century Revolution*, 89-102; Arnaldo Momigliano, "Ancient History and the Antiquarian," *Studies in Historiography* (London: Weidenfeld and Nicolson, 1966), 10-13. Accounts of historical pyrrhonism and its influence may also be found in Paul Hazard, *The European Mind*, trans. J. Lewis May (Cleveland: World Publishing Co., [1963]), Chapter II, *passim* and J.G.A. Pocock, *The Ancient Constitution and the Feudal Law: English Historical Thought in the Seventeenth Century*, 2nd ed. (Cambridge: Cambridge University Press, 1986), 6-8.

> the century preceding his own and Ammianus Marcellinus was interested especially in the second half of the fourth century. Nevertheless, from the fifth century B.C. onward, ancient historians were capable of collecting good documentation on the past, but that did not prevent them from being primarily interested in contemporary or recent events.[55]

It is not surprising, then, that, in secular history, the rules of historical method that began to emerge in the sixteenth century focused on the trustworthiness of earlier chroniclers of history both as witnesses and as recorders of events.

The most significant contributions to historical method during this period were made by the academic jurists François Baudouin and Jean Bodin who articulated rudimentary rules for establishing the authenticity and reliability of historical sources. Baudouin believed that "historical studies must be placed upon a solid foundation of law ...and jurisprudence must be joined to history."[56] Consequently, the rules he formulated were based on contemporary legal practice. As Baudouin explains:

> In court ...*viva voce* evidence is normally demanded because it can be subjected to direct interrogation; in history, conversely, and "especially in one which is not of our age," the characteristic form of information is a "testimony" not a "testifier." But although written information is peculiarly historical, it is not necessarily ruled out of court ...Indeed, in the special case of public records, it is not only admitted by the lawyer, but may even be preferred to oral testimony. The evidence of history, accordingly, may be justified by legal practice. But this is only on condition that it conform to the rules on written instruments.[57]

Baudouin further points out that, in a court of law, when a witness' statement is read rather than delivered orally, it must be presented verbatim and intact since any alteration or suppression would amount to a dictation of his testimony. He referred to the fact that, in the probate of contracts, wills, and other acts, the original signed document is preferred to a copy and must be produced if it is extant (the best evidence rule). The inference Baudouin draws from these legal rules to history is that "derivative accounts" must be completely excluded in favour of the "source" or what he calls "archetype."

> The juriconsults, certainly, when it is a matter of the faith and probity of instruments, do not stop at what are called *exemplars*, but require the *authentica* or 'archetypes.' And shall we, in the question of some ancient

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[55] Jacques Le Goff, *History and Memory*, trans. Steven Rendall and Elizabeth Claman. (New York: Columbia University Press, 1992), 185,186.
[56] Quoted by Kelley, *Foundations of Modern Scholarship*, 116.
[57] Franklin, *Jean Bodin and the Sixteenth Century Revolution*, 126

> history, prefer more recent witnesses to those who were very ancient and classic, so to speak? And shall a secondary and interpolated narrative be of greater credit than the first and the intact?[58]

The general principle underlying the rule requiring the privileging of the account closest to the event, is, as Baudouin puts it, that:

> the newer and more recent a narration of the past, the more mendacious it normally becomes. For as wine grows weaker the more it is diluted, and at last becomes devoid of taste, as a rumour, the longer it progresses, recedes even further from the truth and constantly increases in its falsity, so a history, which has been tossed about in many repetitions, and besprinkled with the words of many versions, will often be at last contaminated, and thus degenerate to fable. [59]

In making such an assertion, Baudouin draws an historical analogy to the legal rule excluding hearsay testimony although he accepts that in history, as in law, it may be necessary to accept the testimony of secondary witnesses if no alternative exists or if the author is considered judicious and not too distant from the event. [60]

In his assessment of Baudouin's contribution to critical historical method, Julian Franklin suggests that Baudouin's criticism shows "the beginnings of an operationally significant distinction between original and secondary documents."[61] His conception of what constitutes trustworthy historical evidence, however, is still fairly crude, as Franklin makes clear:

> Baudouin, to begin with, does not distinguish, in the general class of original materials, between original narrative relations, in which events are consciously interpreted, and documentary records or "remains," in which transactions are more likely to be noted unreflectively, and hence often with more reliability. It is true, of course, that, like Bodin and other authors of the period, he is enormously impressed by "public monuments," by which are meant official records. ...The official monuments are generally regarded [however]...as narrative in different form. And insofar as he accords them special status, the ground is not the distinction between documentary remains and narrative relation but between a publicly attested history and a version which is merely private. For the sixteenth century, therefore, the ideal type of source is still the literary narrative.[62]

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[58] Quoted in *ibid.*, 128.
[59] *Ibid.*
[60] *Ibid.*, 129.
[61] *Ibid.*, 130.
[62] *Ibid.*, 130-31. Franklin points out in a footnote that "in the sixteenth century public records are normally regarded as perpetual annals in which the recording of all significant occurrences is the official charge of special commissioners, preferably priests. The official, sometimes sacerdotal,

Baudouin's privileging of public documents over private ones harkens back to Roman and early Church law which also conferred a higher degree of trustworthiness on public documents. [63]

Baudouin's work is also flawed by the fact that he treats the distinction between an early and late narrative and the identification of a prime observer as self-evident when, in fact, these can often only be established by a systematic comparison of versions since many sources were undated and the relationship among various testimonies complex. Moreover, as Franklin points out, Baudouin assumes:

> that the distinction between prime and derivative accounts is an aspect of entire works, as though the whole of any secondary history were directly borrowed from a single older version and so on back to the "first and the intact." But a derivative account may sometimes be composed from several sources, and even in contemporary narratives the individual assertions may often be derivative, so that, strictly speaking, the distinction between original and secondary should be applied to statements, not to entire works.[64]

Notwithstanding its limitations and lack of refinement, Baudouin's approach to source criticism signals the beginnings of "an impressive system of external or preliminary criticism."[65]

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status, together with the fact that they are 'open to inspection,' is what gives them special authority." (Franklin, 141, n. 48). In *De Institutione Historiae Universae*, Baudouin refers approvingly to the Roman and early Church custom of preserving monuments of "uncorrupted faith" in archives as a means of ensuring their trustworthiness.

[63] Assertions of the continuing validity of the preferential rule for public documents can be found throughout the previous centuries. One of the strongest statements is found, ironically, in a book of forgeries published in 1498 by Annius of Viterbo. Annius published a series of annotated texts on the earliest periods of ancient history. The texts, which included annals of the Babylonian and Persian monarchies, as well as of the Greek and Roman empires, were soon exposed as forgeries. In his accompanying commentary on the texts, Annius claimed to have discovered infallible criteria for discriminating between true and false documents based on his assertion of the annals' authenticity. In *De locis theologicis*, Cano summarizes Annius' rules as follows: "The first rule ...is this. All those are to be accepted without argument who have written in public and attested faith (*qui publica et probata fide scripserunt*). Second, the acts and annals of the four monarchies can be rejected or denied by no one, because they were noted down exclusively in public faith, and were preserved in libraries and archives. ....The third rule is that those who write only from hearsay or opinion are to be rejected as mere private persons unless they are not in disagreement with the public attestation. From which it follows that no one is to be accepted as a chronicler unless he is in harmony with the annals of the four monarchies." Cano, *De locis theologicis*, quoted by Franklin, *Bodin and the Sixteenth Century Revolution*, 122, n. 21. As Franklin points out, Annius claimed to have acquired his texts from two Armenian monks and may have believed the texts to be authentic.

[64] Franklin, *Bodin and the Sixteenth Century Revolution*, 132-33.

[65] *Ibid.*, 133.

Baudouin's contribution lay, primarily, in his elaboration of methods for evaluating the *authenticity* of an historical source. Jean Bodin's contribution, on the other hand, lay in his elaboration of methods for evaluating the *reliability* of the authors of historical sources. In *Methodus ad facilem historiarum cognitionem*, Bodin identifies a number of rules and standards for identifying a good historian and for determining the circumstances under which he may be trusted. Though they underwent some considerable re-statement, Bodin's rules were based on ones originally laid down by Polybius who maintained that "the good historian ...must be reliably informed as to the facts, which means ...that he must have either witnessed them himself or directly questioned persons who were present."[66] However, unlike Polybius, or Baudouin for that matter, Bodin gives tacit authority to a secondary author on the grounds that he is more detached from the event and, therefore, a more trustworthy source. As Bodin states it, "[a] historian of somewhat later date is in a better position to speak frankly and is somewhat less susceptible to bias than one who was too close to the event."[67] From Bodin's perspective, an author's reliability derives more from his research habits, i.e., his willingness to go to the sources and his sense of obligation in reporting them correctly, than it does from his proximity to the event.

Bodin recognized that all historians, even good ones, are susceptible to bias. Among the potential sources of bias he identifies are patriotism, religious faith, attachment to a cause, self-interest, self-aggrandisement, and fear, any of which may compromise the trustworthiness of the author's account of events. The biases Bodin cites are analogous to those cited by the Pyrrhonists in their skeptical attacks on history. But whereas the Pyrrhonists found in such biases "indications of complete depravity and ...the sole motivations from which history is written," Bodin treated them as psychologically normal. [68] Moreover, unlike the Pyrrhonists, he balanced his account of the various circumstances in which bias may be expected with an enumeration of circumstances in which bias is unlikely to occur. Accounts which do not implicate the author's interests one way or another or which contain admissions in conflict with his interests, for example, are presumed to be less biased. [69]

In Franklin's estimation, Bodin's critique represents a clear theoretical advance beyond the generalities of Baudouin:

> For [Baudouin], as for the skeptics, an historian is either "good" or "bad" as such, and his willingness to tell the truth is either to be accepted or rejected as a whole. It is correctly recognized, of course, that a good historian is only a "probable" authority, and that his particular assertions are not to be followed if implausible. But his authority as such, being a judgement of his total personality, creates the same presumption for everything he says. With Bodin, however, the standpoint is more clearly

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[66] *Ibid.*, 140.
[67] *Ibid.*
[68] *Ibid.*, 147.
[69] *Ibid.*, 148-51.

> psychological, and there is a corresponding shift in emphasis from the judgement of an author as a whole to an estimation, from the bearing of his interests, of his attitude towards different topics. In other words, the idea of a "choice among historians," of their discrimination into lists of "good" and "bad," is partially transformed into the judgement of specific statements.[70]

Bodin's elaboration of potential sources of bias suggests that the concept of internal criticism as a means of establishing the trustworthiness of a document was understood in the sixteenth century, even if that understanding was somewhat crude. More than anything, the works of Bodin and Baudouin demonstrate the beginnings of a doctrine of historical method, i.e., a distinction between original and secondary sources, a means of establishing the authenticity of documents, and a set of psychological criteria for determining the bias of a source.[71] The contributions of these two jurists became sources for the subsequent tradition and continued to be cited in works of historical criticism throughout the seventeenth and eighteenth centuries.

The seventeenth century witnessed a number of refinements in historical methodology. By the end of the century, the distinction between original and derivative authorities had become, in Arnaldo Momigliano's words, "the common patrimony of historical research." The work of antiquarians played a conspicuous role in the refinement of that distinction which Momigliano explains in the following way:

> By original authorities we mean either statements by eye-witnesses, or, documents, and other material remains, that are contemporary with the events which they attest. By derivative authorities we mean historians or chroniclers who relate and discuss events which they have not witnessed but which they have heard of or inferred directly or indirectly from original authorities. We praise original authorities -- or sources -- for being reliable, but we praise non-contemporary historians -- or derivative authorities -- for displaying sound judgement in the interpretation and evaluation of the original sources. [72]

R.G. Collingwood has further observed that the systematic examination of authorities for the purpose of determining their relative credibility also resulted, by the end of the seventeenth century, in the transformation of "authorities" into "sources."

> As soon as it became understood that a given statement, made by a given author, must never be accepted for historical truth until the credibility of the author in general and of this statement in particular had been systematically inquired into, the word 'authority' disappeared from the vocabulary of historical method, except as an archaistic survival; for

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[70] *Ibid.*, 11.
[71] *Ibid.*, 152.
[72] Momigliano, "Ancient History and the Antiquarian," 2.

> the man who makes the statement came henceforth to be regarded not as someone whose word must be taken for the truth of what he says, which is what was meant by calling him an authority, but as someone who has voluntarily placed himself in the witness-box for cross-examination. The document hitherto called an authority now acquired a new status, properly described by calling it a 'source', a word indicating simply that it contains the statement, without any implications as to its value.[73]

The credibility of historical testimony (*De fide historica*) was a recurring theme in historical writing of the seventeenth and eighteenth centuries.[74] According to Anthony Grafton,

> writers ...like the German F.W. Bierling ...addressed the wider problem of establishing rules for the criticism of sources. Long before Ranke had made archive-diving fashionable, Bierling had pointed out ...that archives can mislead. He admitted that many of his contemporaries thought this impossible, but a careful analysis of their content proved his point. Archives consisted, he argued, chiefly of documents created by ambassadors and other public officials. But such men normally had to report on deliberations to which they did not have direct access and the intentions of monarchs who did not speak frankly. Their reports, in short, contained "what the ambassador guesses to be true or considers to be memorable, not always what is true."[75]

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[73] R.G. Collingwood, *The Idea of History*, edited by Jan Van Der Dussen, rev. ed. (New York: Oxford University Press, 1994), 258-59.

[74] The prevalence of this theme is apparent in Allen Johnson's summary of several works of historical criticism that appeared in the seventeenth and eighteenth centuries. Two examples are worth mentioning. The first is the criticism of Jean Mabillon. His *Traité des études monastiques*, which was printed in 1691, includes a chapter containing advice to readers of history on how to determine whether an historian is trustworthy. Mabillon advises readers to avoid any historian who is a mere copyist rather than an original, contemporary authority, unless he has corrected or explained an original authority, or if the original authority has been lost. He also counsels readers to look for a certain honesty, judgement, and accuracy on the part of the historian (though Mabillon does not provide clues as to how these are to be determined). Finally, he advises readers to trust historians whom the church has approved and reject others. The second example is the criticism of Henri Griffet. According to Johnson, Griffet, who published *Traité des différentes sortes de preuves qui servent à établir la vérité de l'histoire* in 1769, is the first writer to compare the historian to "a judge in court who must confront witnesses, examine them, and ascertain the truth by painstaking study and comparison of the evidence. He must ever carry in his hand the torch of criticism in order to determine the trustworthiness of witnesses". Griffet also recommends the use of original and authentic records, by which he means state papers or official records. He regards the authority of such records to be superior to all other historical sources, including the testimony of a contemporary writer. On the other hand, "the agreement of contemporary testimony and authentic records ...constitute complete historical proof and establishes the truth of the facts in question." See Allen Johnson, *The Historian and Historical Evidence* (New York: Charles Scribner's Sons: 1926), 101-40.

[75] Anthony Grafton, "The Footnote from De Thou to Ranke," *History and Theory* 33 (1994): 63-64.

It was also during the seventeenth century that historical scholarly procedure began to take into serious account the need for the historian to demonstrate his own trustworthiness in his use of the sources. Anthony Grafton has described the emergence of the footnote in its modern form, "as part of an effort to counter skepticism about the possibility of attaining knowledge about the past."[76] Grafton credits Pierre Bayle, the compiler of the *Dictionnaire historique et critique* (begun in 1690 and published in 1696), with primary responsibility for establishing the footnote as a standard part of scholarly procedure. Given that Bayle was considered a pyrrhonist by his contemporaries, the attribution is somewhat ironic. The *Dictionnaire* was a historical dictionary of ancient, medieval, and modern persons and places, supported by a vast apparatus of references and citations. In it, Bayle exposed numerous errors and contradictions between different historians and chroniclers, between different texts, and within the texts themselves, and maintained that the historical record of all periods and places had been corrupted by massive falsification. Not surprisingly, the *Dictionnaire* was viewed by many readers as an act of subversion, designed to undermine religious orthodoxy and, more generally, any notion that it was possible to achieve precise knowledge about the past. Nevertheless, Grafton points out, "Bayle emphasized the rules of good scholarship as well as the defects of bad. And in doing so he stated, formally, rules of scholarly procedure."[77] In defending his dictionary, Bayle asserted that, "it is necessary to bring to bear proofs, to examine them, confirm them, and clarify them. In a word, this is a work of compilation." Grafton credits Bayle with making compilation "a term of pride":

> More elegant writers, who refused to provide the evidence in full, had brought scholarship into discredit. Bayle's vast accumulation of passages from other texts, of exegesis, summary, and rebuttal, was a profound exercise in truth-seeking -- the only one indeed, that could allay the fears of readers rightly discouraged by the normal methods of uncritical scholarship: "And because many frauds are committed in the citations of authors, and those who honestly abridge a passage, do not always express the full force of it, it is incredible how much judicious persons are grown distrustful."[78]

By the end of the eighteenth century, it had become an unquestioned assumption on the part of historians "that a serious work of history must have notes; that these must lead the reader to the original sources and represent them accurately; that notes in fact provided the diagnostic test of a historian's critical expertise."[79]

Jurists and other secular historians of the sixteenth and seventeenth centuries laid part of the foundation on which systematic methods for determining the

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[76] *Ibid.*, 53. For a detailed study of the history of the footnote see Grafton's book-length study, *The Footnote: A Curious History* (Cambridge, Mass.: Harvard University Press, 1997).
[77] Grafton, "Footnote from De Thou," 73.
[78] *Ibid.*
[79] *Ibid.*, 71-72.

trustworthiness of documentary sources could be built. Ecclesiastical historians during that same time period laid another part of that foundation. As Grafton explains, source criticism had long been a concern of ecclesiastical history:

> ...[Ecclesiastical] historians ...wrote as controversialists and believers: as Jews seeking to prove the Torah older than Homer or as Christians determined to prove the priority of a doctrine or an institution. The genre's ends determined its form: not the neat, classical prose of the political historians, but a mixture of technical arguments and supporting documents, the latter quoted verbatim in the text proper. Documents performed two functions, each vital: they supported the theses put forward by the author and they gave the reader a distinct, vivid sense of what it had meant to be a faithful Jew or a Christian in a distant and more difficult world. [80]

Much of the impetus for the flourishing of ecclesiastical history in the early modern period was provided by doctrinal conflicts of the Reformation and Counter-Reformation. According to George Huppert, "[a]mong intellectuals the Reformation was at bottom an historical question, as they kept battling each other with documents to support their notion of what the primitive church had been like and measuring the historical variations of their opponents from this standard."[81] Intellectuals and theologians alike adopted for their own purposes the antiquity criterion of trustworthiness that had existed in law since the time of Tertullian. The words of the Protestant theologian, Nicolas Vignier, in 1599, are indicative:

> Therefore one has to go back to the sources and say with our Lord Jesus Christ: it was not always thus since the beginning. ...Jesus Christ is my antiquity, said St. Ignatius, and not to obey him is manifest perdition. My authentic archives are his cross, his death, his resurrection ...That which comes first is the most true, said Tertullian. That which is at the beginning is first: that which is of the Apostles is at the beginning. It is therefore a very necessary thing to know what doctrines were held from the very beginning in the Church and to see graphically represented the various mutations experienced by the Church ... [82]

In the seventeenth century, the diplomatic wars (*bella diplomatica*) waged within the Catholic Church by Bollandists and Dominicans gave birth to a whole range of modern technical disciplines aimed at determining the trustworthiness of historical documents, among them, paleography, sigillography, and diplomatics. In 1675, the Bollandists published the second volume of the *Acta Sanctorum*, "in which the testimonies related to the lives of single saints were evaluated for the purpose of separating the facts from

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[80] *Ibid.*, 62-63.
[81] George Huppert, *The Idea of Perfect History: Historical Erudition and Historical Philosophy in Renaissance France* (Urbana: University of Illinois Press, 1970), 159.
[82] *Ibid.*, 160.

the legend."[83] The second volume included an introductory essay by Daniel Van Papenbroeck, who outlined general criteria for establishing the authenticity of diplomas (e.g., donations, privileges) of Merovingian and other rulers of France before the year 1000. In applying these criteria, Papenbroeck brought into disrepute all the Merovingian diplomas, most of which were preserved in the Benedictine Monastery of Saint-Denis.

Six years later, Jean Mabillon, who had been called from that Monastery to publish the lives of Benedictine saints, published a six-part treatise *De Re Diplomatica Libri VI*. Mabillon defined the new science of *diplomatic* as "the establishment of 'certain and accurate terms and rules by which authentic instruments can be distinguished from spurious, and certain and genuine ones from uncertain and suspect ones.'"[84] The first two parts of the treatise state the principles of diplomatic criticism, i.e., the tests by which charters can be known as true or false. In Part I, he defined the different kinds of charters and examined the main materials generally used for documents as well as the ink and kinds of writing. In Part II, he examined the language of the documents, the characteristic parts of medieval charters, the seals, and the systems of chronology used in dating them. On the basis of this examination, "Mabillon stated what, for a particular time and place, was the correct form for a genuine document, and presented ...the general principles of diplomatics."[85] The remaining four parts of his treatise were devoted to proofs and illustrations of these principles and the manner in which they were to be applied. The sixth part consisted of more than two hundred documents copied from the originals, with notes and arguments demonstrating why they could be considered authentic.

The fundamental assumptions of Mabillon's treatise were that the context of a document's creation is made manifest in its physical and intellectual form and that this form can be separated from the document's content and examined independently of it. By comparing documents created in different periods and issued by different chanceries, and discovering the attributes they shared, as well as those they did not share, Mabillon was able to articulate the necessary and sufficient elements of documents and identify the purpose each fulfilled in the document as a whole.

Apart from identifying the visible manifestations of documentary elements, Mabillon looked at the document conceptually as embodying a system of both external and internal elements consisting of *acts*, which are the determinant cause of documentary creation, *persons* who concur in its formation, *procedures*, which are the means by which acts are carried out and the *documentary form* itself which binds all the elements together. By decontextualizing and universalizing all the elements of documentary creation, Mabillon established a methodology for determining the authenticity of documents across juridical systems and over

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[83] Duranti, "Diplomatics I," 13.
[84] *De Re diplomatica* (Paris, 1681), 1, quoted by C.R. Cheney, *The Papacy and England 12th - 14th Centuries* (London: Variorum Reprints, 1982), 8.
[85] James Westfall Thompson, *A History of Historical Writing*, vol. 2 (New York: The MacMillan Company, 1942), 19.

centuries. By focusing attention on the importance of chancery procedures in the establishment of norms for documentary creation, he provided future diplomatists with the tools for assessing the conformity of the document's formal elements with those established by chancery procedures. The absence of certain elements provided grounds for doubting the document's authenticity.

> Mabillon's achievement is summarized by Leonard Boyle in the following way: Above all else, Mabillon formulated a ...comprehensive and compelling statement of documentary criticism ...when he argued that any proper evaluation of the character, content and authenticity of a given document must take account of internal as well as external criteria; of the changing fashions of composition, handwriting, and style from area to area and from age to age; and of the history, personnel, and usages of chanceries, notarial offices, and scriptoria from place to place and from period to period.[86]

Marc Bloch declared the year 1681, the year of the publication of *De re diplomatica*, to be "truly a great one in the history of the human mind, for the criticism of the documents of archives was definitely established." The publication of Mabillon's treatise was, moreover, "the decisive moment in the history of the critical method" because from that day forward, methodological doubt became the starting point of historical inquiry.[87] For Jacques Le Goff, Mabillon's contribution to historical method resides in the fact that his work, "teaches that the agreement of two independent sources establishes the truth and, taking his inspiration from Descartes, [Mabillon] applies the principle of 'everywhere making enumerations so complete and so general' that one can be 'sure of not having omitted anything.'"[88]

The purpose of diplomatics was to establish the authenticity of medieval records across legal systems and over time. The meaning diplomatics ascribed to authenticity, however, differed somewhat from its original meaning. Since antiquity, authenticity had been associated with the concept of public faith. To declare a document authentic was equivalent to saying that the document was recognized as true by the juridical system in which it was created. The legal trustworthiness of a record and methods to guarantee public faith focused on external means of ensuring the recognition of the record by the legal system in which it was created (e.g., preservation in a public place, compilation by a notary). A record's legal truth was considered a sufficient guarantee of

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[86] Leonard E. Boyle, "Diplomatics," in *Medieval Studies: An Introduction*, ed. James M. Powell (Syracuse, N.Y.: Syracuse University Press, 1992), 84.

[87] Marc Bloch, *The Historian's Craft*, translated by Peter Putnam (New York: Alfred A. Knopf, 1963), 81.

[88] Le Goff, *History and Memory*, 193-94. The quotations Le Goff inserts in his text are taken from Georges Tessier, "Diplomatique, " in *L'Histoire et ses méthodes*, edited by Charles Samarin (Paris: Gallimard, 1961), 641. Tessier's precise words are: "Mabillon a appliqué aux chartes qu'il avait réunie une méthode d'analyse conforme aux grands principes formulés par Descartes quarante ans plus tôt , et particulièrement à celui 'de faire partout des dénombrements si entiers et des revues si générales ' qu'on fût 'assuré de ne rien omettre'".

its historical truth. Diplomatics, on the other hand, sought to establish a record's legal and historical truth on the basis of its documentary truth. Moving from the observation of perceptible matters of fact (the elements of the document itself) to assertions about imperceptible matters of fact (the past in which the document was created), diplomatic methodology transformed written facts into historical sources and nurtured the belief that knowledge about a past to which there was no direct access could, nevertheless, be attained by examining its documentary traces.

The diplomatic method for assessing the trustworthiness of a record represented a significant departure from earlier methods in its approach to adducing evidence. Earlier methods had relied on external evidence, i.e., evidence derived from circumstances or considerations outside of the document (e.g., the evidence of witnesses, the evidence of authority); diplomatics relied instead on internal evidence (the evidence embedded within the document's physical and intellectual form). Ian Hacking maintains that the concept of internal evidence was unknown before the late seventeenth century. In making this claim, he distinguishes between verisimilitude, which "is a matter of one thing being or not being what it seems or pretends to be" and internal evidence, which "is a matter of inferring one thing from another thing."[89] According to Hacking, the arguments Lorenzo Valla makes in his exposure of the fraudulent donation of Constantine are based on verisimilitude rather than on inference. Valla looked at the document's contents, the claims it made, and the prose style in which it was couched, and concluded that the Donation did not resemble a true document of the fourth century: it lacked verisimilitude.[90]

The rules of textual criticism enunciated in Mabillon's treatise, on the other hand, reflect the new conception of evidence as inference (or inductive evidence). Mabillon treated solecisms and historical anachronisms found within a document's formal elements as evidence that a document was faulty or fraudulent. In this case, one thing (a particular abbreviation or script) served as evidence against the claim that the whole document was sound. Diplomatic analysis translated a document into a system of external signs or traces which pointed to a reality beyond themselves. Each trace was a small window into the past in which the document was created.

The introduction of the concept of evidence as inference provided a necessary precondition for the emergence of a new philosophy of rational belief based on probability rather than certainty.[91] That philosophy, in turn, radically altered the epistemological framework in which assessments of record trustworthiness would subsequently be carried out. Many of its tenets were laid out

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[89] Ian Hacking, *The Emergence of Probability: A Philosophical Study of Early Ideas About Probability, Induction and Statistical Inference* (Cambridge: Cambridge University Press, 1974), 34.

[90] *Ibid.*, 33-34.

[91] For the connection between the emergence of the concept of evidence as induction and the emergence of probability theory specifically, see *ibid.*, 31-48.

in 1689 in John Locke's *Essay Concerning Human Understanding*,[92] which, according to Barbara Shapiro, "represented a culmination of earlier efforts to redefine and clarify the varieties of knowledge and certainty." [93] For Locke, knowledge manifested itself in three forms: intuition, demonstration, and sensation. Knowledge by demonstration was "the showing the agreement or disagreement of two ideas, by the intervention of one or more proofs, which have a constant, immutable, and visible connexion one with another."[94] Since such knowledge was necessarily "short and scanty," determinations of the truth or falsity of propositions concerning most matters of interest or consequence in life must be based on judgements of probability. He defined probability as "the appearance of such an agreement or disagreement, by the intervention of proofs, whose connexion is not constant and immutable, or at least is not perceived to be so, but is, or appears for the most part to be so, and is enough to induce the mind to judge the proposition to be true or false, rather than the contrary."[95] Conformity with one's own experience or the testimony of others' experience provided the grounds for such judgements; in judging the testimony of others, the number, integrity and skill of the witnesses, the consistency of the testimony's parts and contrary testimonies were all to be taken into consideration.[96] Assent to any proposition was to be based on the strength of the evidence. "One places a level of confidence in the proposition that is proportioned to its probability on that satisfactory evidence. If the proposition is highly probable on the evidence, one believes it very firmly; if it only is quite probable, one believes it rather weakly; etc."[97]

The ideas of Locke and others concerning the relationship between probability and evidence exercised a significant influence on the emerging disciplines of law and history.[98] As Barbara Shapiro points out, Locke and other

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[92] John Locke, *An Essay Concerning Human Understanding*, ed. A.D. Woozley (New York: New American Library, 1974).
[93] Shapiro, *Probability and Certainty*, 37.
[94] Locke, *Essay Concerning Human Understanding*, 403.
[95] *Ibid.*, 403-4.
[96] *Ibid.*, 405.
[97] *Cambridge Dictionary of Philosophy* (Cambridge: Cambridge University Press, 1995), s.v. "Locke, John."
[98] One of the more unusual and obscure results of that influence is Joannis Craig's "Rules of Historical Evidence," which appear as two chapters in his book *Theologiae Christianae Principia Mathematica*. The book, which was published in 1699, purported to validate scientifically certain Christian truths against agnostics. The chapters relating to evidence were an attempt to establish rules of historical evidence on the basis of mathematical principles. Craig defined historical probability as "probability which is deduced from the testimonies of others who are affirming their own observation or experience." He used algebraic equations, based on propositions and problems, which purported to establish the reliability of historical evidence. Examples of propositions for which he produced elaborate algebraic equations include: "suspicions of historical probability transmitted through single successive witnesses (other things being equal) increase in proportion to the numbers of witnesses through whom the history is handed down" and "velocities of suspicion produced in equal periods of time increase in arithmetical progression." See *Craig's Rules of Historical Evidence* from Joannis Craig, *Theologiae Christianae Principia Mathematica* (1699), in *History and Theory* Beiheft 4 ('S-Gravenhage: Mouton and Co., 1964).

philosophers, such as Robert Boyle, assumed that documentary evidence fell under their general theory of evidence and knowledge:

> For example, both [Locke] and Boyle noted that an attested copy of a record is good evidence that an event occurred, but that an unattested copy is not as good. The testimony of a witness is good evidence that an event has occurred, but "a report of his report is not and will not be admitted in a court of law. The further from the source, the weaker the evidence becomes."[99]

Legal and historical scholars came to agree that in investigating issues of fact, demonstrable or infallible proof should not be insisted upon and that determinations of fact in history and adjudication were no different from those in other investigations. From that time on, the truth of any proposition would be established by reasoning from the relevant evidence and it would be measured, not in terms of absolute certainty but rather in terms of probability, which would always be a matter of degree.[100]

These ideas concerning the relationship between knowledge, belief, and evidence, which culminated in a new theory of epistemology, known as rationalist empiricism, exercised a formative influence on the Anglo-American tradition of evidence scholarship that was beginning to take shape in the eighteenth century.[101] The first specialized study of legal evidence in that tradition, Sir Geoffrey Gilbert's *The Law of Evidence*, was based explicitly on Lockean theories of knowledge. In the opening paragraphs of his treatise, Gilbert asserted that

> ...it has been observed by a very learned man [identified at the bottom of the page as "Mr. Locke"] that there are several degrees from perfect certainty and demonstration, quite down to unprobability and unlikeness, even to the confines of impossibility; and there are several acts of the mind proportioned to these degrees of assent, from full assurance and confidence, quite down to conjecture, doubt, distrust, and disbelief.
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> Now what is to be done, in all trials of right, is to range all matters on the scale of probability, so as to lay most weight where the

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[99] Shapiro, *Probability and Certainty*, 179.

[100] Some of the transformations taking place in the legal world were at least partly attributable to the disappearance of the self-informing jury. By the 1600s, jurors were no longer the main witnesses to the facts in dispute and so courts could no longer rely on the authority of their personal knowledge of the facts of the case as a basis on which to render a verdict. Increasingly jurors had to render a verdict on the basis of the witnesses and documents placed before them. See Thomas Andrew Green, *Verdict According to Conscience: Perspectives on the English Criminal Trial 1200-1800* (Chicago: University of Chicago Press, 1985).

[101] See William Twining, "The Rationalist Tradition of Evidence Scholarship," in *Rethinking Evidence: Exploratory Essays* (Oxford; New York: Blackwell, 1990), 32-91.

> cause ought to preponderate, and thereby to make the most exact discernment that can be, in relation to right.[102]

Gilbert accorded to written evidence "the first place in the discourses of probability" on the grounds that, unlike human memory, which was fallible, "contracts reduced to writing are the most sedate and deliberate acts of the mind and are more advantageously secured from all corruption, by the forms and solemnities of the law".[103] The greater part of his treatise was occupied with establishing a hierarchy of written evidence, with the memorials of the legislature and the King's courts of justice at the top of that hierarchy and private documents at the bottom.

The Law of Evidence was considered the leading work of its kind for at least fifty years (i.e., between 1754, the year of its first publication, and 1801, the year it was last re-issued).[104] In the early part of the nineteenth century, however, it was subjected to a scathing critical analysis by another legal theorist in the Rationalist tradition, Jeremy Bentham, who found Gilbert's entire work pervaded by a strain of "anility, garrulity, narrow-mindedness, absurdity, perpetual misrepresentation, and indefatigable self-contradiction".[105] Bentham's attack on Gilbert's theory of evidence drew needed attention to the two separate aspects of record trustworthiness and sharpened the contours of its legal scope and meaning. What raised Bentham's ire was Gilbert's assertion that written evidence, as a matter of general principle, was more trustworthy than oral testimony.[106] In making such an assertion, Bentham argued, Gilbert failed to distinguish between what Bentham termed "makeshift evidence" (i.e., unoriginal evidence such as hearsay and casually written evidence) and "preappointed evidence" (i.e., evidence specifically created with a view to being used as evidence and thereby invested with securities to ensure its trustworthiness).[107] He maintained that Gilbert's apparent inability to distinguish

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[102] Lord Chief Baron Gilbert, *The Law of Evidence*, 6th ed. (London: W. Clarke and Sons, 1801), 1

[103] *Ibid.*, 5.

[104] Twining, "Rationalist Tradition," 36. Gilbert's treatise was not formally published until 28 years after Gilbert's death and his work reflects an understanding of evidence formed in the opening decade of the eighteenth century. See Stephen Landsman, "The Rise of the Contentious Spirit: Adversary Procedure in Eighteenth Century England," *Cornell Law Review* 75 (March 1990): 592.

[105] Jeremy Bentham, "False Theory of Evidence (Gilbert's)," Appendix C of *An Introductory View of the Rationale of Judicial Evidence,* in *The Works of Jeremy Bentham*, edited by John Bowering, vol. 6 (New York: Russell and Russell, 1962), 186-87.

[106] Although he identifies a wide range of documents in his hierarchy, among them, writs, affidavits, depositions, bills in chancery, and wills, Gilbert appears to have based his assertion of the superior trustworthiness of written evidence on the authority accorded to a much narrower range of documents by common law courts in earlier times. According to James Bradley Thayer, "the vast majority of documents used in trials in early times were no doubt of the solemn, constitutive, and dispositive kind, instruments under seal, records, certificates of high officials, public registers, and the like. Such documents, if the authenticity of them were not denied, 'imported verity,' as the phrase was, fixed liability and determined rights." See James Bradley Thayer, "The Best Evidence," in *A Preliminary Treatise on Evidence at the Common Law* (Boston: Little, Brown and Company, 1898), 504.

[107] Bentham's discussion of makeshift evidence may be found in chapters XIII of *An Introductory View of the Rationale of Judicial Evidence* and in Books V and VI of the *Rationale of Judicial Evidence.* See *Works of Jeremy Bentham*, vol. 6, 57-60; vol. 7, 118-173. His discussion of pre-appointed

among different kinds of records possessing different degrees of trustworthiness betrayed a more fundamental inability to distinguish between the trustworthiness of a record as a record and its trustworthiness as a statement of facts. "Two questions which [Gilbert] confounds at the very outset, and is never tired of confounding, are the question of authenticity and the question of verity -- the question concerning the authenticity of a script, and the question concerning the verity of the assertion contained in it."[108] Gilbert had placed first in the hierarchy of probability the legal memorials of the legislature and of the king's courts of justice which were deposited at the Treasury of Westminster. As William Twining describes, Bentham challenged both the reliability and the authenticity of such records:

> ...Bentham suggests that Gilbert treats records as "a diagram for the demonstration of right" produced by a "supersacred and super-human class of persons". But officials are but men, whose trustworthiness needs to be determined by the same tests as any other men; and legal records are notoriously unreliable, " compounds or reservoirs of truths and lies undistinguishably shaken together, penned by nobody knows who, and kept under the orders, how seldom soever, if, ever, actually subjected to the eyes of the judges of Westminster Hall."[109]

Bentham's acerbic critique of Gilbert's rules of evidence effectively invalidated the notion that written evidence should be treated as inherently more trustworthy than oral evidence.[110]

It did not, however, invalidate the rationalist assumptions on which Gilbert based his theory of the law of evidence. During the nineteenth century, several treatises on the law of evidence were written.[111] According to Twining, all of these treatises share a number of common assumptions, among them, that: knowledge about particular past events is possible; the establishment of the truth of alleged

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evidence may be found in Chapter XIV of *An Introductory View of the Rationale of Judicial Evidence* and in Book IV of the *Rationale of Judicial Evidence*. See *Works of Jeremy Bentham*, vol. 6, 60-67; vol. 7, 508-585.

[108] Bentham, "False Theory of Evidence," 184.

[109] Twining, "Rationalist Tradition," 37.

[110] Bentham returned to the conceptual distinction between authenticity and verity in his monumental work, *The Rationale of Judicial Evidence*. In the *Rationale*, he substituted the word, "fairness" for "verity," but the distinction he had earlier established remained the same: "A distinction must here be observed, between evidence of authenticity, and evidence of fairness. Authenticity may be proved by similitude of hands: it may be proved, provisionally at least, *ex tenore*, with or without the other presumption *ex custodia*. To the question of fairness, none of these media of proof, it is evident, can apply. ...A bond is produced in evidence: the obligor may have been in a state of insanity or intoxication when he executed it: he may have executed it with the fear of a pistol or a dagger before his eyes, or in a state of illegal imprisonment, to which he had been subjected for that purpose. Of none of these modifications will the signature, or the custody of the instrument, or the tenor of it, afford any sort of warning." See *Works of Bentham*, vol. 6, 593.

[111] The major treatises on the law of evidence written during the nineteenth century, and their contribution to the Rationalist tradition of evidence scholarship are discussed at length in Twining, "Rationalist Tradition," 35-59.

facts in adjudication is typically a matter of probabilities, falling short of absolute certainty; judgements about the probabilities of allegations about particular past events can be reached by reasoning from relevant evidence presented to the decision-maker; the characteristic mode of reasoning about probabilities is induction and; judgements about probabilities have, generally speaking, to be based on common sense logic and experience, which may be supplemented, in appropriate circumstances, by specialized scientific or expert knowledge.[112] These assumptions constitute the core of the rationalist tradition of evidence scholarship, a tradition that has continued into the twentieth century, primarily through John Henry Wigmore's *A Treatise on the Anglo-American System of Evidence in Trials at Common Law*, which provides the theoretical foundation for the common law rules of evidence.

By the end of the nineteenth century, rules for assessing the authenticity and reliability of records were firmly embedded in the common law. The rules governing the authentication of records, e.g., authentication by age (the ancient documents rule), by official custody, by official seal, and by comparison of handwriting could be traced back to Roman law and had been standard features of medieval legal procedure.

The rule requiring the production of documentary originals (the best evidence rule) can also be traced back to Roman law; it did not, however, enter the common law until the eighteenth century. There had been a rule of pleading in profert since at least the fifteenth century which required that documents on which a claim was based must be presented to the court but the rule only applied to sealed writings and to civil cases. Other documents might be placed before the tribunal or witnesses might simply make reference to documents without producing them. This practice was increasingly seen as irregular and by the eighteenth century it was a rule that an original document must be produced, unless unfeasible, to prove its terms.[113]

At common law, the reliability of business records as testimonial assertions was dealt with under the regular entries exception to the hearsay rule. The roots of that exception extended back to a seventeenth century doctrine that permitted the shop-books of parties to be entered into evidence since, as parties to an action, they were prohibited from testifying. The rule disappeared by the end of the seventeenth century as the self-serving nature of its usage became apparent. Subsequently, the courts began to allow the admission of books of regular entries prepared by third parties, including clerks of a party, if the entrant was deceased at the time of trial. The regular entries exception was firmly established by 1832.[114] Although one of its underpinnings was necessity (the death of the entrant), the

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[112] *Ibid.*, 73 (model II).

[113] For a more detailed history of the best evidence rule relating to documents, see Wigmore, *Evidence in Trials at Common Law*, vol. 4, edited and revised by James H. Chadbourn (Boston: Little, Brown, 1972), para. 1177; Thayer, "Best Evidence," 503-505; W.S. Holdsworth, "Documentary Evidence, " in *A History of English Law*, vol. 9 (London: Methuen & Co., 1926), 163-77.

[114] For a more detailed history of the exception, see Wigmore, *Evidence in Trials at Common Law*, vol. 5, edited and revised by James H. Chadbourn (Boston: Little, Brown, 1974), para. 1518.

exception was also justified on the grounds of a circumstantial probability of trustworthiness.

The nineteenth century was also an important period for the codification of historical methods for determining the trustworthiness of records as historical sources. In 1898, Charles Victor Langlois and Charles Seignobos published *Introduction aux études historiques.* It was immediately translated into English and published later the same year as *Introduction to the Study of History.*[115] The *Introduction* represented the culmination of efforts to identify the scope of historical criticism, define the various categories of historical evidence, and establish procedures for determining their authenticity and reliability.[116] The principles of historical evidence that were codified in the nineteenth century were built on a tradition of philological or source criticism dating back at least to the fifteenth century. During the eighteenth century, philological studies blossomed, particularly in the philosophical faculties of German universities, and provided the intellectual formation of the most influential nineteenth century historians. Leopold von Ranke studied classical philology under Barthold Georg Niebuhr and considered Niebuhr's work "a model of the method of historical research."[117] 'Scientific history,' as practised by Ranke and codified by Langlois and Seignobos, was based on the claim that:

> history ...is primarily concerned with facts and their causal connection -- how they acted upon each other. The historian works with materials contemporary with the time on which he focuses, or at least with early reports about the past, preferably documents, whose exactitude and reliability have to be subjected to critical examination. Like any other science, therefore, history has its own method, the critical method, and Ranke is understood to have extended the critical method of philology to the entire study of the past. Research in the sources of the past, using the critical method, became the precondition and the center of historical scholarship. ...By making the establishment of the facts of the past the main aim of historical criticism, Ranke set up a clear priority among the sources of history. The first place belonged to archival research.[118]

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[115] Ch. V. Langlois and Ch. Seignobos, *Introduction to the Study of History*, trans. by G.G. Berry (London: Duckworth & Co., 1898).

[116] Earlier nineteenth century efforts include Johann Gustav Droysen, *Outline of the Principles of History* (*Grundriss der Historik)*, trans. E. Benjamin Andrews (Boston: Ginn and Company, [1867], 1893) and Ernst Bernheim, *Lehrbuch der historischen Methode* (1889). Other manuals of historical method that appeared during the nineteenth century are discussed in Allen Johnson's *The Historian and Historical Evidence*, 126-40.

[117] Felix Gilbert, *History: Politics or Culture? Reflections on Ranke and Burckhardt* (Princeton, New Jersey: Princeton University Press, 1990), 18.

[118] *Ibid.*, 32, 18.

Ranke's clear preference for primary sources had the effect of diminishing the value that previously had been granted to derivative sources, including histories written before 1800.

In previous centuries, Leonard Krieger observes, historians had "looked for a literal truth in the report conveyed by the documents and methodically vetted for error, fraud, interpolation, or other extraneous matter that might distort the faithful translation of past reality in the reports. The scientific historians ...saw in those same reports mere indications, or symbols, of a past reality which had to be reconstructed from the traces left in the documents."[119] This shift in perspective is evident in Langlois' and Seignobos' manual, in which they assert that, "the facts of the past are only known to us by the traces of them which have been preserved. These traces, it is true, are directly observed by the historian, but, after that, he has nothing more to observe; what remains is the work of reasoning, in which he endeavours to infer, with the greatest possible exactness, the facts from the traces. The document is his starting-point, the fact his goal."[120]

As historians began to distinguish between the past and its traces, and between documents and historical facts, they also began to draw a clearer distinction between authenticity and reliability. When Mabillon first formulated the principles and methods of diplomatic criticism, authenticity, in the diplomatic sense, referred to the presence in a record of all the forms required to enable it to be its own competent witness. Because of the tight controls exercised over the procedures of documentary creation and the limited forms of documents produced during the medieval period, early diplomatists did not distinguish between a record's authenticity and its reliability; it was assumed that if a document could be proved trustworthy in form, its contents could be considered trustworthy in fact. With the rise of the state from the sixteenth century onwards, and the consequent increase in the number and forms of documents being produced, such an assumption could no longer be sustained. By the end of the nineteenth century, Langlois and Seignobos were echoing Bentham in their warning to historians not to equate authenticity with historical truth:

> [T]o say that a document is authentic is merely to say that its origin is certain, not that its contents are free from error. But authenticity inspires a degree of respect which disposes us to accept the contents

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[119] Leonard Krieger, *Time's Reasons: Philosophies of History Old and New* (Chicago: University of Chicago Press, 1989), 98.

[120] Langlois and Seignobos, *Introduction to Study*, 64. Their observation echoes one made by Gustav Droysen thirty-one years earlier in his manual of historical method: "The science of history is the result of empirical perception, experience and investigation ...All empirical investigation governs itself according to the data to which it is directed, and it can only direct itself to such data as are immediately present to it and susceptible of being cognized through the senses. The data for historical investigation are not past things, for these have disappeared, but things which are still present here and now, whether recollections of what was done, or remnants of things that have existed and of events that have occurred." Droysen also refers to documents as "traces". See Droysen, *Outline of Principles*, 10-11, para. 4-5.

> without discussion. To doubt the statements of an authentic document would seem presumptuous, or at least we think ourselves bound to wait for overwhelming proof before we impeach the testimony of the author. ...These natural instincts must be methodically resisted. A document ...is not all of a piece; it is composed of a great number of independent statements, any one of which may be intentionally or unintentionally false, while the others are *bona fide* and accurate ...It is not, therefore, enough to examine a document as a whole; each of the statements in it must be examined separately; *criticism* is impossible without *analysis*.[121]

In Langlois and Seignobos' manual, the authenticity of records was considered under the procedures of external criticism; the reliability of records was dealt with under the procedures of internal criticism. The purpose of external criticism was to locate the document in its time and place.[122] This involved establishing, among other things, whether the document was an original or a copy, and, if it was a copy, identifying its source, and comparing different versions of the same text in order to ascertain the most authoritative copy. It also involved identifying the origin of the writing, its author, place, and date, to determine whether there had been any interpolations or continuations made to the text by other authors. The procedures for carrying out the external criticism of a record included investigating the handwriting, the language, events mentioned in the text, as well as looking at external evidence for clues to confirm or refute the purported authorship of the document.

For medieval documents, external criticism also included the application of concepts and principles of diplomatics. The original purpose of diplomatics had been to determine a record's authenticity for legal purposes and that purpose continued into the eighteenth century when its concepts and principles were incorporated into the curriculum of many European faculties of law. By the end of the nineteenth century, however, under the influence of classical philology and the scientific school of historiography, diplomatics had emerged as an ancillary science of history. As Olivier Guyotjeanin describes it, the task of the diplomatist was:

> ...de convoyer sur le chantier historique un matériau dûment édité, daté, critiqué. Il mettait en œuvre une critique négative, si l'on peut dire, décelant les falsifications; ivraie de sa moisson de documents; dont il était aussi chargé de trier la paille (le formulaire) du grain (les faits attestés); ou, pour prendre une autre métaphore, qui a eu son heure de gloire, de faire sauter la gangue de formules, où le minerai des données restait captif sans son intervention experte.[123]

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[121] Langlois and Seignobos, *Introduction to Study*, 159.
[122] The procedures of external criticism are elaborated in *ibid.*, 71-140.
[123] Olivier Guyotjeannin, "La Diplomatique Médiévale et L'élargissement de son Champ," *La Gazette des Archives* 172 (1996): 13-14.

In the two centuries that had elapsed since the publication of *De re diplomatica*, diplomatic methodology had undergone some refinement but Mabillon's work remained the standard book on methodology until the nineteenth century when it was supplanted by manuals such as Harry Bresslau's *Handbuch der Urkundenlehre für Deutschland und Italien*,[124] Arthur Giry's *Manuel de diplomatique*,[125] and Cesare Paoli's *Programma scolastico di paleografia latina e di diplomatica*.[126] The nineteenth century also witnessed significant advances in diplomatic doctrine, due largely to the efforts of German diplomatists such as Théodor von Sickel[127] and Julius Ficker.[128] As state archives were opened and more and more documents became available for publication and study, various branches of diplomatics emerged, focussing on specific topics, among them: chronology, sigillography, documentary forms, the status of transmission of documents, the various types of copies, the creation procedure of documents, specific chancery procedures, as well as the criticism of forgeries.[129]

According to Langlois and Seignobos, if a record was found to be a forgery, it was immediately eliminated from any further consideration. If it was found to be authentic, it was then subjected to internal criticism, the purpose of which was to assess the credibility of a record as testimony of the facts contained within it.[130] Specifically, it attempted

> ...by the help of analogies mostly borrowed from general psychology, to reproduce the mental states through which the author of the document passed. Knowing what the author of the document has said, we ask (1) What did he mean? (2) Did he believe what he said? (3) Was he justified in believing whatever he did believe? This last step brings the document to a point where it resembles the data of the objective sciences: it becomes an observation.[131]

Nineteenth century historians emphasized the close connection between the personality of an author and the account he presented on the grounds that such account inevitably reflected the intellectual formation and interests of its author as well

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[124] Harry Bresslau, *Handbuch der Urkundenlehre für Deutschland und Italien* (Berlin, 1889), cited in Boyle, "Diplomatics," 104.
[125] Arthur Giry, *Manuel de Diplomatique* (New York: Burt Franklin, 1893).
[126] Cesare Paoli, *Programma scolastico di paleografia latina e di diplomatica* (Firenze, 1888-90), cited in Luciana Duranti, "Diplomatics I," 25, n. 17.
[127] Théodor von Sickel, *Beiträge zur Diplomatik* 1-8, in *Sitzungsberichte der Wiener Akademie* (Vienna, 1861-82), cited in Boyle, "Diplomatics," 106.
[128] Julius Ficker, *Beiträge zur Urkundenlehre*, 2 vols. (Innsbruck, 1877-78), cited in Duranti, "Diplomatics I," 25, n. 16.
[129] Duranti, "Diplomatics I," 14. For a more detailed examination of diplomatics in the nineteenth century, see Georges Tessier, "Diplomatique," 647-63.
[130] The procedures of internal criticism are elaborated in Langlois and Seignobos, *Introduction to Study*, 141-208.
[131] *Ibid.*, 66-67.

as the ideas and preoccupations of the world in which he lived. In Ranke's words: "every writing, not only its value and importance, but in a certain sense its life, depends on the relationship between subject and object, between author and his topic. The first task of every critical examination is to make this relation visible." [132] Internal criticism accomplished this task in three stages. The first stage consisted of *interpretive criticism*, which was directed toward establishing the literal and actual meaning of the words used by the author in his account; the second stage involved *the negative criticism of the good faith and accuracy of the author*, which assessed the extent to which the author could be trusted as an observer and/or recorder of events; the third stage consisted of *the determination of particular facts*, in which the author's account of an event was compared to other accounts to see where they coincided and where they diverged. In their manual, Langlois and Seignobos stressed that internal criticism, "can *prove* no fact; it only yields probabilities. Its end and result is to decompose documents into statements, each labelled with an estimate of its value -- worthless statement, statement open to suspicion (strong or weak), statement probably (or, very probably) true, statement of unknown value."[133] On the other hand, two statements, insufficient in themselves, "may confirm each other in such a manner as to produce a collective certainty."[134]

The methods articulated by Langlois and Seignobos reflect the aspiration of nineteenth century historians toward a "scientific history." The trustworthiness of documents was assessed, accordingly, by means comparable to that employed by the "objective" sciences, and involved the decomposition of a document into a series of statements which were subsequently refined until they resembled a scientific observation.

In the period of time bracketted by the compilation of the Justinian Code and the publication of *An Introduction to the Study of History*, the concepts and methods for ensuring record trustworthiness underwent considerable refinement. Originally associated exclusively with the truth of a document as a document, i.e, its authenticity, trustworthiness gradually came to embrace, as well, the truth of a document as testimony of the facts contained within it. The concepts and methods associated with trustworthiness were also affected by changes in the conception of records as evidence. In antiquity and through much of the middle ages, records were seen primarily as manifestations of legal facts. Renaissance humanism and the emergence of philology encouraged scholars and jurists to consider them also as manifestations of historical facts, i.e., as facts specific to a particular time and place. By the late seventeenth century, with the emergence of a new concept of evidence as inference, records began to be seen in yet a new light: as sources from which historical or legal facts might be inferred. The new concept of evidence as inference was intimately

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[132] Quoted in Gilbert, "History: Politics or Culture," 17.

[133] Langlois and Seignobos, *Introduction to Study*, 194.

[134] *Ibid.*, 204. According to Allen Johnson, Langlois' and Seignobos' notion of "collective certainty" is analogous to Ernst Bernheim's notion of "inner probability." See Johnson, *Historian and Historical Evidence*, 144-46.

connected to the emergence of a new philosophy of rationalist belief which asserted that the truth of most propositions cannot be established with any certainty; it can only be measured in degrees of probability, based on reasoning from the relevant evidence. As Carl Joynt and Nicholas Rescher observe, in their discussion of evidence in history and the law:

> Facts are not evidence for one another *per se*, for the very idea of evidence rests upon the mediation of our *knowledge* regarding the relationships between facts. ...Evidence, as a probabilistic concept, is based upon reference to our information about things: it concerns itself with our *knowledge* about states of affairs, and not with states of affairs *per se*.[135]

By the end of the nineteenth century, a recognizable set of legal and historical methods for assessing the trustworthiness of records as evidence, operating within a framework of probabilities, were well established. As the following chapters demonstrate, that tradition continues to provide the foundation of modern legal and historical methods for determining record trustworthiness.

[135] Carl B. Joynt and Nicholas Rescher, "Evidence in History and the Law," *Journal of Philosophy* 56 (1959): 565.

Chapter 2

Modern Rules Governing Documentary Evidence at Common Law and in Canadian Statutory Law

The legal rules governing the use of documentary evidence demonstrate a substantial degree of continuity with those established at the end of the nineteenth century. The authoritative compilation of the law of evidence in trials at common law continues to be *Wigmore on Evidence*,[1] which has been revised and expanded a number of times since it first appeared in 1904. In the last twenty-five years, the common law rules have been refined and extended, and supplemented by statutory law, in order to accommodate the modern reality of recordkeeping. This chapter explores the current rules governing the authenticity and reliability of documentary evidence in general and business records in particular at common law, and, more specifically, in Canadian statutory law, and the extent to which those rules have been adapted to take into account electronic recordkeeping environments.

The trustworthiness of documentary evidence is considered under the rules of admissibility. At common law, the rules of admissibility are grouped into three categories: the first category dealing with the probative value of specific facts (rules of relevancy), the second including rules that attempt to increase or safeguard probative value (rules of auxiliary probative policy), and the third consisting of rules based on extrinsic policies (e.g., rules excluding privileged communications) rather than on probative value.[2] Admissibility means that a particular fact is relevant, and that it has also met the requirements of the auxiliary tests and extrinsic policies. As Wigmore makes clear, it does not mean "that the particular fact has demonstrated or proved the proposition to be proved, but merely that it is received by the tribunal for the purpose of being weighed with other evidence."[3] The admissibility of evidence is a matter determined by the judge, the weight of evidence is a matter determined by the trier of fact, usually the jury.

Relevancy means "applicability to the issue joined .... Two facts are said to be relevant to each other when so related that according to the common course of events, one either taken by itself or in connection with other facts, proves or renders probable the ... existence or non-existence of the other."[4] As the definition shows, the rules of relevancy governing evidence are rooted in the Lockean tradition of rationalist empiricism and, more specifically, in the theory of logical relevancy. The first principle of that theory is expressed in terms of the relationship between evidence and probability. Peter Tillers explains the principle in the following way:

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[1] John Henry Wigmore, *Evidence in Trials at Common Law*, 11 vols. (Boston: Little, Brown, 1972-1983) (hereafter cited as *Wigmore on Evidence*, followed by name of reviser, and year of revision in parentheses, volume number, and paragraph number).
[2] *Wigmore on Evidence* (Tillers rev., 1983), vol. 1, para. 11.
[3] *Ibid.*, para. 12.
[4] *Black's Law Dictionary*, 6th ed. (St. Paul, Minn.: West Publishing, 1990), s.v. "relevancy."

"[k]nowledge of facts is always a matter of probabilities. We may acquire knowledge of matters of fact by drawing inferences from evidence, but these inferences can only alter the probability that some fact does or does not exist and can never establish with certainty that some fact does or does not exist." [5] Inferences, in turn, rest on generalizations based on common sense experience and logic:

> We draw an inference when the existence of one fact, the factum probans, alters our estimate of the existence of another fact, the factum probandum, but we do not draw that inference because of any intrinsic relationship between the factum probans [the existent fact, i.e., the evidence] and the factum probandum [the hypothetical fact, i.e., the proposition]; we draw that inference because we hold some principle that leads us to believe that the existence of the factum probans makes the existence of the factum probandum more or less probable. These connective principles are called "generalizations" or "evidential hypotheses," and they are furnished by experience or logic. They take the form of relative frequency statements that assert that when events of type A occur, events of type B occur with a certain frequency (e.g., "very often," or "almost always").[6]

Finally, inferences from evidence usually involve a series or chain of inferences and a chain of inferences is only as strong as its weakest link. "The greater the number of links in the chain -- the greater the number of intermediate inferences -- the weaker the final inference produced by the chain of inferences."[7] These principles of logical relevancy provide the overarching framework in which assessments of the trustworthiness of evidence in general and documentary evidence in particular are made.

The rules dealing with documents in general and business records in particular are rules of auxiliary probative policy and are "designed to strengthen here and there the evidential fabric and *to secure it against dangers and weaknesses pointed out by experience*."[8] Within that broad category are rules governing the authentication of documents, the rule requiring the production of an original document (the best evidence rule), and the rule governing the admissibility of extra-judicial testimonial assertions, i.e., declarations made pursuant to a business duty. The legal rules relating to authentication and best evidence address the trustworthiness of a record as a record (i.e., whether the record is genuine or false). The rules of evidence governing the reliability of a record (i.e., the trustworthiness of the facts contained within it) are dealt with as an exception to the hearsay rule.

At common law, the hearsay rule is an analytic rule, the purpose of which "is to subject a certain kind of evidence to *tests calculated to exhibit and expose its possible*

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[5] *Wigmore on Evidence*, (Tillers rev., 1983), vol. 1A, para. 37.4.
[6] *Ibid.*
[7] *Ibid.*
[8] *Wigmore on Evidence*, (Chadbourn rev., 1972), vol. 4, para. 1171.

weaknesses and thus to make clear to the tribunal the precise value it has."[9] The rule requires the application of two interconnected tests for trustworthiness: cross-examination and confrontation. The theory underlying the rule is that witnesses' assertions must be tested by cross-examination and confrontation in order to expose any deficiencies, distortions, or suppressions.[10] According to Wigmore, "the chief questions that arise in connection to this rule are whether the rule has in a given case been satisfied by adequate opportunity for cross-examination, whether certain classes of testimonial assertions are to be received exceptionally without undergoing these tests, and where the line is to be drawn between utterances to which the rule does and does not apply."[11]

Hearsay evidence, as defined by McCormick, is "testimony in court, or written evidence, of a statement made out of court, the statement being offered as an assertion to show the truth of matters asserted therein, and thus resting for its value upon the credibility of the out of court asserter."[12] Under normal circumstances, such statements are excluded on the grounds that they cannot be tested by cross-examination. The inherent unreliability of statements made in documents is explained by Ewart in the following way:

> All documents, if offered in evidence as proof of the truth of their contents, are hearsay. Since documents can only "tell" a trier of fact that which their makers have "told" them, they inevitably make in-court assertions about statements made by someone else outside of the courtroom. ...The view that all documents are hearsay if offered as evidence of the truth of their contents is reinforced when consideration is given to the usual reasons proferred in support of a rule against hearsay evidence. These include the inability to observe the demeanour, credibility, and personality of the declarant whose statement is in issue, the inability to qualify, clarify or cast doubt upon the statement by cross-examination, and the fact that ordinarily the declaration, unlike the rest of the evidence before the court, will not have been given under oath.[13]

Nevertheless, as Wigmore points out in his introduction to the exceptions to the hearsay rule, in certain cases, the circumstances in which the statement was made make its probable trustworthiness practically sufficient to those statements tested by cross-examination. Moreover, it may not be possible to test a witness' assertion. The witness may be dead, out of the jurisdiction, insane, or otherwise unavailable at the

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[9] *Ibid.*, para. 1172.

[10] According to Laurence H. Tribe, such deficiencies, distortions or suppressions "are usually attributed to the four testimonial infirmities of ambiguity, insincerity, faulty perception, and erroneous memory." For a discussion of these infirmities, see Tribe, "Triangulating Hearsay." *Harvard Law Review* 87 (1974): 957-974.

[11] *Wigmore on Evidence*, vol. 4, para. 1172.

[12] Charles T. McCormick, *McCormick's Handbook of the Law of Evidence*, edited by Edward W. Cleary, 2nd ed. (St. Paul, Minn.: West Publishing, 1972), 584.

[13] J. Douglas Ewart et al., *Documentary Evidence in Canada* (Agincourt, Ont.: Carswell, 1984), 12 (hereafter cited as *Ewart on Documentary Evidence*).

time of trial. If the testimony is to be taken at all, therefore, it must be taken in its untested shape. These two conditions – a circumstantial probability of trustworthiness and necessity – create the overarching principles of all the exceptions to the hearsay rule.

In his discussion of these two principles in the specific context of the business records exception to the hearsay rule, Ewart argues that the principle of trustworthiness

> is by far the more compelling: a court can feel relatively comfortable in breaking new ground if it has been satisfied that the circumstances of the document's creation provide an adequate substitute for the traditional safeguard of cross-examination. The proponent of a document should seek to persuade the court that the document, *because of the circumstances of its creation*, is inherently reliable. If this is done, then the necessity doctrine can likely be satisfied simply by demonstrating that there is no other equally convenient way to put before the court the information in question.[14]

No uniform standard has been developed for measuring acceptable degrees of trustworthiness or necessity in particular cases. Instead, the principles tend to be applied on a case by case basis and different cases dictate different applications of the principles.

At common law, declarations made in the course of a business duty are treated as an exception to the hearsay rule because they are considered to be sufficiently trustworthy. Wigmore has identified three distinct but related reasons why entries that are recorded systematically and habitually in the ordinary course of business are likely to possess a degree of trustworthiness sufficient to justify their admissibility:

> (1) The habit and system of making such a record with regularity calls for accuracy through the interest and purpose of the entrant; and the influence of habit may be relied on, by very inertia, to prevent casual inaccuracies and to counteract the possible temptation to misstatements ....
>
> (2) Since the entries record a regular course of business transactions, an error or misstatement is almost certain to be detected and the result disputed by those dealing with the entrant; misstatements cannot safely be made, if at all, except by a systematic and comprehensive plan of falsification. As a rule, this fact (if no motive of honesty obtained) would deter all but the most daring and unscrupulous from attempting the task; the ordinary man may be assumed to decline to undertake it. In the long run this operates with fair effect to secure accuracy.

[14] *Ibid.*, 14.

(3) If, in addition to this, the entrant makes the record under a duty to an employer or other superior, there is the additional risk of censure and disgrace from the superior, in case of inaccuracies – a motive on the whole the most powerful and most palpable of the three.[15]

The traditional requirements for admitting declarations made under a business duty were, that: the declarant had to be deceased; the declarant must have been under a duty to act and to record the thing done; the declarant must have observed the act; the act must have been completed; the declarant must have made the statement contemporaneously with the act; the declarant must not have had any motive to misrepresent; and collateral matters in the statement were inadmissible.[16] As Sopinka observes, strict adherence to these requirements often led to anachronistic results.[17]

In 1970, the Supreme Court of Canada restated and expanded the common law exception in order to adapt it to the modern reality of recordkeeping. The case in question, *Ares v. Venner*, [18] involved a malpractice suit against a physician in which nurses' notes were sought to be admitted. The Court's decision reflected a more flexible approach to the exception, one that placed less emphasis on technical rules of exclusion and more emphasis on the principles of necessity and trustworthiness underlying the rules. The Supreme Court determined that the records were admissible on grounds of both necessity[19] and trustworthiness.[20] The trustworthiness of the notes was based on the fact that in a hospital where a patient's health is at stake, every effort would be made to keep accurate notes; secondly, since the nurses had no interest, apart from their duty, in keeping such notes, they had no motive to misrepresent the information in them; thirdly, the nurses were unlikely to have any independent memory apart from the notes they made; therefore, the notes would be superior to any oral testimony the nurses might give. The Court determined that all of these factors created a circumstantial probability of trustworthiness which justified admitting the nurses' notes without requiring the declarants to be called as witnesses.[21]

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[15] *Wigmore on Evidence*, (Chadbourn rev., 1974), vol. 5, para. 1522.

[16] John Sopinka, et al., *The Law of Evidence in Canada* (Toronto and Vancouver: Butterworths, 1992), 188-189 (hereafter cited as *Sopinka on Evidence*). See also Anthony Sheppard, *Evidence*, rev. ed. (Toronto: Carswell, 1996), para. 783-789 (hereafter cited as *Sheppard on Evidence*).

[17] *Sopinka on Evidence,* 190-92.

[18] [1970] S.C.R. 608, 12 C.R.N.S. 349, 14 D.L.R. (3d) 4, 73 W.W.R. 347.

[19] The arguments for necessity were not based on witness availability since the nurses were present in the courtroom during the trial. Instead necessity was defined in terms of mercantile inconvenience, cost to the parties, and cost to the public in the increased length of trial. See *Sopinka on Evidence*, 192.

[20] The original trial judge in *Ares v. Venner* relied on Wigmore's discussion of hospital records in allowing the nurses' notes to be admitted. The Supreme Court's reasons for decision are strikingly similar to the ones Wigmore provides. See *Wigmore on Evidence* (Chadbourn rev., 1976), vol. 6, para. 1707.

[21] *Sopinka on Evidence*, 192. The effect of the nurses' presence in the courtroom on the Court's decision to admit the notes does not appear to be settled. Hall, J. stated that the presence of the nurses in the courtroom eliminated any hearsay dangers posed by faulty perception or inaccuracy since the opponent could have put the nurses on the stand to test their perceptions. In *R. v. Khan*,

Ares v. Venner has resulted in at least two changes to the common law exception. First, it has eliminated the traditional requirement that a declarant be deceased. Secondly, it has opened the door to courts admitting recorded opinions, so long as those opinions "fall within the declarant's normal scope of duty."[22] Certain of the traditional common-law requirements, however, remain unaffected by the *Ares* decision. At common law, the general principle of testimonial evidence, i.e., that the person whose oral or written statement is received as testimony should speak from personal observation or knowledge, applies to declarations made in the course of a business duty. A testimonial assertion requires the presence of three elements: observation, recollection, and communication. [23] *Ares* and subsequent court decisions have confirmed the traditional requirement that the declarant have personal knowledge of the information recorded.[24] Subsequent court decisions have also maintained that the *Ares* doctrine only applies to records kept pursuant to a business duty on the grounds that only those records possess a circumstantial guarantee of trustworthiness.[25]

The modern common-law exception to the hearsay rule, in the wake of *Ares v. Venner,* thus appears to make admissible a record containing an original entry, made contemporaneously, in the routine of business, by a recorder with personal knowledge of the thing recorded, as a result of having done or observed or formulated it, who had a duty to make the record, and who had no motive to misrepresent the information in

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however, McLachlin, J. maintained that the nurses' presence was irrelevant to the decision since any testimony from the nurses probably would have been a futile exercise in terms of testing their memory of the events they recorded. Moreover, since the proponent of the evidence had not called the nurses to testify, the opponent would not be able to cross-examine the nurses; he or she could only lead evidence. See *R. v. Khan* [1990] 2 S.C.R. 531, 59 C.C.C. (3d) 92, 79 C.R. (3d) 1, 41, 0.A.C. 353, 11 W.C.B. (2d) 10, 113 N.R. 53, cited in *Sopinka on Evidence*, 194.

[22] *Sopinka on Evidence*, 195.

[23] Wigmore, *Evidence at Common Law* (Chadbourn rev., 1979), vol. 2, para. 478. But see also *Wigmore*, (Chadbourn rev., 1974), vol. 5, para. 1530, in which he argues that the principle of testimonial assertion does not necessarily exclude all entries made by persons not having personal knowledge of the facts recorded. Wigmore concludes that, "where an entry is made by one person in the regular course of business, recording an oral or written report, made to him by other persons in the regular course of business, of a transaction lying in the personal knowledge of the latter persons, there is no objection to receiving that entry under the present exception, verified by the testimony of the former person only, or of a superior who testifies to the regular course of business, provided the practical inconvenience of producing on the stand the numerous other persons thus concerned would in the particular case outweigh the probable utility of doing so." His conclusion is generally accepted in the business records provision of the Evidence Acts. See also *Ewart on Documentary Evidence*, 61-65, in which Ewart argues for an expansion of the common-law exception to allow for the admissibility of declarations made by a person without personal knowledge of the facts recorded on the grounds of "transmitted duty."

[24] In *Setak Computer Services Corp. v. Burroughs Business Machines, Ltd.,* (1977), 15 O.R. (2d) 750, 76 D.L.R. (3d) 641 (H.C.J.) at 755 (O.R.), Griffiths, J., stated, "in my opinion, the common law exception applies only to writings or records made by a person speaking from personal observation or knowledge of the facts recorded." Cited in *Sopinka on Evidence*, 197.

[25] In *R. v. Laverty* ((1979), 47 C.C.C. (2d) 60, 9 C.R. (3d) 288 (Ont. C.A.)), an arson case, the Ontario Court of Appeal ruled that notes prepared by a deceased fire investigator were inadmissible as hearsay because they were merely an aide-memoire which the investigator kept for himself and which he was not under a duty to make. Cited in *Sopinka on Evidence*, 197-98

it.[26] Ewart suggests that the most significant consequence of *Ares v. Venner* is not so much "the specific relaxations of the common law rule enunciated therein, but rather the inculcation of an attitudinal shift from exclusion towards expanded admissibility of hearsay."[27] The principled approach adopted in *Ares* also has been applied to situations outside the hospital setting.[28]

Although it has been adapted to meet the modern reality of record-keeping, the common law rule is still fairly restrictive and prohibits the admissibility of a large variety of business records. To allow for greater admissibility of modern business records, new exceptions have been developed by legislation, specifically, through the addition of business record provisions to the federal, provincial and territorial Evidence Acts.[29] The provisions are modelled on comparable American statutes.

Under the Canada Evidence Act, records "created in the usual and ordinary course of business"[30] are admissible. The provincial Evidence Acts of British Columbia, Manitoba, Nova Scotia, Ontario and Saskatchewan have the additional requirement that "it must have been in the usual and ordinary course of business to create such records." The additional criterion has been defended on the grounds that it reinforces the record's circumstantial probability of trustworthiness by prohibiting the introduction of potentially self-serving evidence. The case cited in support of the additional criterion is *Palmer v. Hoffman,* an American case involving an action arising out of a railroad crossing accident. [31] In that case, the defendant attempted to admit into evidence a report of the accident made by the deceased train engineer to officials at the freight office. Although the engineer's report was made in relation to his employment, the Supreme Court of the United States held that it was inadmissible on the grounds that such reports have nothing to do with the

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[26] *Ewart on Documentary Evidence*, 54.

[27] *Ibid.*

[28] *Cargil Grain Ltd., v. Davie Ship Building Ltd.*, [1977] 1 S.C.R. 569, 10 N.R. 347 (S.C.C.); *Setak Computer Services Corp. v. Burroughs Business Machines, Ltd.*, (1977), 15 O.R. (2d) 750, 76 D.L.R. (3d) 641 (H.C.J.); but see also *Woods v. Elias*, (1978), 21 O.R. (2d) 840 (Co. Ct.), where Court held that application of the *Ares* principle was restricted to hospital records. All cases above cited in *Sopinka on Evidence*, 196.

[29] Canada Evidence Act, R.S.C. 1985, c. C-5, s. 30 [am. 1994, c. 44, s. 91]; Evidence Act, R.S.B.C. 1979, C. 116, s. 48; Manitoba Evidence Act, R.S.M. 1987, c. E150 (also C.C.S.M., c. E150), s. 49; Saskatchewan Evidence Act, R.S.S. 1978, c. S-16, s. 31; Evidence Act, R.S.O. 1990, c.E.23, s. 35; Evidence Act, R.S.Y.T. 1986, c. 57, s. 37; Evidence Act, R.S.N.W.T. 1988, c. E-8, s. 47; Evidence Act, R.S.P.E.I. 1988, c. E-11, s. 32; see also Alberta Evidence Act, R.S.A. 1980, c. A-21, s. 36(1). All the above cases cited in *Sheppard on Evidence*, para. 783, fn. 3.

[30] Canada Evidence Act, s. 30(1). For the purposes of this provision, "business" is defined as "any business, profession, trade, calling, manufacture or undertaking of any kind carried on in Canada or elsewhere whether for profit or otherwise, including any activity or operation carried on or performed in Canada or elsewhere by any government, by any department, branch, board, commission or agency of any government, by any court or other tribunal or by any other body or authority performing a function of government". S.30(12), "business". The definition of "business" in the provincial and territorial business record provisions is similarly broad.

[31] 318 U.S. 109, 63 S. Ct. 477 (1943), cited in *Sopinka on Evidence*, 200, n. 139. Sopinka points out that, although it is an American case, the two criteria were included in a Federal provision worded similarly to the Canadian provincial enactments. The summary of the case that follows is based on Sopinka's discussion in *Sopinka on Evidence*, 200-201.

day to day operation and management of the railroad business. While the Court acknowledged that most businesses are concerned with litigation and therefore are in the practice of taking statements from employees when an accident occurs, the primary purpose of such reports is to assist in the lawsuit rather than in the running of the railway business. The Court was concerned that admitting such reports could invite abuse since businesses might be motivated to introduce self-serving evidence, i.e., statements which reflect their own version of such events. The Court determined, therefore, that in order to come within the business records statute:

> it must be shown to be a record which is necessary for the systematic and mechanical conduct of the business as a commercial enterprise. ...The trustworthiness of business documents is based on the reliability placed on such records by the commercial world. In the absence of routineness, there exists the danger that the maker of the record may not be motivated to be accurate. It is the mercantile nature of the record which attracts trustworthiness, not just the fact that the document was prepared in the regular course of business.[32]

Sopinka observes that "the implied introduction into business record legislation that there be no motive to misrepresent is consistent with the requirements of the traditional common-law exception."[33] Although the Canada Evidence Act does not include the second criterion, there must be some demonstration that the document was made in the usual and ordinary course of business. The fact that a document was prepared by a business organization may not be, in itself, sufficient to qualify it for admissibility.[34]

The provincial business record provisions require that the record be made at or near the time of the act, transaction, occurrence or event recorded. Although the Canada Evidence Act does not specifically require contemporaneous recording, it does allow the court to investigate the total "circumstances in which the information contained in the record was written, recorded, stored or reproduced, and draw any reasonable inference from the form or content of the record." [35] The Court in *Setak v. Burroughs* emphasized the significance of contemporaneous recording when it stated that:

> A substantial factor in the reliability of any system of records is the promptness with which transactions are recorded. Unless it appears from the context of the record, or the testimony of the witness introducing the writings or records into evidence that the act, transaction, occurrence or event described therein occurred within a reasonable time before the making of the writing or record, then such

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[32] *Ibid.*, 201.
[33] *Ibid.* See also *ibid.*, 210-12 for further discussion of the implied requirement of an absence of a motive to misrepresent in court interpretations of the business record provisions.
[34] *Ibid.*, 203.
[35] Canada Evidence Act, s. 30(6).

> writing or record should not be admitted for the purpose of proving those matters. Where there is some delay in transcribing, then in each case, it would seem to me, the Court must decide, as a matter of fact, whether the time span between the transaction and the recording was so great as to suggest the danger of inaccuracy by lapse of memory.[36]

The connection statutory law draws between contemporaneous recording and trustworthiness is consistent with the common law.[37]

The most significant difference between the common law exception and legislative business record provisions is the latter's acceptance of hearsay and even second-hand or double hearsay. The Evidence Acts of British Columbia, Manitoba, Saskatchewan and Ontario explicitly state that the lack of personal knowledge by the maker of the record does not affect its admissibility, though it may affect its weight.[38] However, courts have been consistent in asserting that second-hand hearsay is only admissible under these provisions if the maker of the record and the supplier of the information recorded were both acting in the usual and ordinary course of business.[39] In confirming this requirement, Canadian courts have cited the decision of the New York Court of Appeals in *Johnson v Lutz,*[40] an action arising out of a motorcycle accident. The Court in that case ruled that statements contained in a police officer's report were inadmissible because they were based on information provided voluntarily to the officer by a bystander, rather than on the officer's personal knowledge. Since the bystander was not under any duty to make a statement to the police officer, the trustworthiness of his statement was compromised. The Court held that "to come within the statutory provision ...it had to be shown not only that the maker of the record was acting pursuant to a business

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[36] *Setak Computer Services Corp. v. Burroughs Business Machines Ltd.,* (1977), 15 O.R. (2d) 750, 76 D.L.R. (3d) 641 (H.C.J.), at 760-61. Quoted in *Sopinka on Evidence*, 203-4..

[37] According to Wigmore, "the entry should have been made at or near the time of the transaction recorded – not merely because this is necessary in order to assure a fairly accurate recollection of the matter, but because any trustworthy habit of making regular business records will ordinarily involve the making of the record contemporaneously. The rule fixes no precise time; each case must depend on its own circumstances." *Wigmore on Evidence*, vol. 5, para. 1526.

[38] British Columbia, s. 48(2); Manitoba, s. 49(4); Saskatchewan, s. 31 (3); Ontario, s. 35(4); *Winnipeg South Child & Family Services v. R.S.* (1986), 40 Man. R. (2d) 64 at 68 (Q.B.) (second-hand hearsay not warranting any weight.). All of the above cases cited in *Sheppard on* Evidence, para. 801, fn. 4. See also *Sopinka on Evidence*, 204-5.

[39] *Matheson v. Barnes*, [1981] 2 W.W.R. 435 (B.C.S.C.); *Setak Computer Services Corp. v. Burroughs Business Machines Ltd.* (1977), 15 O.R. (2d) 76 D.L.R. (3d) 641 (Ont. H.C.); *Olyny v. Yeo* [1989] 3 W.W.R. 314 (B.C.C.A.); *Can-Dive Services Ltd., v. Pacific Coast Energy Corp.* (1994), 32 C.P.C. (3d) 103 (B.C.S.C.); *Hunt v. Westbank Irrigation District*, [1991] 6 W.W.R. 549 at 556 (B.C.S.C.); see also *Fox v. White* (1990), 39 C.P.C. (2d) 221 (Alta. C.A.); but see Manitoba Evidence Act, s. 58(1)(a)(ii)(b)(2) (record containing second-hand hearsay admissible if maker prepared it as part of continuous record, under duty to record, and person supplying information had personal knowledge; maker called as witness if available); *Reitze v. Brusser*, [1979] 1 W.W.R. 27 (Man. Q.B.). All of the above cases cited in *Sheppard on Evidence*, para. 802, fn. 1.

[40] 253 N.Y. 124, 170 N.E. 517 (1930, N.Y.C.A.), cited in *Sopinka on Evidence*, 204. The wording of the relevant provision in the New York statute is analogous to that of the provincial business record provisions.

duty, but that the person from whom he received the information was acting under a business duty as well. It is the business element of the record which gives it credence and efficacy."[41] Ontario Courts have confirmed that

> the mere fact that recording of a third party statement is routine imports no guarantee of the truth of the statement ....[the business record provision] of the [Ontario] Evidence Act should be interpreted as making hearsay statements admissible when both the maker of the writing or the entrant of the record, and the information or informants, if more than one, are each acting in the usual and ordinary course of business in entering and communicating an account of an act, transaction, occurrence or event.[42]

The same rationale is evident in *Adderly v. Bremner*[43] in which parts of a hospital record which related to occurrences taking place prior to admission and recorded as part of the patient's case history were held to be inadmissible because the statements made by the patient to his doctor and recorded in a hospital note were considered self-serving. Speaking for the court, Brooke, J. observed that he did not believe the Ontario Legislature intended "to open to a plaintiff a means of escaping the test of truth through cross-examination by resort to the hospital history record."[44]

The business record provision of the Canada Evidence Act lacks a subsection stating that a lack of personal knowledge will not affect the admissibility of the business record; the admissibility of hearsay under the federal Act, therefore, is not as straightforward as it is in provincial enactments.[45] Nevertheless, Courts have tended to interpret the provision as permitting the admissibility of hearsay and double hearsay. The issue was considered by the Court in *R. v Grimba*, a case in which the Crown sought to introduce a fingerprint identification record obtained from the U.S. Federal Bureau of Investigation. The record was admitted on the grounds of its inherent trustworthiness:

> Section 30 was placed into the Act in 1968 ...It would appear that the rationale behind that section for admitting a form of hearsay evidence is the inherent circumstantial guarantee of accuracy which one would find in a business context from records which are relied upon in the day to day affairs of individual businesses, and which are subsequent

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[41] *Sopinka on Evidence*, 205.
[42] Griffiths, J., in *Setak Computer Services Corp. v. Burroughs Business Machines Ltd.* (1977), 15 O.R. (2d) 750, 76 D.L.R. (3d) 641 (Ont. H.C.), at 762-63 (O.R.), cited in *Sopinka on Evidence*, 206.
[43] *Adderly v. Bremner* (1967), 67 D.L.R. (2d) 274 (Ont. H.C.), cited in *Sopinka on Evidence*, 205-206.
[44] *Sopinka on Evidence,* 206.
[45] Section 30(1) reads "where oral evidence in respect of a matter would be admissible in a legal proceeding." According to Sopinka, "the statute merely provides a method of proof of an admissible fact. It does not make the document admissible when oral testimony of the same fact would be inadmissible. One interpretation that is open is that if the maker of the record took the witness stand he could not testify as to what someone else told him. That would be inadmissible as hearsay and the same limitation applies to business records under s. 30 of the Canada Evidence Act." *Sopinka on Evidence*, 207.

> [sic] to frequent testing and cross-checking. Records thus systematically stored, produced and regularly relied upon should, it would appear under s. 30, not be barred from the Court's consideration simply because they contained hearsay or double hearsay.[46]

In other court decisions, the weight of authority has favoured the admissibility of double hearsay under section 30.[47] The acceptance of hearsay under these conditions moves the criteria for the circumstantial guarantee of trustworthiness further from the traditional common law criteria for testimonial assertion, i.e., observation, recollection, communication.

The modern common law, in the aftermath of *Ares v. Venner*, allows the introduction of statements of opinion so long as they were given in the course of a business duty. Court interpretations of provincial business record provisions, however, have ruled such statements inadmissible. [48] The Ontario Court in *Adderly v. Bremner*, for example, excluded "hospital records, which contain subjective data such as a doctor or nurse's diagnosis, opinion or impression, on the ground that these do not constitute 'an act, transaction, occurrence, or event', within the meaning of the words in the provincial provision.[49] The wording of the Canada Evidence Act is less restrictive since it refers to "evidence in respect of a matter" rather than to "an act, transaction, occurrence or event". Sopinka suggests that "it could be argued that the use of the general word 'matter' contemplates records containing opinions and other subjective data."[50] Sopinka also finds support for a broader interpretation of the provincial provisions in McCormick who maintains that, "the opinion rule should be restricted to governing the manner of presenting courtroom testimony and should have little application to the admissibility of out-of-court statements."[51]

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[46] *R. v. Grimba* (1977), 38 C.C.C. (2d) 469 (Ont. Co. Ct.), at 471. Quoted in *Sopinka on Evidence*, 208.

[47] *R.. v. Boles* (1984), 57 A.R. 232 at 235 (C.A.); *R. v. Anthes Bus. Forms Ltd.*, 10 O.R. (2d) 153 at 174; affirmed [1978] 1 S.C.R. 970; *R. v. Sanghi* (1971), 6 C.C.C. (2d) 123 (N.S.C.A.); *R. v. Penno,* [1977] 3 W.W.R. 361 (B.C.C.A.); see also *R. v. Monkhouse*, [1988] 1 W.W.R. 725 (Alta., C.A.) (payroll employee transcribing time cards onto payroll sheets not required to give evidence; proper admission of payroll manager's evidence extracted from poayroll records); *Apsassin v. Can.* (1987), 17 C.P.C. (2d) 187 (Fed. T.D.) (Indian agent reports being hearsay because made through interpreter but still admissible; trustworthiness required of document not demanding that court be absolutely convinced evidence totally devoid of human error; no reason to believe interpreter biased; both parties agreeing to interpreter thus interpreter merely conduit). All cases above cited in *Sheppard on Evidence*, para. 798, n. 1.

[48] *Adderly v. Bremner* (1967), 67 D.L.R. (2d) 274 (Ont. H.C.); *Aynsley v. Toronto General Hospital* (1967), 66 D.L.R. (2d) 575; varied 7 D.L.R. (3d) 193; affirmed 25 D.L.R. (3d) 241 (*sub nom. Toronto General Hospital Trustees v. Matthews*) (S.C.C.) [Ont.]; *de Genova v. de Genova* (1971), 5 R.F.L. 22 (Ont. H.C.); see also *Thompson v. Toorenburgh* (1973), 50 D.L.R. (3d) 717; affirmed without written reasons 50 D.L.R. (3d) 717n (S.C.C.) [B.C.]. All of the above cases cited in *Sheppard on Evidence*, para. 801, n. 5.

[49] *Sopinka on Evidence*, 208.

[50] *Ibid.*, 209.

[51] *McCormick on Evidence*, 3rd ed. (St. Paul: West Publishing, 1984), 875, quoted in *Sopinka on Evidence*, 209. See also *Ewart on Documentary Evidence*, 65-66.

The hearsay exception granted to statements in public documents at common law, also known as official statements, [52] emphasizes the circumstantial probability of trustworthiness that derives from the fact that the statement is recorded by a public officer in pursuance of an official duty. The exception is supported by a presumption of due performance of duty.[53] As Wigmore explains:

> The fundamental circumstance is that an official duty exists to make an accurate statement, and that this special and weighty duty will usually suffice as a motive to incite the officer to its fulfilment. The duty may or may not be one for whose violation a penalty is expressly prescribed. The officer may or may not be one from whom in advance an express oath of office is required ....It is the influence of the official duty, broadly considered, which is taken as the sufficient element of trustworthiness, justifying the acceptance of the hearsay statement.[54]

Although, in some cases, the presumption of official duty is, in Wigmore's words, "more a fiction than a fact," it is, nevertheless, "a fiction which we can hardly afford in our law openly to repudiate."[55] The circumstantial probability of trustworthiness is bolstered by the requirement that the subject matter of the statement be of a public nature, prepared for a public purpose, and with a view to being retained and kept as a public record.[56] English courts require, in addition, that the documents be made available to the public at all times on the grounds that, "where an official record is one necessarily subject to public inspection, the facility and certainty with which errors would be exposed and corrected furnishes a special and additional guarantee of accuracy."[57] While English courts require publicity as an incentive to accuracy, some Canadian courts have rejected it as a requirement.[58] Courts have also determined that the public official need not have personal knowledge of the facts recorded and the information may be supplied by private citizens.[59]

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[52] At common law, official statements fall into three categories: a *register* or *record*, which "comprises in a single volume or file a *series* of homogeneous statements, *recorded* by entries made more or less *regularly*." A register or record is kept in official custody. Typical examples of registers and records are birth, marriage, and death registers, vital statistics and records of conveyance. A *return* or *report* "is a single document *made separately* for each transaction as occasion arises." It too is preserved in official custody. A *certificate*, on the other hand, "is not preserved by the official, but is *given out* by him to an applicant for the latter's use." Typical examples of certificates are birth, marriage, and death certificates as well as certified copies of public documents. From *Wigmore on Evidence*, (Chadbourn rev., 1974), vol. 5, para. 1636.

[53] According to Wigmore, "The general experience that a rule of official duty or a requirement of legal conditions is fulfilled by those upon whom it is incumbent has given rise occasionally to a presumption of due *performance of official duty*. This presumption is more often mentioned than enforced; and its scope as a real presumption is indefinite and hardly capable of reduction to rules." *Wigmore on Evidence* (Chadbourn rev., 1981), vol. 9, para. 2534. See also *Sopinka on Evidence*, 119.

[54] *Wigmore on Evidence*, vol. 5 (Chadbourn rev., 1974), para. 1632.

[55] *Ibid.*

[56] See *Sheppard on Evidence*, para. 818-822; *Sopinka on Evidence*, 231.

[57] *Wigmore on* Evidence, (Chadbourn rev., 1974), vol. 5, para. 1632.

[58] *Nowlan v. Elderkin,* [1950] 3 D.L.R. 773 (N.S.T.D.), cited in *Sheppard on Evidence*, para. 823..

[59] *Finestone v. R.*, [1953] 2 S.C.R. 107 at 108 [Que.]; *R v. Halpin*, [1975] Q.B. 907 (C.A.), cited in *Sheppard on Evidence*, para. 824.

Many statutes contain provisions governing the admissibility of specific types of public or government records, which avoid the common law restrictions. In addition, the various Evidence Acts contain broad provisions to simplify the admissibility of public records. For example, section 26 of the Canada Evidence Act[60] allows for the introduction of certified copies of government records, as satisfying the requirements of the hearsay rule, the best evidence rule, and authentication.

As the exceptions to the hearsay rule demonstrate, the legal rules governing reliability are grounded in a number of generalizations about the relationship between records and the reality they purport to represent. Some of these relate to the nature of records, others to the nature of bureaucracy, and, others still, to the nature of facts in adjudication. The legitimacy of the third generalization, which is an intrinsic part of the rationalist tradition of evidence scholarship, has been the subject of some debate in the legal literature.[61] The debate centers around the distinction drawn in law between questions of fact and questions of law. Adrian Zuckerman explains the distinction in the following way:

> The law has to be applied to the facts of the case. The facts of the case are either admitted by the parties or ascertained by the court: either way they are not governed by the law. The law determines which types of facts give rise to rights and duties; the facts of the individual case are not themselves created by the law, but exist in the world that lies beyond the law. When the facts are disputed, the function of the legal process is to learn what these facts are so that the appropriate legal results may then follow. In other words, the judicial fact-finding process looks beyond the law into the world and ascertains what the facts look like out there. I shall refer to this as the assumption of objectivity in adjudication.[62]

In accordance with this model, questions of fact, which refer to concrete occurrences in the real world, are rigorously separated from questions of law, which refer to normative principles or values. Responsibility for determining the former falls to the fact-finder (either jury or judge) whereas responsibility for the latter falls to the judge alone. The distinction between fact and law, however, is more apparent than real. As

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[60] Section 26(1) states that, "a copy of any entry in any book kept in any office or department of the Government of Canada, or in any commission, board or other branch of the public service of Canada, shall be received as evidence of such entry, and of the matters, transactions and accounts therein recorded, if it is proved by the oath or affidavit of an officer of such department, commission, board or other branch of the public service, that he book was, at the time of the making of the entry, one of the ordinary books kept in such office, department, commission, board or other branch of the public service, that the entry was made in the usual and ordinary course of business of such office, department, commission, board, or other branch of the public service, and that such copy is a true copy thereof." , R.S.C. 1985, c. C-5.

[61] The generalizations concerning the nature of records and the nature of bureaucracy are also a matter of some debate. They will be discussed in more detail in chapter 3 and chapter 4 respectively.

[62] Adrian A.S. Zuckerman, "Law, Fact or Justice?" *Boston University Law Review* 66 (May/July 1986): 487.

Tillers observes, a good deal of legal literature "in the realist vein" as well as literature on epistemology support the view that "all factual assessments involve a normative component; that all normative analysis (broadly understood) inextricably involves factual assessments; and that it is in principle not possible to draw a sharp line between the two types of analysis and decisionmaking."[63] Moreover, Tillers maintains:

> To talk about factual investigations as though they involve only questions concerning the existence or nonexistence of some phenomenon or event may obscure the fact that we often answer the question, What happened? only by deciding how to characterize some events that are known to us. (An analogous thesis is the now familiar claim in philosophy of science that facts are theory-dependent.) In short, in many cases a reasonably accurate description of what (probably) happened cannot be given unless the observer evaluates the significance of various events known to him (or that he assumes to be true); frequently -- if not always -- a factual investigation requires not only a determination of whether certain physical events occurred but also a determination of how such events should be interpreted or pieced together in order to answer adequately the question, What happened?[64]

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[63] *Wigmore on Evidence*, (Tillers rev., 1983), vol. 1, para. 1, n. 2. According to William Twining, the rationalist tradition of evidence scholarship acknowledges the difficulty of separating questions of fact from questions of value. He asserts that, "[w]hile it is true that for certain purposes ...we have to proceed as if questions of fact can be and have been sharply distinguished from questions of value ...even within the Rationalist Tradition it is widely acknowledged that triers of fact are regularly and unavoidably involved in making evaluations." William Twining, "Some Scepticism about Some Scepticism," in *Rethinking Evidence: Exploratory Essays* (Oxford: Basil Blackwell, 1990), 107. The inevitable intertwining of fact and law is also acknowledged in civil law jurisdictions notwithstanding the fact that civil law decisionmakers are required to provide separate reasons for factual findings and legal determinations. The most sophisticated view of modern continental legal theorists is stated by Mirjan Damaška as follows: "You cannot decide which facts matter unless you have already selected, at least tentatively, applicable decisional standards. But most of the time you cannot properly understand these legal standards without relating them to the factual situation of the case." Mirjan Damaška, "Presentation of Evidence and Factfinding Precision," *University of Pennsylvania Law Review* 23 (May 1975): 1087.

[64] *Wigmore on Evidence*, (Tillers rev., 1983), vol. 1, para. 1, n. 2. A similar point is made by Michael Seigel, who argues that, "[t]here is no question that in some subset of cases the jury's job is essentially an objective one and the degree to which the jury has accurately determined historical truth is a full and coherent measure of the jury's performance. But in many cases the jury's task is a complex mix of positive and normative endeavours. This is true in every tort case where the ultimate question is whether a party was "reasonably prudent," designed a "defective product," or was the "proximate cause" of an injury; in every contract case where the issue is whether a party acted in "good faith," exercised "reasonable reliance," or provided "substantial performance" ...In cases of the latter kind, the jury's task is best described as choosing between competing characterizations -- that is, subjective interpretations -- of essentially uncontested facts, and the jury's verdict is best understood as a normative judgement about the conduct of one or more of the parties." Michael L. Seigel, "A Pragmatic Critique of Modern Evidence Scholarship," *Northwestern University Law Review* 88 (1994): 1015-1016.

In any factual investigation, there are, according to Mirjan Damaška, at least two different kinds of "facts" that have to be established, each of which requires a different kind of mental operation. He cites, as an example, a manslaughter charge arising out of reckless driving in which:

> ...[t]he decisionmaker must determine the truth of a certain number of propositions regarding "external facts," such as the speed of the automobile, the condition of the road, the traffic signals, the driver's identity, and so on. The mental operations required to ascertain such "external facts" belong primarily to the sphere of sensory experience. The inquiry here appears to be relatively objective, and the "truth" about such facts does not seem to be too elusive.
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> But many "internal facts" will also have to be established in the imagined case. They regard aspects of the defendant's knowledge and volition, to the extent to which these are important for the application of the relevant legal standard. The ascertainment of such facts is already a far less objective undertaking than the ascertainment of facts derived by the senses: processes of inductive inference from external facts are the most frequently travelled cognitive road. Even so, we do not hesitate to accord roughly the same cognitive status to findings regarding these internal facts as we do to findings of external facts.[65]

Other writers have pointed out that the existence of interpersonal events, i.e., those involving human interaction and intentionality, "may be determined only if one knows the rules by which the actors attach significance or meaning to various events." Moreover, they point out, "the methods we use to determine the significance and meaning attached by the actors to their actions may differ essentially from the methods we normally use to determine whether a given physical or natural event, not involving human intentions, occurred or did not occur."[66] These observations underline the point that any act of communication, whether oral or written, contains a code that needs to be deciphered before it can be clearly understood. The complexity of communicative acts, however, is rarely taken into account in the legal assessment of record reliability.

A specific assumption underpinning the business records exception to the hearsay rule concerns the relationship between the observer/recorder and the event observed/recorded. Business records are seen as a source of information that permit us to make inferences about the real world. "Record-writing," according to Stanley Raffel, "must depend on some kind of interesting segregating procedure by which two things, a record and the 'world' are, first, differentiated from each other and, then, related to each other so as to make the one, ideally, 'about' the other."[67] Because business records are assumed to reflect events in the real world, they depend for their

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[65] Mirjan Damaška, "Presentation of Evidence," 1085.
[66] *Wigmore on Evidence*, (Tillers rev., 1983), vol. 1, para. 1, n. 2.
[67] Stanley Raffel, *Matters of Fact: A Sociological Inquiry* (London: Routledge & Kegan Paul, 1979), 17.

reliability on the claim of the observer to have been present at those events.[68] Presence is, thus, posited as a solution to the problem of knowledge where knowledge resides in the local nature of specific events. Accordingly, the exception to the hearsay rule aims to ensure that the record is an accurate reflection of those events, one that is uncontaminated by the distorting influence of bias, interpretation, or unwarranted opinion on the part of the observer/recorder.[69] In other words, the observer/recorder must be present to witness and transcribe what Raffel calls "the world's speech," but he or she must not contaminate that speech. Raffel explains the grounds for the activity of observing/recording in the following way:

> To be an observer is to be present, to 'be there'. ...However, although the observer must be concretely present, he is not supposed to make a difference. The contact of observation must be direct and unidirectional in that the contact flows from event to observer, so that the record can be direct and unencumbered by the observer's opinion ....The achievement of the observer is the achievement of absence through presence. The responsible observer is one who can make what he observes responsible for what he observes ....record users can know the event through the record because, since the record has not been affected by the observer, it becomes unnecessary to understand the observer in order to understand the record. The record speaks for itself.[70]

As Marilyn MacCrimmon points out, the belief that it is possible to separate the observer from the event he or she is observing:

> ...reflects the Cartesian model of the mind which assumed that "the natural operations of the mind do not err unless they are disturbed by incidental and extraneous factors such as prejudice, passion, or impatience." Descartes drew a sharp distinction between the mind and the body, assuming that each could be studied in isolation from the other. Under this model the mind is kept reliable by preventing the intrusion of distorting influences.[71]

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[68] Such reasoning is evident in *Adderley v. Bremner*, which excluded a patient history on the grounds that the doctor who wrote down the case history could not certify the accuracy of the information in the record precisely because he was not 'present' when the events he recorded took place.

[69] Although *Ares* is frequently credited with opening the door to courts admitting recorded opinions, so long as those opinions "fall within the declarant's normal scope of duty," Ewart maintains that it is incorrect to characterize the nurses' statements as opinions and that it is more accurate to describe them as observations. His comments suggest that there is still some ambiguity about the extent to which observational principles have been relaxed in the common law rules governing the admissibility of business records. See *Ewart on Documentary Evidence*, 66.

[70] Raffel, *Matters of Fact*, 23, 29.

[71] Marilyn T. MacCrimmon, "Developments in the Law of Evidence: The 1988-89 Term The Process of Proof: Schematic Constraints," *The Supreme Court Law Review*, 2nd ser., vol. 1 (Toronto and Vancouver: Butterworths, 1990): 346-347.

This view of reality, however, shows little affinity with the one that has emerged from research in several disciplines, among them, philosophy of science, psychology, artificial intelligence, and literary theory. That research, according to MacCrimmon, suggests that, in fact, "it is impossible to see the world except through a lens shaped by our world experiences, culture and internal knowledge structures ...the observer is not separate from the system being studied and ...the act of the observation or measurement alters the thing observed.[72] All of these observations concerning the problematic nature of facts in adjudication point to some of the inherent limits of the legal rules governing the reliability of business records.

Whereas the documentary exceptions to the hearsay rule are concerned with the reliability of a record's contents, the authentication and best evidence rules are concerned with its identity and integrity. The rule requiring the authentication of documents as a pre-condition to their admissibility is a "quantitative" rule stating that, in given cases, "certain *kinds of evidence* [are] *to be associated with other evidence* before the case will go to the jury." [73] The rule is met by evidence sufficient to satisfy the court that the document is what it purports to be. The need to establish the authenticity of a record is based on the common sense assumption that whenever a claim involves any element of personal connection with a physical object, that connection must not be presumed, but shown. Records present a particular danger because, unlike other physical objects, e.g., a piece of clothing or furniture, a record purports to declare its ownership on its face, either by a signature or some other means, and fact-finders might be inclined, on sight of a record, to accept that it is all that it purports to be. Therefore, "the general principle has been enforced that a writing purporting to be of a certain authorship cannot go to the jury as possibly genuine, merely on the strength of this purport; *there must be some evidence of the genuineness* (or execution) of it."[74] As Benning, J., explains, "no writing can be received in evidence as a genuine writing until it has been proved to be a genuine one, and none as a forgery until it has been proved to be a forgery. A writing, of itself, is not evidence of the one thing, or of the other. A writing, of itself, is evidence of nothing, and therefore is not, unless accompanied by proof of some sort, admissible as evidence."[75]

Evidence of execution or authorship may be direct or circumstantial. Anthony Sheppard summarizes the various forms such evidence can take:

> Direct evidence of authentication may consist of the identification of the document by the writer, a signatory, or an eye-witness to its writing or

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[72] *Ibid.*, 347-348. The analogous argument in history is that the historian's perspective shapes his presentation of the facts. See *infra*, chap. 3, 79-80. The main points of similarity and difference between historians' concern with the possibility of objectivity or detachment in the writing of history and the legal discipline's concern with the possibility of impartiality or objectivity in adjudication are discussed in Twining, "Some Scepticism," 103-109.

[73] *Wigmore on Evidence*, (Chadbourn rev., 1972), vol. 4, para. 1172. See also *Sheppard on Evidence*, para. 529.

[74] *Wigmore on Evidence*, (Chadbourn rev., 1978), vol. 7, para. 2130.

[75] Benning, J., in *Stamper v. Griffin*, 20 Ga. 312, 320 (1856), cited in *ibid.*

> signing. Circumstantial evidence of authentication may involve handwriting or typewriting identification by a witness who did not see the making or signing of the actual document but who can identify the writing. ...Comparison of hands is another form of circumstantial authentication. ...Finally, the reply letter doctrine is another method of authentication whereby a witness testifies that he received the disputed letter through the mail and it was in response to an earlier letter which he had mailed to the alleged author.[76]

At common law, the authenticity of declarations made pursuant to a business duty is proved by the testimony of a witness who can testify about the record and the circumstances in which it was created. According to Ewart, "the authenticating witness will usually be someone who is familiar with, or who has supervisory responsibilities over the record-keeping system, where such exists."[77]

Statutory provisions "have eased the requirement of proof of execution ...provided it can be shown that the document fits into the category envisioned by the statute."[78] In the federal and provincial Evidence Acts, for example, the authenticity of business records may be proved by foundation evidence that the records were made in the usual and ordinary course of business. Such evidence may be given orally or by affidavit.[79]

It has long been established under the statutory business record provisions that "the witness offering the required foundation evidence need not have any personal knowledge of the matters described or even of the general subject matter. Instead, it was sufficient if the witness could testify to the record-keeping system in effect when the record was made."[80] As Ewart points out, "this is a logical requirement, since the common law has always looked to the trustworthiness of the duty or system as a guarantee of the accuracy of the material recorded in the record."[81] Under section 26(1) of the Canada Evidence Act, government records are admitted under analogous conditions.

Under specified conditions, certain documents are presumed to be authentic. For public documents, the fact that the records have been found in official custody

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[76] *Sheppard on Evidence*, para. 531. See also *Sopinka on Evidence*, 950-53, 965; *Wigmore on Evidence,* Chadbourn rev., 1974), vol. 5, para. 2133, 2134, 2153.
[77] *Ewart on Documentary Evidence*, 69.
[78] *Sopinka on Evidence*, 953.
[79] Section 30(6) of the Canada Evidence Act stipulates that "the court may, on production of any record, examine the record, admit any evidence in respect thereof given orally or by affidavit including evidence as to the circumstances in which the information contained in the record was written, recorded, stored or reproduced, and draw any reasonable inference from the form or content of the record." Canada Evidence Act, R.S.C. 1985, c. C-5.
[80] *Ewart on Documentary Evidence,* 105.
[81] *Ibid.,* 105-6.

has long been accepted as sufficient external evidence of their authenticity.[82] Wigmore explains the grounds for such acceptance in the following way:

> When in a government office permanent records are kept under the custody of an officer appointed to that duty, there is commonly little danger in inferring that records found there are genuine. It would be difficult as well as criminal to substitute or to insert false records. Moreover, the usual mode of authenticating such documents (as by proving the clerk's or officer's handwriting) would be both highly inconvenient, on account of its repeated necessity, and also often impossible on account of the change of officials as well as the antiquity of many portions of the records.
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> It seems, therefore, never to have been doubted that the *existence of an official document in the appropriate official custody* is sufficient evidence of its genuineness to go to the jury.[83]

Ancient documents are also presumed to be authentic.[84] An ancient document is any written document that is not less than thirty years old. [85] Such a document is presumed, under certain conditions, "to have been duly signed, sealed, attested, delivered, or published according to its purport."[86] The conditions supporting a presumption of trustworthiness are the long existence of the document,[87] together with its being found in a natural or proper place of custody and

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[82] See *Wigmore on Evidence*, (Chadbourn rev., 1978), vol. 7, para. 2158, 2159; *Sopinka on Evidence*, 941-44; *Ewart on Documentary Evidence*, 173.

[83] *Wigmore on Evidence*, (Chadbourn rev., 1978), vol. 7, para. 2158.

[84] Such records are not, however, presumed to be reliable. As Sheppard points out, "leading writers on the law of evidence disagree about whether or not the common law recognized an exception to the hearsay rule for a statement in a document at least 30 years old." See Baker, *The Hearsay Rule*, (1950), p. 162; *McMillan v. Colford* (1932), 5 M.P.R. 127 at 133 (N.B.C.A.); *Tobias v. Nolan* (1985), 71 N.S.R. (2d) 92; affirmed 78 N.S.R. (2d) 271 (C.A.) (ancient document is over 20 years old); *Apsassin v. Canada* (1987), 17 C.P.C. (2d) 187 (Fed. T.D.) (documents over 50 years old admissible; makers deceased and documents almost old enough to be termed historical documents); *R. v. Zundel* (1987), 56 C.R. (3d) 1; leave to appeal to S.C.C. refused 56 C.R. (3d) xxviii [Ont.]; *Delgamuukw v. British Columbia*, [1989] 6 W.W.R. 308; see also [1991] 3 W.W.R. 97 at 166 (B.C.S.C.) reversed on other grounds, [1997] 3 S.C.R. 1010. All of the above cited in *Sheppard on Evidence*, para. 805, fn. 1. For a detailed examination of the ancient documents rule, see Geoffrey S. Lester, "The Problem of Ancient Documents [Parts I and 2]," *The Advocates Quarterly* 20: 1/2 (Jan. and Mar. 1998): 101-131; 133-175.

[85] In some jurisdictions, the court or the legislature has reduced the period to twenty years. See Ontario Evidence Act, s. 59 [am. 1993, c. 27, Sched.] (twenty years); Yukon Evidence Act, s. 56; Northwest Territories Evidence Act, s. 55 (twenty years); *Tobias v. Nolan* (1985), 71 N.S.R. (2d) 92 at 99; affirmed 78 N.S.R. (2d) 271 (C.A.) (twenty years at common law); *Delgamuukw v. British Columbia*, [1989] 6 W.W.R. 308 (B.C.S.C), all the above cited in *Sheppard on Evidence*, para. 532, fn. 2.

[86] *Sopinka on Evidence*, 955.

[87] *Wigmore on Evidence*, (Chadbourn rev., 1978), vol. 7, para. 2134. Wigmore goes on to point out that, "Whether the mere age is itself an evidential circumstance at all has been judiciously doubted, though it may be argued that men would hardly undertake the risk of forgery for the sole use of posterity, and thus the circumstance of age alone is some evidence; but it has never been suggested to be sufficient of itself."

having an unsuspicious appearance.[88] Such conditions suffice, in combination, as evidence that the document was "fairly and honestly obtained and reserved for use, and ...free from suspicion of dishonesty."[89] The presumption is not based entirely on considerations of trustworthiness. Necessity is also a factor since, after a long lapse of time, it is difficult, if not impossible, to obtain testimonial evidence from anyone with personal knowledge either of the document's execution or the author's style of handwriting.

In interpreting the requirement that the document be found in a proper place of custody, courts have been consistent in asserting that "it is not necessary to show that it has come from the *most* proper custody; it is sufficient if it come[s] from a place where it might reasonably be expected to be found."[90] The question of what constitutes proper custody is therefore left to the determination of the trial court on the circumstances of the particular case. Once the fact of proper custody is established, "there is no need to inquire what happened to the document between the date of execution and the date of production."[91] Sopinka points out, however, that, "in the case of documents of which the custody is imposed by statute on a particular person, the rule must perhaps be more strict, and any unusual custody must be properly accounted for."[92]

Authentication by official custody and by age date back to Roman times and are founded upon the principle of circumstantial evidence and, specifically, upon the application of the principle of current possession or existence of a record to prove its past execution. Authentication by official seal or signature also dates back to Roman times. It survives today in the form of a common law rule that the genuineness of documents bearing the official seal or signature of a public official (including a notary) "*need not be evidenced otherwise than by the production for inspection of the document* bearing them."[93] The purporting seal or signature is sufficient proof that the document has been genuinely executed by the purporting official, whose official character is assumed without evidence.[94] Finally, authentication is not required if due execution is admitted. [95]

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[88] As Sopinka points out, "if, however, there is any suspicious appearance on the face of the document by erasure, interlineation or otherwise, the court will require proof of it in like manner as that of a document of more recent date." *Sopinka on Evidence*, 955.

[89] Ellenborough, L.C.J., in *Roe v. Rawlings,* 7 East 279, 291 (1806), cited in *Wigmore on Evidence*, (Chadbourn rev., 1978), vol. 7, para. 2137.

[90] *Croughton v.* Blake, 12 M. & W. 205, 208 (1843) Parke, B., cited in Wigmore *on Evidence,* (Chadbourn rev., 1978), vol. 7, para. 2139, n. 2. See also cases cited in *Sopinka on Evidence*, 956, n. 177.

[91] *Sopinka on Evidence*, 956.

[92] *Ibid.*, 956.

[93] *Wigmore on Evidence*, (Chadbourn rev., 1978), vol. 7, para. 2161.

[94] *Ibid.* At common law, a corporate seal does not carry the same presumption of trustworthiness as an official seal. See *ibid.*, para. 2169. However, Sopinka points out that, "in general, a corporation seal may be proved by anyone familiar with it, without calling a witness who saw it affixed. ...The corporate seal will be presumed to have been affixed by the proper person, although this may be rebutted by the proof of absence of authority." *Sopinka on Evidence*, 967, 954.

[95] See *Wigmore on Evidence*, (Chadbourn rev., 1978), vol. 7, para. 2132; *Sheppard on* Evidence, para. 533; *Sopinka on Evidence*, 949-50.

If the purpose of authentication is to establish the identity of the record, the purpose of the best evidence rule is to establish its integrity. This rule, which requires the production of an original record, is "a rule of preference for the *inspection of the thing itself*, in place of any evidence, either circumstantial or testimonial, about the things."[96] As stated by Wigmore, the rule stipulates that, "in proving a writing, production must be made, unless it is not feasible, of the writing itself, whenever the purpose is to establish its terms."[97] That purpose is key to the legal understanding of what constitutes an "original." According to Wigmore, the original document whose production is required is:

> the document whose contents are to be proved in the state of the issues. Whether or not that document was written before or after another, was copied from another, or was itself used to copy from, is immaterial. The question becomes: is this the very document whose contents are desired to be, and in the now state of the issues by the substantive law may be, proved?[98]

The requirement to produce an original record when it exists is dictated by common sense and long experience which suggest that (1) a copy is always liable to errors; (2) an original may contain subtle details that may be missing from the copy and that may be significant in terms of the record's meaning and; (3) it is very difficult for oral testimony to accurately reproduce the terms of a document. The "best evidence" rule is intended to increase the probability of the record's trustworthiness by decreasing opportunities for deliberate or inadvertent falsification.[99]

The best evidence rule is sometimes referred to as a rule of primariness because its application requires that a distinction be drawn between primary (or best) evidence and secondary evidence. As elucidated by Henry, J., in *Gumm v. Cox* "evidence that carries on its face no indication that better remains behind is not secondary but primary." [100] Generally speaking, if a document is executed in duplicate or in counterparts, each duplicate or counterpart is treated as an original because it is created simultaneously with and by the same act of writing as the original.[101] A machine copy or photocopy of an original document, on the other hand, is secondary evidence because the reproduction follows the creation of the original.[102]

The essential principle of preferred evidence is that it is to be produced if it exists and is available. If it does not exist, or is unavailable, secondary evidence is

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[96] *Wigmore on Evidence*, (Chadbourn rev., 1972), vol. 4, para. 1172, p. 396.
[97] *Ibid.*, para. 1178. If a document is being introduced simply to prove its existence, the best evidence rule does not apply. The document must still be authenticated, however.
[98] *Ibid.*, para. 1232.
[99] *Ibid.*, para. 1179.
[100] (1879), 3 S.C.R. 296, at 304, cited in *Sopinka on Evidence*, 932.
[101] *Sopinka on Evidence*, 932; *Sheppard on Evidence*, para. 553; *Wigmore on Evidence*, (Chadbourn rev., 1972), vol. 4, para. 1233.
[102] *Sheppard on Evidence*, para. 554.

admissible.[103] At common law, secondary evidence is admissible if the original has been lost or destroyed, if production is inconvenient or impossible (e.g., an engraving on a tombstone), if the original is in the possession of another party and the party refuses or neglects to produce it, or if the original is in the possession of a third party and beyond the power of the party seeking to compel production.[104] Public and official documents may be proven at common law by secondary evidence and without notice to produce the original on the grounds that the removal of such documents would create considerable inconvenience and risk. The secondary evidence may be an exemplification (verified under seal), or examined (verified under oath) or certified copies.[105] The Evidence Acts and other statutes also contain provisions "allowing sealed or certified copies to prove the contents of judicial or public books and documents and dispensing with proof of the genuineness of the seal or certification."[106]

Statutory provisions governing the admissibility of specific classes of documents provide exceptions to the best evidence rule by specifically allowing the use of copies that have been authenticated by various means. The business records provision of the Canada Evidence Act, for example, allows a copy of a record to be admitted, if it is not "possible or reasonably practical" to produce the original. Two affidavits must accompany the copy of the record, the first giving reasons why it is not possible or reasonably practicable to produce the record, the second, sworn by the person who made the copy, identifying the source from which the copy was made and attesting to the copy's authenticity. [107]

A number of courts and legal commentators suggest that, while the best evidence rule continues to be valid in cases "where the terms of a contract, the authenticity of an affidavit or the validity of a will are disputed, or there is an issue whether a document has been altered, the modern common law, statutory provisions, rules of practice and modern technology, have rendered the rule obsolete in most cases and the question is one of weight and not admissibility." [108] McCormick, on the other hand, cautions against a total disregard for

> ...all other justifications for the rule. It has long been observed that the opportunity to inspect original writings may be of substantial importance in the detection of fraud. At least a few modern courts and commentators appear to regard the prevention of fraud as an ancillary

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[103] Canadian law does not distinguish among the various kinds of secondary evidence. As Sopinka points out, "so far as admissibility is concerned, there are no degrees of secondary evidence, and oral evidence of the contents of a paper from a person who has read it and a copy of the document are put exactly on the same footing. While more weight may be attached to a copy of a document than oral evidence of it, there is no requirement to account for copies before oral evidence can be adduced." *Sopinka on Evidence*, 934.

[104] *Sheppard on Evidence*, para. 564-571; *Sopinka on Evidence*, 933-36.

[105] *Sopinka on Evidence*, 937.

[106] *Sheppard on Evidence*, para. 580.

[107] R.S.C. 1985, c. C-5.

[108] *Sopinka on Evidence*, 939-40. See also Charles T. McCormick, Kenneth S. Broun, et al, *McCormick on Evidence*, vol. 2, edited by John William Strong, 4th ed. (St. Paul, Minn.: West Publishing, 1992), para. 231; *Sheppard on Evidence*, para. 541.

> justification of the rule. Unless this view is accepted, it is difficult to explain the rule's frequent application to copies produced by modern techniques which virtually eliminate the possibility of unintentional mistransmission.
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> Finally one leading U.S. opinion intimates that the rule should be viewed to protect not only against mistaken or fraudulent mistransmissions, but also against intentional or unintentional misleading through introduction of selected portions of a comprehensive set of writings to which the opponent has no access. This seems to engraft upon the best evidence rule an aspect of completeness not hitherto observed.[109]

The leading opinion to which McCormick refers is *Toho Bussan Kaisha, Limited v. American President Lines, Limited*[110] in which photostats of portions of records held in Japan that were prepared for litigation were excluded on the grounds that the duplicates did not constitute a full rendition of the original material.[111]

Electronic records are a form of documentary evidence and so the traditional rules of evidence have been applied to them, either explicitly or by analogy. Computer records and other data derived from mechanical systems are admissible under the common law exception to the hearsay rule[112] and computer records and output are included within the definition of "record" under the business records provision of the Canada Evidence Act.[113] Computer printouts have been admitted under the best evidence rule. As Sheppard observes, "the courts seem ready to admit [a computer printout] as the end product of a reliable system which summarizes and replaces many records and papers."[114]

However, while most electronic records are being admitted in litigation, there remains some confusion on a number of fundamental issues. Observers point out that, "courts have struggled with the traditional rules of evidence, with inconsistent

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[109] *McCormick on Evidence*, vol. 2, para. 231.

[110] 265 F.2d 418, 76 A.L.R.2d 1344 (2d Circ.1959).

[111] See also *United States v. Alexander*, 326 F.2d 736 (4th Cir.1964).

[112] *R. v. Sunila*, (1986), 26 C.C.C. (3d) 331 at 337-39 (N.S.S.C.) (data collected mechanically by radar and computer); *Tecoglas Inc. v. Domglas Inc.: Domglas Inc., v. Tecoglas Inc.* (1985), 3 C.P.C. (2d) 275 (Ont. H.C.) (computer records admissible). Cases cited in *Sheppard on Evidence*, para. 792.

[113] Under s.30(12), "'record' includes the whole or part of any book, document, paper, card, tape or other thing on or in which information is written, recorded, stored or reproduced". The Court in *R v. Vanlerberghe* stated that, "[section 30] clearly covers mechanical as well as manual book-keeping records and the keeping of records, and the flow-out or printout of that bookkeeping system clearly falls within the meaning of "records" in s. 30 and was therefore admissible." Quoted in *Sopinka on Evidence*, 214.

[114] *R. v. McMullen* (1979), 100 D.L.R. (3d) 671 at 674-76 (Ont. C.A.); *R. v. Bell* (1982), 35 O.R. (2d) 164; affirmed 55 O.R. (2d) 287 (S.C.C.); *R. v. Hanlon* (1985), 69 N.S.R. (2d) 266 (Co. Ct.); *R. v. Vanlerberghe* (1978), 6 C.R. (3d) 222 (B.C.C.A.); *R. v. Burns Foods Ltd.* (1983), 42 A.R. 70 (Prov. Ct.); *R. v. Cordell* (1982), 39 A.R. 281 (C.A.); see also *Prism Hospital Software Inc., v. Hospital Medical Records Institute*, [1991] 2 W.W.R. 157 (B.C.S.C.) (files on floppy disks and tapes being documents stored on magnetic media). Cases cited in *Sheppard on Evidence*, para. 547.

results."[115] For example, a computer printout has been held to be both primary evidence[116] and secondary evidence.[117] Some Courts have allowed "the introduction of computer bank records under s. 29 of the Canada Evidence Act but have required as a condition of admissibility that a foundation be established to demonstrate the reliability generally of the input of entries, storage of information and its retrieval and presentation."[118] Other courts "have accepted the reliability of computers without stipulating any preconditions to the admissibility of their printouts under s. 30 of the Act."[119] The dominant test for the admissibility of computer printouts appears to be the rule enunciated in *R. v. McMullen* that, "the nature and quality of the evidence put before the Court has to reflect the facts of the complete record-keeping process." The rule does not establish, however, which "facts" and how "complete" the foundation evidence for admissibility ought to be.[120]

To reduce the uncertainty and create consistency in the application of the rules of evidence governing electronic records, the Uniform Law Conference of Canada (hereafter ULCC) has developed a model statute on electronic evidence that identifies the foundation requirements necessary to provide a probability of trustworthiness analogous to the one found in the traditional paper world. Under the "Uniform Electronic Evidence Act" adopted in 1998, an electronic record is defined as "data that is recorded or stored on any medium in or by a computer system or other similar device, that can be read or perceived by a person or a computer system or other similar device. It includes a display, printout or other output of that data, other than a printout referred to in Sub-section 4(2)."[121]

Because "electronic records may be more vulnerable than paper records to undetectable modification, intended or unintended,"[122] the ULCC decided it was necessary to test their trustworthiness at the admissibility stage rather than leaving it until the weight of the records comes to be appraised. It offered four arguments in favor of a specific integrity test for admissibility. First, electronic records may be inherently so untrustworthy that it would be unfair either to apply less stringent rules of

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[115] Uniform Law Conference of Canada, "Uniform Electronic Evidence Act Consultation Paper," ([Edmonton, Alta.]: Uniform Law Conference of Canada [March 1997], para. 3, at http://www.law.ualberta.ca/alri/ulc/.

[116] *R. v. Vanlerberghe* (1978), 6 C.R. (3d) 222 at 224 (B.C.C.A.).

[117] *R. v. Burns Foods Ltd.* (1983), 42 A.R. 70 at 75 (Prov. Ct.).

[118] *Sopinka on Evidence*, 214, alluding to the Court's decision in *R. v. McMullen*.

[119] *Sopinka on Evidence,* 214, alluding to the Court's decision in *R. v. Vanlerberghe*.

[120] Ken Chasse, "Appendix J: Computer-Produced Records in Court Proceedings," in *Proceedings of the Seventy-Sixth Annual Meeting [of the] Uniform Law Conference of Canada*. [Edmonton, Alta.: University of Alberta. Faculty of Law, 1995], 15, at http://www.law.ualberta.ca/alri/ulc/.

[121] Uniform Law Conference of Canada, "Uniform Electronic Evidence Act [and Comments]," ([Edmonton, Alta.]: Uniform Law Conference of Canada [September 1998], s.1(b) "electronic record". In the model statute, "data" is defined as "representations, in any form, of information or concepts" s.1(a) "data". According to the drafters of the statute, the definition of data "ensures that the Act applies to any form of information in an electronic record, whether figures, facts, or ideas." *Ibid.*, "Section 1: Comment," act and comments at http://www.law.ualberta.ca/alri/ulc/. The printouts excluded from the definition will be discussed below in the context of revisions to the best evidence rule.

[122] Uniform Law Conference of Canada, "Consultation Paper," para. 1.

admissibility to electronic records than those applied to paper-based records or to eliminate altogether any rules regarding record integrity at the admissibility stage. Secondly, information relevant to determining the trustworthiness of an electronic record is within the knowledge of the proponent of evidence; therefore, it is not unduly difficult to support its admission. Thirdly, if the proponent is not required to adduce foundation evidence to support the admission of an electronic record, the opponent will be forced to call its own witnesses to challenge the record's trustworthiness. Under these circumstances it will be difficult for the opponent to mount a successful challenge given that the best and, likely, only witness would be an employee of the proponent and, if such a witness is called, the opponent will not be able to cross-examine him or her. A fairer test of the record's integrity can be made, therefore, if the proponent is required to give foundation evidence at the admissibility stage. Finally, the requirement to adduce foundation evidence is bound to encourage responsible recordkeeping since anyone who wishes to introduce electronic records will have to withstand cross-examination on the records' trustworthiness.[123]

Section 2(1) of the Act states that the act "does not modify any common law or statutory rule relating to the admissibility of records, except the rules relating to authentication and best evidence." The common law and statutory business records exceptions to the hearsay rule are, therefore, unaffected by the Act. The ULCC maintains that the existing law "does not require separate proof of the truth of a record's contents. The making and use of the record in the course of business provides sufficient guarantee of the truth of the record's contents to support admission."[124] In other words, the reliability of a record's contents is determined in relation to the business context in which the record was created, rather than in relation to the technological context of its creation and can be adequately demonstrated under existing law.

The ULCC also takes the position that the existing procedures for authenticating records work equally well for paper or electronic records. Accordingly, the Uniform Act simply confirms the common law rule by asserting that, "the person

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[123] *Ibid.*, para. 31-34. The position taken by the Law Conference of Canada is the opposite of the one taken by the drafters of the 1995 Australian Uniform Evidence Act. Under s.146(3) of the Uniform Evidence Act , electronic records are admissible without foundation evidence. The Australian Law Reform Commission noted: "It is true that errors, accidental and deliberate, occur and can occur at every stage of the process of record keeping by computers. The fact is, however, that they are the exception rather than the rule, they tend to occur at the stage when the information is fed into the system, and there are techniques available which can be, and are, employed at each stage of the record keeping process to eliminate error ...To require extensive proof, on each occasion, of the reliability of the computer records is to place a costly burden on the party seeking to tender the evidence, to give the opposing party a substantial tactical weapon and to add to the work of the courts. In many cases there will be no bona fide issue as to the accuracy of the records. It is more efficient to leave the party against whom the evidence is led to raise any queries and make any challenges it may have." Quoted in Stephen Odgers, *Uniform Evidence Law* (Sydney, Australia: The Federation Press, 1995), para. 146.3. The Australian law thus places the tactical burden on the opponent of evidence to disprove the trustworthiness of electronic records, rather than on the proponent of the evidence to prove trustworthiness as is done in the Uniform Law Conference statute.

[124] "Uniform Electronic Evidence Act Consultation Paper," para. 54.

seeking to introduce an electronic record has the burden of proving its authenticity by evidence capable of supporting a finding that the electronic record is what the person claims it to be."[125] As with paper records, the evidence may given orally or by affidavit and may be challenged by the opponent of the evidence.

From the ULCC's perspective, the justification for a special rule for electronic records is the need to expose their special vulnerability to undetectable change. For that reason, the Uniform Electronic Evidence Act focuses on means of establishing the integrity of an electronic record. In a traditional paper recordkeeping environment, the integrity of a record is addressed under the best evidence rule. The application of that rule requires that the proponent of evidence produce, whenever possible, the original document since alterations are more likely to be detected on the original. The application of the rule in an electronic environment has proven difficult as court decisions have shown and attempts to designate a computer printout as an original or as a duplicate are considered artificial. Therefore, rather than search for what might constitute an "original" document in an electronic record-keeping environment, the ULCC has chosen to direct its attention to the principle underlying the best evidence rule:

> The "function" of the best evidence rule is to ensure the reliability, that is to say the integrity of the record to be produced in evidence. It is presumably easier to tell that an original paper record has been altered than to determine any alteration by viewing a copy. In the electronic world, there may or may not be an original paper version of the electronic record. Therefore, the search for integrity of an electronic record has to proceed in another way.
>
> As Ken Chasse said 'the law should move from 'original' to 'system', that is, from dependence upon proof of the integrity of the original business document to a dependence on proof of the integrity of the record-keeping system.' ...
>
> Stated another way, the integrity of the record-keeping system is the key to proving the integrity of the record, including any manifestation of the record created, maintained, displayed, reproduced or printed out by a computer system.[126]

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[125] "Uniform Electronic Evidence Act and Comments," s. 3.

[126] "Uniform Electronic Evidence Act Consultation Paper," para. 24-26. As the framers of the Act point out, this position is consistent with the Quebec Civil Code, articles 2837-2839, and with recent amendments to the New Brunswick Evidence Act on Electronically Stored Documents, S.N.B. 1996 c. 52. In both cases, the integrity of the records must be demonstrated as a condition of being admitted and this is achieved by requiring evidence of the reliability of the computer system that produced it. See "Consultation Paper," para. 27. For a brief discussion of the Quebec articles see also Kathleen Delaney-Beausoleil, "La valeur de preuve des documents d'archives: aspects théoriques," in *Les valeurs archivistiques: théorie et pratique. Actes du colloque organisé conjointement par la Division des archives et les Programmes d'archivistique de l'Université Laval, 11 novembre 1993* (Québec: Université Laval, 1994), 33-34.

Accordingly, in the Uniform Electronic Evidence Act, record integrity is replaced by system integrity.[127] The shift away from the record itself to the record-keeping system that produced it is reflected in Section 4(1), which stipulates that, "where the best evidence rule is applicable in respect of an electronic record, it is satisfied on proof of the integrity of the electronic records system in or by which the data was recorded or stored."[128] This stipulation does not apply to a record that is produced using a computer but that "lives its life" on paper, for example, a letter generated using word-processing software which is then printed. In such cases, the ULCC argues, the reliability of the computer system is not at issue and the paper printout is considered the original. Therefore, Section 4 contains a proviso (Subsection 2) that, "[a]n electronic record in the form of a print-out that has been manifestly or consistently acted on, relied upon, or used as the record of the information recorded or stored on the printout, is the record for the purposes of the best evidence rule."[129]

In the Uniform Act, an electronic records system "includes the computer system or other similar device by or in which data is recorded or stored, and any procedures related to the recording and storage of electronic records."[130] Such procedures include "physical and electronic access controls, security features, verification rules, and retention or destruction schedules", which may or may not be embedded in the computer system itself.[131] Under Section 5, the integrity of the electronic records system is presumed

> (a) by evidence that supports a finding that at all material times the computer system or other similar device was operating properly or, if it was not, the fact of its not operating properly did not affect the integrity of the electronic record, and there are no other reasonable grounds to doubt the integrity of the electronic records system[132]

The section thus creates a presumption of integrity of the system based on evidence that includes the computer system that produced the record and the record-keeping

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[127] According to the drafters of the Act, "the Act does not say expressly that the proponent of an electronic record does not have to produce an original, but the displacement of the usual best evidence rule will have that effect. ...Even if there is an original of an electronic record, as in the case of an electronic image of a paper document, the Act does not require the production of the paper. Nor does it require that the original have been destroyed before the electronic image becomes admissible. The Act sets up a rule for admitting electronic records. Records retention policies, for paper or electronic records, are beyond its scope and should not be determined by the law of evidence in any event. Someone who destroys paper originals in the ordinary course of business, ideally in accordance with a rational schedule, should not be prejudiced in using reliable electronic versions of those records." "Uniform Electronic Evidence Act and Comments," s. 4(1).

[128] *Ibid.*

[129] "Uniform Electronic Evidence Act and Comments," s. 4(2).

[130] *Ibid.*, s1(c) "electronic records system".

[131] The drafters of the Act point out that, "an electronic record is not part of the system that produced it. Section 4 provides that the integrity of a record can be proved by proving the integrity of the system that produced it. If the system included the record itself, section 4 would not work." "Electronic Evidence Act and Comments," s. 1(c).

[132] *Ibid.*, s. 5(a).

system in which it operated. Both are required to demonstrate integrity.[133] The test of integrity is a fairly simple one. According to the drafters of the Act, the decision to adopt a simple test at the admissibility stage was based on the fact that the integrity of most electronic records is not disputed. The intention of the Act is to point out the basic criteria on which the integrity of a record may be judged, not to render the process more difficult or to provide grounds for frivolous and expensive attacks on otherwise acceptable records.[134] Section 5 also creates a presumption of integrity for business records of an adverse party (Subsection (b)) and of a non-party (Subsection (c)). In all these circumstances, evidence of the integrity of the electronic records system "may be established by an affidavit given to the best of the deponent's knowledge or belief,"[135] and the parties to the proceedings have the right to cross-examine the deponent on the affidavit.[136]

The drafters considered but, ultimately, declined to endorse any particular industry standard as a minimum standard for electronic record trustworthiness. The Canadian Information and Image Management Society had requested that the Uniform Electronic Evidence Act provide legislative support for the National Standard on Microfilm and Electronic Images as Documentary Evidence by providing that records created and maintained in compliance with the National Standard would be admissible and presumed reliable. Moreover, a 1994 consultation paper prepared for the ULCC by Ken Chasse had recommended that an integrity test listing the factors to be considered in determining the admissibility and weight of electronic records be adapted from the National Standard.[137] In the end, however, the drafters of the Act decided against creating a statutory presumption of reliability based on the standard on the grounds that it constituted too high a standard for admissibility[138] and might encourage a tendency to not properly scrutinize the records further as to weight.[139]

Although the Uniform Electronic Evidence Act does not make compliance with recognized standards obligatory to the admission of electronic records, it does make compliance with them a relevant consideration. The Act states that:

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[133] The drafters of the Act point out that "This does not mean that a simple computer record needs the support of a sophisticated record-keeping system in order to be admissible. A small business, for example, may have a computer with off-the-shelf software and no 'records management manual'. The record-keeping system is implied in the operation of the computer. It should be recognized, however, that the integrity of records in such a system may be exposed to more successful attack in court." "Uniform Electronic Evidence Act and Comments," s. 5(a).

[134] *Ibid.*

[135] "Uniform Electronic Evidence Act and Comments," s. 7.

[136] "Uniform Electronic Evidence Act and Comments," s. 8.

[137] Chasse's list includes the following factors: (1) sources of data and information; (2) contemporaneous recording: (3) routine business data and information; (4) data entry; (5) business reliance; (6) software reliability; and (7) security. See Chasse, "Appendix J," 20.

[138] For example, the framers of the Act point out, the New Brunswick Evidence Act on Electronically Stored Documents aims at a standard below that of the National Standard but acceptable to the New Brunswick legislature.

[139] "Uniform Electronic Evidence Act Consultation Paper," para. 68-72.

> for the purpose of determining under any rule of law whether an electronic record is admissible, evidence may be presented [in any legal proceeding] in respect of any standard, procedure, usage or practice on how electronic records are to be recorded or stored, having regard to the type of business or endeavour that used, recorded or stored the electronic record and the nature and purpose of the electronic record.[140]

Businesses still need to establish the integrity of their records, based largely on the reliability of their systems in maintaining the records. Moreover once an electronic record is admitted the opponent can challenge it on a number of grounds, including its lack of integrity. The rule thus provides an incentive to businesses to adopt standards (both external and internal) in order to facilitate the admissibility of electronic records and to strengthen their weight once they have been admitted into evidence. Record creators are faced with the responsibility to design systems that will provide a rebuttable presumption of integrity.

The reluctance of the ULCC to impose precise and detailed standards for electronic records at the admissibility stage is consistent with the spirit of the Anglo-American legal system. In his comparison of evidence and fact-finding precision in the common law (which adopts an adversarial approach to fact-finding) and the civil law (which adopts an inquisitorial approach), Damaška observes that common law adjudicators "are traditionally strongly attached to individualized justice and strive to arrive at the just result in the light of concrete circumstances of the case."[141] Precedents, rather than detailed and precise rules, constitute the decisional standard in the common law system, resulting in a greater degree of uncertainty and fluidity in that standard.[142] Formal standards and precise rules are, on the other hand, a characteristic feature of the continental system of civil law. In a civil law context, "decisionmakers are relatively more concerned about uniformity and predictability: they are much more ready than the common law adjudicator to neglect the details of the case in order to organize the world of fluid social reality into a

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[140] "Uniform Electronic Evidence Act and Comments," s. 6.

[141] Damaška, "Presentation of Evidence," 1103-1104.

[142] In areas where rights and obligations are at stake, such as the law of contracts and the law of wills, and where the stability of the written word is considered critical to their enforcement, more precise standards are imposed by the common law. But even in these areas, commentators suggest, the common law should move towards greater flexibility. Ethan Katsh, for example, suggests that the digital world is transforming the nature of contracts. He argues that the traditional model of paper contracts, with its emphasis on formalism, stability, and clarity, will inevitably give way to to a relational model of contracts, that emphasizes fluidity and flexibility; instead of binding parties to an act, the relational model binds parties to a process. See M. Ethan Katsh, "Contracts: Relationships in Cyberspace," in *Law in a Digital World* (New York: Oxford University Press, 1995), 114-132. In the area of wills, John Langbein notes that "what is peculiar to the law of wills is not the prominence of the formalities [e.g., the requirements of writing, witnesses, and signatures] but the judicial insistence that any defect in complying with them automatically and inevitably voids the will." He maintains that the rigid formalism of the Wills Act should be replaced by a substantial compliance doctrine which looks at the question of intent and whether formal defects are actually harmful to the statutory purpose of the Wills Act. See Langbein, John H. "Substantial Compliance with the Wills Act." *Harvard Law Review* 88 (January 1975): 489-531.

system."[143] Precise rules contained in authoritative texts constitute the decisional standard, resulting in a greater degree of certainty and stability. The different decisional standards adopted by the two legal systems, the one adversarial, the other, inquisitorial, underline the fact that the nature and value of record trustworthiness are context-dependent and will be interpreted in different ways depending on the perspective and values of the framework in which it is being assessed.[144]

The minimal standard of record trustworthiness at the admissibility stage also reflects an assumption that any weaknesses and deficiencies in the records that may have been overlooked at that stage will be exposed upon cross-examination. In this respect, the uniform law reflects the common law's faith in the adversarial process in general and cross-examination in particular as the most effective means of establishing the trustworthiness of records. In an adversarial process, the facts of the case are provided to the fact finder in the form of two alternating one-sided accounts. According to Dale Nance, "a principal justification for the adversary process is that the self-interest of the parties will bring about a thorough investigation and vigorous clash of evidence from which the relatively detached trier of fact will best be able to discern the truth." [145] There are, however, a number of epistemological frailties endemic in the practice of allowing two adversaries to control the development of evidence at trial. Damaška identifies three of the most salient pitfalls:

> [First,] it may be in the narrow interest of only one party, or in the common interest of both, that some items of information which the witness possesses do not reach the adjudicator – even though their relevancy in the quest for truth is beyond dispute .... [Secondly,] because "the witness is limited to answering relatively narrow and precise questions, much information may effectively be kept away from the decisionmaker ...Accordingly, the factual basis for the decision may be incomplete .... [Thirdly,] the cross-examination technique, ...with its challenge to the credibility of witnesses, is a two-edged sword ...Even with the best of intentions on the cross-examiner's part, reliable testimony may easily be made to look debatable, and clear information may become obfuscated.[146]

Given the technological complexity of electronic records, the opportunities for inadvertent or deliberate misrepresentation, incomplete presentation, obfuscation and confusion during direct- and cross-examination are rife.

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[143] Damaška, "Presentation of Evidence," 1104.

[144] For the differences between the two systems generally, see John Henry Merryman, *The Civil Law Tradition: An Introduction to the Legal Systems of Western Europe and Latin America*, 2nd ed. (Stanford, Calif.: Stanford University Press, 1985).

[145] Dale A. Nance, "The Best Evidence Principle." *Iowa Law Review* 73 (January 1988): 235.

[146] Damaška, "Presentation of Evidence," 1093-1094. The epistemological frailties of the civil law's "inquisitorial" approach to fact-finding are discussed at 1091-1092.

In order to counteract some of the weaknesses of the adversarial process, Nance urges the courts to renew the common law's original commitment to a best evidence principle. The argument for the continuing validity of a best evidence principle draws on its eighteenth century roots as a unifying principle of the Anglo-American law of evidence. It was asserted by Lord Gilbert, in the first treatise on evidence at common law, in the following terms, "The first ...and most signal rule, in relation to evidence, is this; that a man must have the utmost evidence the nature of the fact is capable of."[147] In its original terms, the best evidence represented an epistemic ideal, embodying the obligation of the litigating parties to present the logically most probative evidence. By the end of the nineteenth century, the overarching principle of the law of evidence had shrunk to the original document rule context. Responsibility for diminishing its status is usually attributed to Thayer and Wigmore, both of whom argue that the adversarial process guarantees the production of the best evidence through the motivated self-interest of the litigating parties.

However, Nance points out, such argument is based on a number of faulty assumptions: first, it assumes that "strategically best" evidence (meaning "evidence which is strategically optimal from the point of view of the litigant unswervingly committed to victory at trial") will always coincide with "epistemically best" (meaning "the set of information, reasonably available to the litigant, that a rational trier of fact, expert or nonexpert, would find most helpful in the resolution of the factual issue"),[148] when this clearly will not always be the case. Secondly, it assumes that, even if one party presents "epistemically inferior" evidence, the opponent will be sufficiently motivated to present the better evidence, an assumption that ignores the fact that opponents will not always have access to the better evidence; that they may be prevented, by legal or tactical obstacles, from presenting the evidence; and that they may be insufficiently diligent in obtaining the better evidence, or insufficiently effective in presenting it.[149]

Given the weaknesses and biases of the parties, Nance believes that judges ought to take a more active role in protecting the jury from them by placing reasonable limits on the range of choices given to litigants in proving a proposition, and by encouraging parties to produce more reliable evidence. Nance argues that, in performing this role, judges should intercede "only when there is a strong likelihood that the litigant has attempted to press a tactical advantage unreasonably inimical to the presentation of the epistemically best evidence, or that the litigant has unreasonably evaluated an otherwise legitimate consideration, as when the litigant's cost evaluation is palpably improper."[150]

Nance's equation of "best evidence" with "epistemically best evidence" complements the connection McCormick draws between "best evidence" and "completeness of evidence" in his argument for the continuing relevance of the rule

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[147] Gilbert (see chap. 1, n. 102), 3.
[148] Nance, "Best Evidence," 240.
[149] *Ibid.*, 265.
[150] *Ibid.*, 244.

pertaining to documentary originals. Taken together, their comments imply that, in relation to documentary evidence, the epistemically best evidence is, among other things, that which is most complete. The dimension of completeness is particularly pertinent to electronic records since the structural, contextual, and discursive components of an electronic record may exist in separate parts of a database. For example, in an electronic mail message, the addresses of the sender and the recipients are maintained separately from the content of the message. The adherence to a best evidence principle, then, would manifest itself in an obligation of the parties to produce the most complete electronic record, i.e., the record containing all the relevant structural, contextual, and discursive elements present in the original. The foundation evidence that supports a presumption of integrity should be capable of demonstrating, not only the reliability of the input and verification procedures, but, also, the completeness of the procedures for reproducing, not only the content of the record, but its original structure and any original annotations, to the extent that these are relevant to an understanding of the record's content (or "terms"). Of course, this implies that courts will have to come to terms with the question of what constitutes a complete record and be capable of assessing the significance of missing elements.

Although the criteria for assessing the trustworthiness of records as legal evidence have changed over time, reliability continues to be associated with the observer/recorder's proximity to the event being recorded and to the closeness in time between observation and recording. In statutory law, the requirement that the observer and recorder be the same person has been relaxed, however, and the fact that both observer and recorder were acting under a business duty is sufficient evidence of a record's reliability to admit it. The observational principles on which the exception was originally based have not been abandoned. It is simply that the authority of bureaucratic controls, which constitute a somewhat different kind of observation, is now emphasized over the authority of personal observation. A similar shift in focus is apparent in the adaptations to the best evidence rule that have been proposed by the ULCC. There, the emphasis on the authority of the original record has been replaced by an emphasis on the authority of the system in which records are generated and maintained. The integrity of the electronic records system is ensured by verification controls and security procedures, which, like bureaucratic controls, constitute a kind of surveillance over both the system and the individuals using it. The significance of observation, whether personal or bureaucratic, is also a prominent feature of historical methods for assessing the trustworthiness of records as historical evidence. Those methods will be examined in the next chapter.

Chapter 3
Modern Historical Methods for Assessing Record Trustworthiness

The techniques of modern historical criticism, like modern rules of legal evidence, reflect a substantial degree of continuity with those established at the end of the nineteenth century. However, like the legal rules, historical method has been refined, extended, and qualified in response to changes in recordkeeping practices and in the perception of the historian's role. In the nineteenth century, scientific historians like Ranke believed that the critical examination of documents would reveal the past "as it actually happened." Twentieth century historians are more constrained in the claims they make concerning the historian's capacity to know the past based on the evidence that has survived into the present.

In *An Introduction to the Study of History*, Langlois and Seignobos used metaphors drawn from natural science to describe the historian's methods of revealing the past. In *The Historian's Craft*, Marc Bloch invokes metaphors drawn from police work and jurisprudence to describe those methods. James Wilkinson detects in Bloch's metaphors, and his work in general, "a note of caution that is absent from the counsels of Langlois and Seignobos," and a greater awareness "that historians deal with human fallibility. ...[Bloch's] approach to evidence is cautious not simply because of the possibility of fraud but also because no single source can yield the whole truth."[1] Although modernist history no longer aspires to any single or fixed truth about the past, it has not abandoned the belief in the capacity of historical criticism to reveal what Gertrude Himmelfarb calls "partial, contingent, incremental truths."[2] For that reason, historical method continues to place "a premium on archival research and primary sources, the authenticity of documents and reliability of witnesses, [and] the need to obtain substantiating and countervailing evidence."[3] This chapter will examine the characteristic features of modernist historical method, the limits of that method, and the challenge posed by the increasing use of new information technologies in the creation and maintenance of records.

David Hackett Fischer maintains that, within the historical discipline, "specific canons of historical proof are neither widely observed nor generally agreed upon. There is no historiographical Wigmore, Stephen, or Thayer and no body of precedents which is recognized as a reliable guide."[4] Nevertheless, there are certain generally accepted procedural checks and controls that guide historians' assessment of the trustworthiness of their sources and that constitute the core of

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[1] James Wilkinson, "A Choice of Fictions: Historians, Memory, and Evidence." *PMLA* 111 (Jan. 1996): 84.

[2] Gertrude Himmelfarb, "Postmodernist History," in *On Looking into the Abyss: Untimely Thoughts on Culture and Society* (New York: Alfred A. Knopf, 1994), 136.

[3] *Ibid.*, 133.

[4] David Hackett Fischer, *Historians' Fallacies: Toward a Logic of Historical Thought* (New York: Harper & Row, 1970), 62.

modern manuals of historical methodology.[5] These are, for the most part, the same checks and controls that were codified at the end of the nineteenth century. The distinction between primary and secondary sources and between the trustworthiness of a record as a record (i.e., its authenticity) and its trustworthiness as a statement (i.e., its reliability or credibility),[6] are still considered valid, as are the analytic techniques of external and internal criticism.[7] Moreover, as Geoffrey Elton makes clear, in their search for answers to questions about the past, historians continue to operate within a framework of probabilities rather than certainties:

> History ...aims at explanations which approximate to an unverifiable truth and are themselves subject to the continuous change which is the one indisputable fact about history. Historical explanations themselves form part of the history told. The standards of acceptable proof in history thus are standards of acceptable probability controlled by expert knowledge of the evidence, and the historical account is in itself the nearest thing to a proof that the historian can obtain or proffer. He convinces insofar as he persuades others capable of judging that he has worked honestly and that the story he tells makes sense in light of the sources available illumined by a cautious understanding of people and their probabilities.[8]

Although the range of sources available to historians is considerably wider than it was in previous centuries, modern historical method still expresses a preference for primary sources, i.e., records created closest in time to the event they purport to record. According to Fischer, "the best relevant evidence, all things being equal, is evidence which is most nearly immediate to the event itself. The very best

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[5]The following manuals of methodology were consulted: Jacques Barzun and Henry F. Graff, *The Modern Researcher*, 5th ed. (New York: Houghton Mifflin Co., 1992); Louis Gottschalk, "The Historian and the Historical Document," in *The Use of Personal Documents in History, Anthropology, and Sociology*, prepared for the Committee on Appraisal of Research, ed. Louis Gottschalk, Clyde Kluckhohn, et al (New York: Social Science Research Council, [1945]), 3-78; G.J. Renier, *History: Its Purpose and Method.* (New York: Harper & Row, 1950); Robert Jones Shafer, ed. *A Guide to Historical Method.* 3rd ed. (Belmont, Calif.: Wadsworth Publishing Co., 1980).

[6] The association of authenticity with the trustworthiness of the record as a record (rather than as a statement of facts) is found in all the manuals of historical methodology with one exception. In *The Modern Researcher*, Barzun and Graff reverse the definitions of authenticity and reliability in a footnote which attempts to distinguish between authenticity and genuineness: "the two adjectives may seem synonymous but they are not: that is genuine which is not forged and that is authentic which truthfully reports on its ostensible subject. Thus an art critic might write an account of an exhibition he had never visited; his manuscript would be genuine but not authentic. Conversely, an authentic report of an event by X might be copied by a forger and passed off as the original. It would then be authentic but not genuine." Barzun and Graff, *Modern Researcher*, 99. Such definition is clearly incorrect and should simply be dismissed.

[7] In Barzun and Graff, however, the terms are not used. The elements of external and internal criticism are discussed at various points throughout the first part of their manual, which deals with the principles and methods of research. They are discussed with specific reference to documentary evidence under the rubric of "types of evidence."

[8] G.R. Elton, "Two Kinds of History," in *Which Road to the Past?* (New Haven: Yale University Press, 1983), 101.

evidence, of course, is the event itself, and then the authentic remains of the event, and then direct observations, etc. We shall call this the rule of immediacy."[9] Primary sources are often characterized as "unintentional" or "unpremeditated" evidence. As Barzun and Graff explain in relation to historical evidence:

> Intentional pieces of written evidence are such things as affidavits, court testimony, secret or published memoirs. The author of any of these meant to record a sequence of events for future perusal. He presumably had an interest in furthering his view of the facts. But a receipt for the sale of a slave, jotted down in the second century on a bit of papyrus, is no premeditated piece of historical writing. Its sole intended use was commercial, and it is only as "unconscious evidence" that it becomes part of an historical narrative. The laws of states, ordinances of cities, charters of corporations, and the like are similarly unpremeditated evidence—as are the account books of a modern corporation or of a Florentine banker of the fifteenth century. [10]

Barzun and Graff's comments underline the fact that in history, as in law, records created in the ordinary course of business are considered to possess a circumstantial probability of trustworthiness.

The preference accorded to such records is, of course, a qualified one. As Marc Bloch explains, "It is not that this sort of document is any less subject to errors or falsehoods than the others. ...neither all ambassadorial accounts nor all business letters tell the truth. But this kind of distortion, if it exists, at least, has not been especially designed to deceive posterity."[11] Bloch's comments underline the fact that, although administrative records are frequently characterized as "unintentional" or "unpremeditated," the real distinction is between different kinds of intentionality. Michael Stanford, for example, categorizes administrative records as "communicative evidence," i.e., "evidence [which] reveals the intention to communicate." Within the category of communicative evidence, he follows Bloch's distinction between evidence which was intended for the eyes of contemporaries only and that which was intended for posterity.[12] A more contemporary manual of historical methodology qualifies the preference even further:

> with the widespread consciousness of history ...there has been a general tendency to inject purposeful 'historicity' into apparently unpremeditated documents...business documents, such as reports to stockholders, contain interpretations of purpose and behavior that amount to propaganda. In other words, we have become so

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[9] Fischer, *Historians' Fallacies*, 62.
[10] Barzun and Graff, *Modern Researcher*, 155.
[11] Marc Bloch, *The Historian's Craft* (New York: Alfred A. Knopf, 1963), 62.
[12] Michael Stanford, *A Companion to the Study of History* (Oxford, U.K.: Basil Blackwell, 1994), 160-61.

> accustomed to the idea of 'the record' that we are continually tempted to tamper with it. [13]

The qualified presumption of the inherent trustworthiness of bureaucratic records provides the framework within which more detailed assessments of the authenticity and reliability of records are conducted.

Establishing a record's authenticity continues to fall within the purview of external criticism, the purpose of which has always been to verify or establish the authorship of a record, its place and date of origin, and its status as an original or copy.[14] The place and date of the record's origin is considered significant because it "can show whether the asserted or implied date of composition can be correct ...[and] whether the indicated author can indeed have been involved."[15] Depending on the record under consideration, the authorship and date may be verified or established by one or more of the following means: content analysis (to detect possible anachronisms and inconsistencies in the text as well as to identify clues as to the record's origins), comparison of originals and copies, comparison with other contemporary documents, and tests of the record's physical properties.[16] In tracing the record's origins, external criticism also takes into account the history of the record's transmission and custody over time.[17]

Although the analytical techniques of external criticism are considered fundamental procedures, their application to records generated by twentieth century bureaucracies occupies very little space in modern manuals of historical methodology. Many historians view external criticism as a necessary task but one whose relevance for modern and contemporary records is limited. Leon Goldstein, for example, suggests that, "it is clear enough, that for periods prior to the emergence of modern conditions of publishing, these analytical techniques of external criticism may be very important, indeed indispensable to the practice of history, though for more recent periods they have, as Mandelbaum puts it, become 'superfluous in the majority of cases.'"[18]

Whereas the purpose of external criticism is to verify or establish the place and date of origin of a record and its authorship, the purpose of internal criticism is to

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[13] Barzun and Graff, *Modern Researcher*, 155-56.

[14] The discussion of external criticism is found in Shafer, *Guide*, 127-47; in Gottschalk, "Use of Personal Documents," 28-34, in Renier, *History*, 108-110; and in Bloch, *Historian's Craft*, 90-110.

[15] Shafer, *Guide*, 130. External criticism also deals with garbled documents, partial texts, plagiarism, ghostwriters, and interpolations.

[16] External criticism also includes the application of all the ancillary disciplines of history, e.g., paleography, numismatics, chronology, sigillography, and, of course, diplomatics. However, since their application is traditionally confined to ancient and medieval documents, they will not be discussed here. The application of diplomatics to modern and contemporary records will be the subject of the next chapter.

[17] Stanford, *Companion to Study of History*, 154-55.

[18] Leon J. Goldstein, "Historical Realism and Skepticism," in *Historical Knowing* (Austin and London: University of Texas Press, 1976), 43.

establish the credibility of statements made in the record.[19] In an essay entitled "The Historian and the Historical Document," Louis Gottschalk points out that to say a statement is credible does not mean that the statement reflects what actually happened, "but that it is *as close to* [reflecting] *what actually happened as we can learn from a critical examination of the best available sources.* The historian thus establishes *credibility* or *verisimilitude* (in this special sense of conformity with a critical examination of the sources) rather than *truth.*"[20]

To assess the credibility of the statements made in the record, the historian assesses the credibility of its author, both as an observer and as a reporter. As Shafer observes, "much of historical research is concerned with determination of the accuracy and value of observations of details made by witnesses of events ....The ability of the witness to observe thus becomes a matter of prime importance." [21] The author's credibility as a witness is initially assessed in relation to his or her proximity in time and space to the objects or events on which he or she is reporting, his or her familiarity with or understanding of those objects or events and so on. The witness's credibility as a reporter is assessed in relation to the lapse of time between observation and reporting. According to Gottschalk, "because reliability is, in general, inversely proportional to the *time-lapse* between event and recollection, the closer a document is to the event it narrates the better it is likely to be for historical purposes."[22] The historian is also expected to take into account the author's frame of mind and intent in composing the record. In assessing the author's frame of mind, the historian attempts to identify possible biases (both personal and cultural), or other legal, social, or cultural constraints that may affect his or her ability to accurately report.[23] In assessing the author's intent, the historian looks at the purpose for which the record was created and its intended audience to determine the likelihood of distortion, editing, or falsification in reporting the events. Finally, the historian attempts to find corrobation (or refutation) of the statements made in the record by comparing them with independent sources.

In contemporary manuals of historical methodology, it is not only the author's frame of mind that is considered in assessing the credibility of the record as a statement. The mind of the historian is also a factor since the many sources of both deliberate and inadvertent error that affect authors, e.g., ignorance, bias, inadequate or selective perception, cultural difference, self-delusion, will, inevitably, affect the historian's perspective on the evidence. As Shafer points out, "the historian must

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[19] Internal Criticism is discussed in Renier, *History*, 162-65; in Gottschalk, "Use of Personal Documents," 35-47; and in Shafer, *Guide*, 149-70. Shafer and Gottschalk discuss the topic in very similar terms and in similar depth. The difference is mainly in the way the two authors identify categories. For the most part, the discussion of internal criticism follows Shafer's categories.

[20] Gottschalk, "Use of Personal Documents," 35.

[21] Shafer, *Guide*, 153.

[22] *Ibid.*, 16

[23] Most of the reasons cited in modern manuals that support an assumption of bias and, conversely, those supporting an assumption of neutrality, are analogous and, in many cases, identical, to those identified by Langlois and Seignobos in the nineteenth century, and by Baudouin in the sixteenth century. The awareness of cultural bias however, is a twentieth century development.

remember that he is looking at the evidence through the prism of his own culture and time."[24] Jacques Le Goff underlines this point when he asserts (echoing Croce) that

> All history is contemporary insofar as the past is grasped in the present, and thus responds to the latter's interests. This is not only inevitable but legitimate. Since history is lived time (*durée*), the past is both past and present. It is the historian's task to make an "objective" study of the past in its double form. To be sure, since he is himself implicated within history, he cannot attain a true "objectivity," but no other history is possible. The historian will make further progress in understanding history by putting himself in question in the course of his analysis, just as a scientific observer takes into account the modifications he may make in the object he is observing.[25]

Historians cannot, of course, transcend the perspective of their own time, but they can at least be aware of the fact that they inevitably bring a set of assumptions about the world in their assessment of the evidence and, to the extent possible, expose those assumptions in their account.[26]

Many of the conditions identified in manuals of historical methodology as either inhibiting or promoting credible statements are analogous to legal rules of evidence governing testimonial assertions. In fact, the "three steps of historical testimony," identified by Gottschalk, i.e., "observation, recollection, and recording"[27] are practically identical to the elements of testimonial assertion identified by Wigmore in *Rules of Evidence at Common Law*. An account of events that serves the interests of the reporter (i.e., self-serving evidence) is considered inherently unreliable. On the other hand, an account that is detrimental to the interests of the reporter (i.e., statements against self-interest) or an account created under circumstances in which there is a strong motive for accuracy and little or no motive for distortion or falsification (i.e., statements made under a business duty), are considered inherently more reliable. Finally, a statement corroborated by one or

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[24] Shafer, *Guide*, 155.

[25] Le Goff, *History and Memory* (see chap. 1, n. 55), 130. See also Charles A. Beard, "Written History as an Act of Faith," in *The Philosophy of History in Our Time*, ed. Hans Meyerhoff (New York: Doubleday, 1959), 150-151; Carl Becker, "What are Historical Facts?" in *Detachment and the Writing of History: Essays and Letters of Carl Becker*, ed. Phil L. Snyder (Ithaca, N.Y.: Cornell University Press, 1958), 56-59; Collingwood, *Idea of History*, (see chap. 1, n. 73), 248. For the main points of similarity and difference between historians' concern with the possibility of objectivity or detachment in the writing of history and the legal discipline's concern with the possibility of impartiality or objectivity in adjudication see Twining, "Some Skepticism," (see chap. 2, n. 63), 103-109.

[26] Of course, the reliability of historians' accounts of the past goes considerably beyond their treatment of documentary evidence, and encompasses the constructs they use in looking at the evidence, the way they situate it relative to other evidence, the conceptual framework into which they place it, the narrative they write on the basis of it, and so on. For the purposes of the present study, however, the treatment of reliability is, of necessity, confined to that of the record's reliability. The peer review process is the ultimate arbiter of the reliability of the historian's account of the past.

[27] Gottschalk, "Use of Personal Documents," 39.

more independent witnesses (i.e., the rule of corroboration) is considered more reliable than a statement that has not been so corroborated .

Moreover, historians writing on historical method often describe the process of internal criticism as a kind of interrogation, or cross-examination, in which records are forced to surrender information they had never intended to provide. Marc Bloch describes cross-examination as "the prime necessity of well-conducted historical research."[28] Michael Stanford draws on the same legal analogy when he suggests that, "Historical evidence is our only witness to the past. Therefore the historian must interrogate it ruthlessly like a prosecuting lawyer."[29] And, according to Le Goff, "documents become historical sources only after having undergone a treatment whose purpose is to transform their mendacious function into a confession of the truth."[30] In all these statements, the record is seen as a recalcitrant witness that, nevertheless, can be made to render a more or less reliable account of past events, once the motives and biases of its author are identified and taken into account.

In Geoffrey Elton's view, the legal model is somewhat misleading as a metaphor for the historian's approach to documentary evidence. As he explains:

> I will admit that the legal model might be said to have a metaphorical or analogical validity--that the analysis of documents can be made to appear similar to the cross-examination of a witness. But the metaphor misleads. The cross-examined witness is asked about his claims to have seen or heard that to which he testifies; the analysed document is asked questions about its origin, its place in a series, its contents of common form, even perhaps its authenticity (did it exist when it says it did?) With a witness we endeavour to ascertain the reliability of a statement, with a document the meaning of its existence and of its relation to a complex of events, not observations.[31]

Elton's comments underline the importance of context to an understanding of the *meaning* of records. Such context is also important to an assessment of the *reliability* of certain kinds of records, as the legal rules governing the admissibility of business records demonstrate. Vernon Dibble underlines the significance of context in assessing the reliability of records in "Four Types of Inference From Documents to Events." He observes that the historical rules for evaluating testimony, like the legal rules, derive from inferences based on generalizations concerning the psychology of cognition (e.g., "testimony about specific details is likely to be more accurate than testimony about general conditions"), the psychology of memory (e.g., "testimony recorded shortly after an event took place is likely to be more accurate than testimony recorded long afterwards"), and the nature of communication (e.g.,

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[28] Bloch, *Historian's Craft*, 64.
[29] Stanford, *Companion to Study of History*, 163.
[30] Le Goff, *History and Memory*, 184.
[31] Elton, "Which Road to the Past," 93

"testimony about ideologically relevant events addressed to people who share the witness's beliefs and values is likely to be more accurate than testimony addressed to audiences which do not share the witness's ideology").[32]

As Dibble points out, while such generalizations may be valid for assessing the reliability of records produced by individuals, their validity is less obvious when it comes to assessing the reliability of records produced by organizations which have institutionalized procedures for recording facts and events. Such records are more accurately characterized, Dibble maintains, as a form of "social bookkeeping" rather than as a form of "testimony." With the various forms of social bookkeeping, it is not so much the intentionality of individual authors of records as it is the nature and extent of the bureaucratic controls exercised over those authors that determine the records' degree of reliability with respect to the events they purport to record. Dibble identifies a number of factors likely to influence the reliability of organizational records, among them: the extent to which interested parties have a hand in producing the record; the extent to which those parties are likely to check the record after it is first created; the extent to which they are free to alter the record; the extent to which such alteration, if allowed, makes for greater accuracy or for less,[33] the extent to which the creation of the record has built-in checks, apart from interested parties; the extent to which the events recorded are visible to the record-keeper; the extent to which communication between observers and record-keepers is assured and; the number of steps between observer and record-keeper.[34]

The connection Dibble draws between the administrative context of a record's creation and its likely degree of reliability is based on the same kinds of generalizations about the nature of bureaucracy that are operative in the business records exception to the hearsay rule discussed in the last chapter. Reliability is measured in relation to the observer's and recorder's proximity to the event and the nature and degree of the procedural checks on record accuracy. The importance of reading records in the light of the bureaucratic system that produced them is basically an extension of the "rule of context" governing the interpretation of historical statements which dictates that the meaning of a statement must be interpreted in view of what precedes and follows it.[35] In *Return to Essentials*, Elton argues that a significant percentage of the documents upon which historians rely are "the product of administrative processes, and unless those processes are understood the products will be misjudged and misused."[36] He cites a number of

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[32] Vernon K. Dibble, "Four Types of Inference From Documents to Events," *History and Theory* 3 (1964): 204-5.

[33] For example, Dibble points out, "[t]ranscripts of some legal proceedings may be less complete than they would be otherwise because interested parties can have remarks 'stricken from the record'. In contrast, alterations initiated by an interested party to his own advantage are likely to make for a more complete and a more accurate record if the record-keeper is in a position to make his own independent check on the accuracy of the suggested alteration." *Ibid.*, 207-8.

[34] *Ibid.*, 207-8.

[35] Shafer, *Guide*, 151.

[36] G.R. Elton, *Return to Essentials: Some Reflections on the Present State of Historical Study* (Cambridge: Cambridge University Press, 1991), 55.

examples where inaccurate inferences about historical events have been drawn from records simply because the historian has failed to take into account the administrative context in which the record was created.[37]

The administrative context enlarges the traditional conception of the observer's/recorder's presence in time and place. The bureaucratic controls exercised over observation and recording constitute, in effect, an additional level of observation in which the bureaucracy itself watches over observers and recorders. Reliability is ensured not only because the observer/recorder is close to the event recorded but also because the recording itself takes place within a framework of bureaucratic observation and surveillance. The degree of reliability then, is the degree to which the bureaucracy shapes and constrains the speech of observers and recorders. The greater the constraints and controls imposed on recordkeeping by the bureaucracy, so the generalization goes, the greater the degree of the record's reliability. In "Causation in Historical Study," Robert Sharman suggests that the author of a bureaucratic record:

> ...has so little discretion as to what is recorded as to render the element of personal choice almost irrelevant. Now I admit that with certain types of records ...there is a larger area of discretion. A Colonial-Governor, for instance, writing despatches to London, may have a large amount of freedom as to what he records. Even this freedom, however, is exercised within certain limits. If he fails to answer specific enquiries from London, or if he forgets to report regularly on matters which the Secretary of State expects a Governor to report upon, Downing Street will soon call upon him for an explanation. And if a Viceroy has to render a true account of his stewardship, how much more diligent must a lowly official be in recording the transactions of his office.[38]

Sharman's comments underline the fact that in a bureaucratic environment recordkeeping represents a kind of controlled speech.

Sharman's discussion of the comparative authority of *attested* and *expository* statements also suggests other analogies between law and history in the inference of reliability each draws from the administrative context of a record's creation.[39] An attested statement, according to Sharman, is one whose reliability is guaranteed by the office responsible for registering it. An official convict transportation record, such as an indent list or assignment list, which states the fact that a convicted felon was transported to one of the Australian colonies may be relied upon by historians because such fact was attested by the authorities whose job it was to register such transactions. An expository statement, on the other hand, does not possess the high

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[37] *Ibid.*, 55-59.
[38] Robert C. Sharman, "Causation in Historical Study," in *Debates and Discourses: Selected Archival Writings on Archival Theory 1951-1990* (Canberra: Australian Society of Archivists, 1995), 102.
[39] *Ibid.*, 110-111.

degree of reliability conferred on attested statements. As Sharman points out, it was the custom for the transporting authorities to take confessions from transported felons. The fact that the confession was made is itself an attested statement, but the official recording the confession cannot attest to the truth of the assertions contained within it. The distinction between attested and expository statements is consistent with legal assumptions about the reliability of events that occur outside the presence of the recorder. The portion of a hospital record that records the patient's case history prior to admission, for example, is not admissible under the business records exception to the hearsay rule because a patient's assertions about his or her prior condition cannot be substantiated by the doctor taking the case history.[40]

The fact that an expository statement does not possess the inherent guarantee of reliability that an attested statement possesses does not render it completely unreliable. As Sharman explains, an ambassador's reply to a despatch containing instructions as to how he should represent his country's interests at the court to which he is accredited will contain both attested and expository statements:

> That he received the instructions is an attested statement, and it can also be attested that he was given an audience by the Secretary of State for Foreign Affairs. But the ambassador will then enlarge on the sort of reception his representations met with, and possibly the promises made by the Foreign Secretary. It is more than likely that we can look upon these as only expository statements.[41]

While an expository statement contained in such a document lacks the kind of reliability granted an attested statement, its degree of reliability can nevertheless be measured on the basis of:

> the extent to which it was accepted and acted upon in the office to which it was sent. The ambassador may have exaggerated the effectiveness of his interview with the Foreign Secretary, but if his report is received in good faith, and if subsequent policy is based upon the outcome of representations supposedly made, we come a long way nearer to accepting expository statements as of evidential value to enable us to determine both what actually happened and why it happened.[42]

In other words, a record that is treated by the bureaucracy as a reliable record is considered a reliable record.

In recent years, modernist historical methods for assessing the reliability of a record have been challenged by new ways of looking at documentary sources. The reliability of any record depends on the question being asked of it and records

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[40] See the discussion of *Adderly v. Bremner* at *supra*, 75.
[41] Sharman, "Causation," 111.
[42] *Ibid.*, 111.

considered unreliable as an answer to one question, nevertheless, may be reliable as an answer to another question. Drawing on the legal model of evidence, David Hackett Fischer explains:

> ...sound evidence consists in the establishment of a satisfactory relationship between the *factum probandum*, or the proposition to be proved, and the *factum probans*, or the material which is offered as proof .... [It follows] that the criteria for a satisfactory *factum probans* depend in large degree upon the nature of the *factum probandum*. This is a pedantical way of saying that every fact in history is an answer to a question, and that evidence which is useful and true and sufficient in answer to question B may be false and useless in answer to question A.[43]

However, modernist historical methods for assessing record reliability tend to privilege a particular way of looking at records. The reliability of a record is measured specifically in relation to its fidelity to the event it purports to record. Speculating on the reasons underlying that standard of measurement, Mark Cousins comments:

> A primary source is preferred over a secondary source because – why? Because it is close to – what? A complex of relations is opened up by this question. A primary source is closer to what it refers to than a secondary source. The word 'closer' has itself two connotations. It is closer to the truth and it is closer to the event. Truth is the adequate representation of the event. The event is the object which may be referred to in truth. A primary source is then the more reliable witness to the event. The event is most reliably represented by a witness, by testimony which can best be trusted. Secondary sources are tainted, less reliable; they cannot be treated as convincing testimony; they lack reliability.[44]

The preference for primary sources over secondary sources, for unintentional evidence over intentional evidence, and for evidence given by a more or less neutral observer over that provided by an interested observer, are all based on an assumption that such evidence is the most credible testimony concerning the event to which a record refers.

Letters of remission from the fourteenth to sixteenth centuries are a good example of a source traditionally considered to be unreliable, "a tissue of counter-

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[43] Fischer, *Historians' Fallacies*, 62.

[44] Mark Cousins, "The Practice of Historical Investigation," in *Poststructuralism and the Question of History*, ed. Derek Attridge, Geoff Bennington and Robert Young (Cambridge: Cambridge University Press, 1987), 131.

truths,"[45] whose fidelity to the event it purports to record is hopelessly compromised by the self-interest of the person recounting the event. Letters of remission were pardons, granted by the king upon a request for grace by a supplicant, and ratified by a court of law. They were normally reserved for crimes such as homicide where the offender had been or could be sentenced to death. Incorporated into the letter of remission was the supplicant's story of unpremeditated, unintentional, or otherwise justified murder, as told to a royal notary, either by the supplicant or by relatives.

By modernist criteria, a letter of remission is unreliable as evidence of the actual event the letter purports to record because it typically is recounted as a highly charged 'pardon tale' of passion and contrition. The narrative is clearly crafted to elicit the sympathy and grace of the king. Nevertheless, it is reliable as evidence of the storytelling event itself. According to Natalie Zemon Davis, letters of remission provide valuable "evidence of how sixteenth-century people told stories (albeit in the special case of the pardon tale), what they thought a good story was, how they accounted for motive, and how through narrative they made sense of the unexpected and built coherence into immediate experience."[46] What makes them unreliable as factual accounts -- their fictive (in the sense of shaping) elements -- is precisely what makes them reliable as narratives of those accounts. Moreover, they are, Davis maintains, "one of the best sources of relatively uninterrupted narrative from the lips of the lower orders ...in sixteenth-century France."[47]

The understanding that records may be used to answer questions about events other than those they purport to record is not altogether ignored by modernist historians. As Dibble makes clear, historians analyze social bookkeeping for the same reasons they analyze testimony: "in order to make decisions about the probable accuracy or completeness of the record." But, he continues, "historians are not interested only in accurate social bookkeeping. Inaccurate social bookkeeping can be just as valuable as testimony known to consist of lies and distortions." [48] Collingwood has pointed out that "anyone who has read Vico ...[knows] that the important question about any statement contained in a source is not whether it is

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[45] Pierre Braun, "La valeur documentaire des lettres de rémission," cited in Natalie Zemon Davis, *Fiction in the Archives: Pardon Tales and their Tellers in Sixteenth Century France* (Stanford, Calif.: Stanford University Press, 1987), 3.

[46] *Ibid.*, 4.

[47] *Ibid.*, 5. As Davis further explains, "Letters and memoirs from peasants and artisans are rare. Marriage contracts, wills, and other contracts are plentiful and tell us much about the actions, plans, and sensibilities of men and women who could not even sign their names at the bottom, but the documents themselves are dominated by notarial sequences and formulae. Letters of remission were also collaborative efforts ...but they gave much greater scope to the person to whom the notary was listening. Depositions and records of interrogations in criminal cases are extant for certain jurisdictions in the sixteenth century and are valuable indications of the way people recounted events. But witnesses were supposed to confine themselves to what they had seen or heard of a crime, and their stories often lack a beginning and an end ...they ...say little about motive ...and they do not [always] tell how the affair turned out .... As for the accused ... their testimony was ordinarily directed at every moment by the judge." *Ibid.*, 5-6.

[48] Dibble, "Four Types of Inference," 209.

true or false, but what it means."[49] The assertion, though overstated, is an important one because it emphasizes that, for the historian, unlike the lawyer, the fact that a record is found to be unreliable with respect to the events it purports to record does not diminish its value as historical evidence.

The same observation holds true for inauthentic records. In law, a record that is found to be inauthentic is inadmissible as evidence.[50] Langlois' and Seignobos' manual, similarly, excluded inauthentic records from the historian's further consideration. Twentieth century historians are not so dismissive and recognize that a record's authenticity is only one dimension of its value as historical evidence. As R.C. Cheney explains: "[e]ven the 'authentic' character of a record, which appeals to the lawyer and which an archivist is sometimes at pains to preserve, is not the criterion of its value as historical evidence. The tendentious official account or the forgery, once recognized as such, will be valuable to the historian precisely because it is not objective or not authentic."[51] The fact of forgery simply changes the kinds of inferences that may be drawn from the record. According to Jacques Le Goff, " a 'false' document is also a historical document that can provide valuable testimony regarding the period in which it was forged and concerning the period during which it was considered to be authentic and used."[52]

Recognizing the value of an unreliable or inauthentic record as historical evidence does not, however, absolve the historian of responsibility for establishing whether the record is, or is not, trustworthy. As Shafer makes clear, "the historian is interested in lies as well as truth, but he must be able to distinguish between them."[53] The fact of a record's authenticity and its likely degree of reliability are an essential first link in the chain of inferences from the *factum probans* to the *factum probandum*. Even in Davis' study of sixteenth century letters of remission, which emphasizes the status of records as a form of persuasion rather than as a form of proof, the fidelity of the stories told in the letters to "real events" is taken into account (by comparing them with other contemporary accounts of the same events) in order to determine "what relation truth-telling had to the outcome of the stories and what truth status they enjoyed in society at large."[54]

The emergence of postmodernist history has resulted in a more general "problematizing" of the presumed correspondence between evidence and reality underlying modernist historical methods for assessing record reliability. Carlo Ginzburg describes this presumption as a legacy of the scientific, or positivist history

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[49] R.G. Collingwood, *Idea of History*, 260.

[50] An obvious exception are cases involving fraud, e.g., the issuing of forged cheques or fraudulent electronic funds transfer. In such cases, the inauthentic record is admitted for the purposes of proving the fraud.

[51] C.R. Cheney, "The Records of Medieval England," in *Medieval Texts and Studies* (Oxford: Clarendon Press, [1956], 1973), 11.

[52] Le Goff, *History and Memory*, 183.

[53] Shafer, *Guide*, 149.

[54] Davis, *Fiction in the Archives*, 5.

of the nineteenth century, which tended to simplify the relationship between evidence and reality: As he explains:

> In a positivist perspective, the evidence is analyzed only in order to ascertain if, and when, it implies a distortion, either intentional or unintentional. The historian is thus confronted with various possibilities: a document can be a fake; a document can be authentic, but unreliable, insofar as the information it provides can be either lies or mistakes; or a document can be authentic and reliable. In the first two cases the evidence is dismissed; in the latter, it is accepted, but only as evidence of something *else*. In other words, the evidence is not regarded as a historical document in itself, but as a transparent medium -- as an open window that gives us direct access to reality.[55]

As Roland Barthes and other postmodern writers have shown, however, the assertion of a direct relationship between records and the events they purport to record is nothing more than a 'sleight of hand':

> the only feature which distinguishes historical discourse from other kinds is a paradox: the 'fact' can only exist linguistically, as a term in a discourse, yet we behave as if it were a simple reproduction of something on another plane of existence altogether, some extra-structural 'reality'. Historical discourse is presumably the only kind which aims at a referent 'outside' itself that can in fact never be reached."[56]

Modernist historical methods are underpinned by the assumption that a direct relationship exists between the referent (a determinant reality—the past) and its expression (a record), and by a belief that it is possible to reconstruct the past on the basis of records that are somehow outside of signification. Postmodern discourse has problematized the status of the referent and "shown it to be not on the other side of signification but inside the historian's discourse that posits it as a referent."[57] In so doing, it has also problematized the status of the record as an accurate reflection of the past.

Internal criticism, specifically, concentrates on determining, by means of a number of techniques and tests, the reliability of a record "as a true reflection of a

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[55] Carlo Ginzburg, "Checking the Evidence: The Judge and the Historian," *Critical Inquiry* 18 (Autumn 1991): 83.

[56] Roland Barthes, "Historical Discourse," in *Introduction to Structuralism*, ed. Michael Lane (New York: Basic Books, 1970), 153-54.

[57] James Chandler, Arnold I. Davidson, and Harry Harootunian, "Introduction," in *Questions of Evidence: Proof, Practice, and Persuasion Across the Disciplines*, edited by James Chandler, Arnold I. Davidson, and Harry Harootunian (Chicago and London: Chicago University Press, 1994), 5.

past rather than its status as a representation and its conditions of production."[58] Postmodernist writers argue that, before the complex relationship between a record and the *external* event it purports to record can be unravelled, the *internal* processes of documentary creation must be reconstructed. The problematizing of the external referent has been accompanied, therefore, by an increased interest in the nature and status of the record as sign and by the expressed need to penetrate its system of signification. Le Goff, for example, maintains that the aims of internal criticism, i.e., to assess the competence and sincerity of the record's author, determine the credibility of its content, and test it against other evidence, are insufficient because:

> Whether we are concerned with documents that are conscious or unconscious ...the conditions under which the document was *produced* must be carefully studied. In fact, the structures of power in a society include the power of certain social categories and dominant groups to voluntarily or involuntarily leave behind them testimony that can orient historiography in one direction or another. Power over future memory, the power to perpetuate, must be recognized and defused by the historian. No document is innocent. It must be judged. Every document is testimony or evidence (*monument*) which we have to know how to destructure, to take apart. The historian must be able, not simply to discern a fake, to judge the credibility of a document, but also to demystify it.[59]

Traditionally, internal criticism has treated the document in general, and the bureaucratic record in particular, as *muniment*, i.e., as a byproduct and instrument of action. It assumes that, once the administrative context that shaped the record's creation is understood, so too will be the records' meaning as well as its degree of reliability. As Le Goff suggests, however, the document's ideological and propagandistic meaning must also be exposed and demystified. To do so, it is necessary to reposition the document as *monument*. The theme of document as *monument* is pursued by Michel Foucault in *The Archeology of Knowledge*, where he summarizes it as follows:

> ...history, in its traditional form, undertook to 'memorize' the *monuments* of the past, transform them into *documents*, and lend speech to those traces which, in themselves, are often not verbal, or which say in silence something other than what they actually say; in our time, history is that which transforms *documents* into *monuments*. In that area where, in the past history deciphered the traces left by men, it now deploys a mass of elements that have to be grouped, made relevant, placed in relation to one another to form totalities.[60]

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[58] *Ibid.*

[59] Le Goff, *History and Memory*, 184.

[60] Michel Foucault, *The Archaeology of Knowledge*, translated by A.M. Sheridan Smith (New York: Harper and Row, 1972), 7.

The treatment of the document as "monument" is evident in recent diplomatic studies of medieval charters, where the traditional emphasis on "the univocal connection between written evidence and juridical event" has been augmented and replaced, to a certain extent, by a new emphasis on "the linguistic masquerade, the semantic shell, appearance, sign, and interpretive voice that is the natural attribute of any text."[61] An example is Armando Petrucci's examination of the language used in the preambles of a number of Italian private and semi-public documents between the tenth and thirteenth centuries. Petrucci finds in the formulas used by notaries in preparing preambles an increasing "preoccupation with affirming the validity of written evidence in comparison with the transience of oral evidence."[62] Preambles from the eleventh century contrast the permanence of documentary *memoria* with the *oblivio* of human memory. The concept of documentary memory is gradually accompanied, in the twelfth century, by that of *veritas* which, in turn, is linked, in the thirteenth century, to *publicitas* and *instrumentum publicum*. The shifts in the wording of the formulas used in preambles reflect the growing status of the document as an instrument of juridical power, as well as the growing status of Italy's professional notariate as an exclusive wielder of such power.[63] The new emphasis on exposing the discursive strategies employed in the production of documents is justified on the grounds that historians "do not study physical acts ...but documents that are *word* acts of an ideological *language* whose reconstruction should be our preliminary and preeminent task".[64]

Postmodernism stresses, not only the power structure immanent in language (and, therefore, records), but also the indeterminate, sometimes duplicitous, nature of language and its dissociation from any presumed reality.[65] Linguistic communication is used for a variety of purposes and rarely with the sole intention to inform. According to J.L. Austin's theory of speech acts, when we make a statement, we perform at least three different acts. A *locutionary act* "is roughly equivalent to uttering a certain sentence with a certain sense and reference [i.e., *meaning*]." An *illocutionary act* is roughly equivalent to informing, warning, and so on; such utterances have a certain conventional *force*. A *perlocutionary act* is "what we bring about or achieve *by* saying something, such as convincing, persuading, deterring, and, even, say, surprising or misleading." [66] Austin's theory of speech acts demonstrates the different senses or dimensions of the use of language in speech acts, which apply to written as well as to oral communication.

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[61] Petrucci, "Illusion of Authentic History," (see chap. 1, n. 19), 238.

[62] *Ibid.*, 239.

[63] *Ibid.*, 240-246. For further examples of new approaches to interpreting medieval charters, see Olivier Guyotjeannin, "La diplomatique médiévale et l'élargissement de son champ," *La Gazette des Archives* 172 (1996):14-18 and Davies and Fouracre, eds., *Settlement of Disputes*. (see chap. 1, n. 17).

[64] Mario Liverani, quoted in Petrucci, "Illusion of Authentic History," 238.

[65] Himmelfarb, "Postmodernist History," 132.

[66] J.L. Austin, *How to do Things with Words*, 2nd ed. (Cambridge, Mass.: Harvard University Press, 1975), 109-110.

In demonstrating those different dimensions, the theory also illustrates the limits of the historian's capacity to enter into the minds of those who lived in the past by analyzing the documentary remains of that past. Every act of communication involves an act of translation and every speech act requires what Keith Jenkins describes as an "interpretation between privacies."[67] As he elaborates:

> The philosophical problem of 'other minds' as discussed by Wittgenstein and others, considers whether it is possible to enter into the mind of another person we know well and who is beside one, and concludes that it is not. Historians, however, have disregarded this conclusion and have continued to raise questions that are based on the assumption that it actually is possible to enter lots and lots of minds, even minds we cannot possibly know well, and which are far away from us in space and time.[68]

Historians, such as Collingwood, who believe that it is possible to enter into the minds and experiences of people in the past,[69] in Jenkins' view, simply ignore the fundamental limits and, ultimately, impossibility, of achieving such empathy.

Postmodern writing on history stresses the contingent and indeterminate nature of historical knowledge in general, and the documentary conception of such knowledge in particular:

> All documents ...used by historians are not neutral evidence for reconstructing phenomena which are assumed to have some independent existence outside them. All documents process information and the very way they do so is itself a historical fact that limits the documentary conception of historical knowledge ....the lesson here is that the past once existed, but that our historical knowledge of it is semiotically transmitted. [70]

Postmodern historical discourse thus usefully points out some of the limits of internal criticism, of the concept of reliability, and of the rationalist assumptions on which both are built. The discourse betrays its own limits, however, by the unremittingly skeptical stance it adopts toward the possibility of knowing the past at all through its documentary traces. According to Gertrude Himmelfarb, postmodernist history "denies not only suprahistorical truths but historical truths, truths relative to particular times and places." In so doing, it denies "the reality of the past apart from what the historian chooses to make of it, and thus of any objective truth about the past."[71] The

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[67] Keith Jenkins, *Re-Thinking History* (London and New York: Routledge, 1991), 39.

[68] *Ibid.* The "problem of other minds" is also at the heart of the hearsay rule prohibiting the admissibility of testimonial statements that cannot be tested by cross-examination.

[69] Collingwood, *Idea of History*, 282-302.

[70] Linda Hutcheon, *A Poetics of Postmodernism: History, Theory Fiction* (New York and London: Routledge, 1988), 122.

[71] Himmelfarb, 131, 133.

postmodernist views records and reality alike "as a 'text' that exists only in the present – a text to be parsed, glossed, construed, and interpreted by the historian, much as a poem or novel is by the critic. And, like any literary text, the historical text is indeterminate and contradictory, paradoxical and ironic, rhetorical and metaphoric."[72] Himmelfarb decries postmodernist history's philosophical "presumption that because it is impossible to attain [either absolute truth or partial, contingent] ...truths, it is not only futile but positively baneful to aspire to them"[73] because such a presumption, in her view, amounts to a repudiation of history and the entire practice of history since the nineteenth century.

Himmelfarb's characterization of postmodernist history, while substantially accurate, is caustic and somewhat intemperate. Raymond Martin, on the other hand, is fairly sanguine about the practical implications postmodernist skepticism holds for historical methodology. In a forum dedicated to a discussion of truth and objectivity in history in the wake of postmodernism, Martin maintains that while

> [h]istorians' feelings about [truth and objectivity] may affect profoundly how they *view* historical studies ...they seem unlikely to have much effect on how they actually *do* history. Historians who want to be taken seriously have to support their interpretations by evidence, and by the same sorts of evidence, and in the same ways, whether they are objectivists, relativists, or skeptics.[74]

Moreover, he wryly observes,

> ...hardly anyone, including self-proclaimed skeptics *acts as if* he or she believes skepticism all the way down ....even Foucault, after admitting (perhaps to disarm his critics) that he produces only fictions, added quickly and without explanation, "I do not mean to go so far as to say that fictions are beyond truth. It seems to me that it is possible to make fiction work inside of truth." Indeed.[75]

The most balanced perspective on the matter is offered by Carlo Ginzburg. He points out that, whereas traditional history has tended to treat documentary evidence as an open window, postmodern skeptics regard it "as a wall, which by definition

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[72] *Ibid.*, 140. Himmelfarb's comments in this passage are directed at postmodernists in general and at the work of Hayden White in particular, who she calls "the leading postmodern philosopher of history." For White's views on history as narrative discourse, see White, *The Content of the Form: Narrative Discourse and Historical Representation* (Baltimore: Johns Hopkins University Press, 1987); *Tropics of Discourse: Essays in Cultural Criticism* (Baltimore: Johns Hopkins University Press, 1978); *Metahistory: The Historical Imagination in Nineteenth-Century Europe* (Baltimore: Johns Hopkins University Press, 1973) See also Keith Jenkins, "On Hayden White," in *On 'What is History?': From Carr and Elton to Rorty and White* (New York: Routledge, 1995), 134-179.

[73] Himmelfarb, 135.

[74] Raymond Martin, Joan W. Scott, and Cushing Strout, "Forum on *Telling the Truth About History,*" *History and Theory* 34 (1995): 320.

[75] *Ibid.*, 327.

precludes any access to reality."[76] In this respect, both the "theoretical naiveté" of modernist historians and the "theoretical sophistication" of the postmodernists find common ground in a rather simplistic assumption that the relationship between evidence and reality is a straightforward one when, in fact, it is more accurately characterized as a complex and mutually dependent one:

> Without a thorough analysis of [a record's] inherent distortions (the codes according to which it has been constructed and/or must be perceived), a sound historical construction [of the past] is impossible. But this statement should also be read the other way around: a purely internal reading of the evidence, without any reference to its referential dimension, is impossible as well. ...The fashionable injunction to study reality as a text should be supplemented by the awareness that no text can be understood without a reference to extratextual realities.[77]

The insights of postmodernist history pose a philosophical challenge to modernist historical methods for assessing the reliability and authenticity of records. Changes in the technologies for creating and maintaining records pose a more practical challenge. As bureaucracies rely increasingly on new information and communication technologies to create and maintain records, the question that presents itself is whether the techniques of external and internal criticism are adequate to the task of verifying the authenticity and degree of reliability of electronic records whose most salient feature is the ease with which they can be invisibly altered and manipulated. As Jean Samuels points out in connection with electronic mail messages:

> A problem for ownership identification can occur when messages are forwarded or circulated to others. If the original heading (showing source, date, etc.) is removed from the message or if the body of the text is edited (both of which are easily done on most systems) then the original temper or content of the message can be radically or subtly altered. So what may appear as the forwarded message of X is, in fact, the forwarded message of X with additions and changes by Y. Likewise, a message from X may be forwarded, without the original heading, by Y to Z. To Z the message will appears as Y's own thoughts and message. [78]

Attributing authorship represents one dimension of the problem; another dimension is that of identifying provenance. According to Charles Dollar,

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[76] Carlo Ginzburg, "Checking the Evidence: The Judge and the Historian," *Critical Inquiry* 18 (Autumn 1991): 83.

[77] *Ibid.*, 84.

[78] Jean Samuel, "Electronic Mail: Information Exchange or Information Loss?" in *Electronic Information Resources and Historians: European Perspectives*, edited by Seamus Ross and Edward Higgs (Göttingen and London: Max-Planck-Institut für Geschichte and the British Library Board, 1993), 61.

> The challenge of identifying and maintaining the provenance of electronic records is much more severe where there is a network or corporate-wide database, because computer to computer linkages dissolve the traditional boundaries between organizations, sub-operating units, and offices that in the past provided much of the provenance based information. In a network or corporate-wide database, the database management system determines where and how information is stored. A user may retrieve information from a corporate database or a distributed database without knowing where the information is stored, which unit created it, whether the information has been updated, or who uses it, because the database information is not self-referential.[79]

In manuals of historical methodology it is understood implicitly that knowledge of the context in which bureaucratic records have been created is crucial to an assessment of their authenticity and degree of reliability. That context includes knowing, not only where a document was created, i.e., its provenance, but also the purpose for its creation, i.e., the administrative and procedural framework in which it was created, the audience for whom it was intended, when and how it was received by the addressee, and how it was transmitted and preserved over time. In traditional paper recordkeeping systems, Dollar observes, such context tends to manifest itself:

> in organization charts and manuals, procedures, policies, physical ...arrangement of the records [e.g., in files], media characteristics such as watermarks, formal elements such as letterheads, and in content/context elements such as names of writers and recipients, dates, references to other documents or files, and the like. In addition, individual documents may contain marginalia, initials, and similar contextual information that reveal the information environment in which records were created, used, and maintained. [80]

As electronic recordkeeping systems replace paper ones, however, the inherent, and visible, links among the physical, formal and contextual components of a record are disappearing. This is because, in electronic information systems, the components are stored and managed independently of one another within a database. An illustration of the way in which electronic systems separate the various components of a record is provided by Dollar in his description of an electronic health care application case file containing:

> demographic data, medical examinations results and diagnostics, and hospital care records for individuals. The electronic case file for an individual does not exist as a physical entity but rather as chunks of

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[79] Charles M. Dollar, *Archival Theory and Information Technologies: The Impact of Information Technologies on Archival Principles and Methods*, edited by Oddo Bucci (Macerata: University of Macerata, 1992), 50-51.
[80] *Ibid.*, 49.

> electronic data stored in different parts of the health care application system. These chunks of electronic data become a case file or view of the case file when they manifest a logical structure as a result of being displayed on a monitor or printed. This manifestation is the result of software that joins disparate data and reconstructs them so the whole looks like a document. A manifested electronic case file (or view), therefore, will display sequential logical relations that may not be inherent in the chunks of data that were retrieved. The physical relations of this case file are stored electronically independently of the data.[81]

Some of the identifying components of an electronic record, e.g., those that place it within its administrative and procedural context are generated by database or system software that is inaccessible to the user. Moreover, because the components are managed separately, there is no guarantee that they will be preserved in a manner that will permit the reconstruction of the record over time. In many instances, such data will not be preserved at all.

A starting point for historians in their efforts to verify the authenticity of a record is the determination of its status as an original or copy. Since an original record contains all the original markings (e.g., the signature, the seal), it traditionally has been easier to authenticate an original than a copy. Determining an electronic record's status as an original or copy is complicated, not only by the absence of coherent criteria for distinguishing between the two in an electronic environment, but also by the fact that an electronic record cannot survive in the form in which it was originally created for any substantial length of time given the fragility of storage media and the inevitability of technology obsolescence. The form of an electronic record is substantially determined by hardware and software functionality; its original integrity may be lost, therefore, when records are migrated, transferred to ASCII text, or printed to paper. As David Bearman explains:

> As long as the information created in the course of work in an electronic environment remains in the software and hardware system in which it was created, it loses none of the contextual information which is critical to its meaning, but the transition, or "migration" of data to a new environment threatens to change the way the information looks, feels or operates, and hence what it means.[82]

The erosion of an original record over time is not, of course, a uniquely contemporary phenomenon. Over the centuries, ancient texts have been subjected to similar erosion as a consequence of "scientific" manipulations:

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[81] *Ibid.*, 37. See also *ibid.*, app. C.

[82] David Bearman, "Archival Principles and the Electronic Office," in *Information Handling in Offices and Archives*, edited by Angelika Menne-Haritz (München: K.G. Saur, 1993), 190.

> a document, and particularly a text, may over the course of time undergo apparently scientific manipulations that have in reality obliterated the original. For example, it has been brilliantly demonstrated that the letter from Epicurus to Herodotus that is preserved in Diogenes Laertius' *Lives, Teachings, and Apophthegms of the Famous Philosophers* was reworked by a secular tradition that buried the letter of the text under the annotations and corrections which, whether intentionally or not, finally stifled and distorted the letter of the text through "a reading that was uncomprehending, indifferent, or partisan."[83]

The original text of the *Corpus Juris Civilis* suffered similar indignities at the hands of medieval commentators and glossators. The main difference between the ancient and contemporary examples is that with the ancient texts, the annotations and corrections over time disfigured the original document's content; with electronic records, the migration of the document over time threatens to disfigure aspects of its original appearance or presentation elements (such as colours, original fonts, letterhead, the organization of the elements of the discourse) and, in so doing, to alter or distort its content.

Recent historical literature addressing the implications of information technology on historical methodology[84] reflects historians' concern that the complexity and volatility of electronic records may defeat their efforts to establish the authenticity of such records. On the other hand, many historians also believe that the computer may actually enhance both the authenticity and the reliability of records because electronic systems are capable of capturing more of the context in which electronic records are created and used within bureaucratic organizations than was possible with traditional recordkeeping systems. Ronald Zweig maintains that:

> The more sophisticated electronic office systems record an additional level of information about documents beyond their textual content, their appearance and structure. These systems also record how documents are used. In this context, "usage" has many possible meanings. Office systems track the creation of a document, its evolution through various drafts by various authors, and its movement through the organizational hierarchy. We can know who received it, who read it, who annotated it. We can reconstruct how widely it was distributed amongst decision makers. Its system priority, security level and entire life cycle can be known in ways we can only rarely reconstruct from the extant records of conventional documents. As any contemporary historian will appreciate, extraneous pieces of evidence such as distribution lists,

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[83] Le Goff, *History and Memory*, 183.

[84] The effect of electronic records on historical research and on the attributability and verifiability of electronic sources of history are discussed in, for example, Ross and Higgs, eds. *Electronic Information Resources* and in R.J. Morris, ed. "Historians and the Electronically Created Record," *History and Computing* 4 (1992).

> and signed receipts for a document can give valuable additional information about the significance of the documents to which they are attached ...the electronic version of a document can be designed to retain these usage attributes in a complete form.[85]

Zweig likens these attributes to "fingerprints" on a document which not only provide a built-in check on the reliability and authenticity of records generated from an electronic system but also serve as a rich source of data concerning each transaction that takes place within that system.

In Zweig's view, records generated by new technologies transcend the traditional boundaries of paper records and provide a more complete view of the past:

> Electronic records can be more comprehensive than any paper document, and modern documents will be compound things that cannot be expressed on paper. They will contain graphics, images, voice, video, animations. ...Documents can contain links and pointers to many other (interlinked) files of 'documents' so that the hypertext links are part of the information that the document contains. Alternatively, the electronic document can be continually updated by links to databases. Historians will not work with documents that have traditional boundaries at all, but with 'entities' that are really pieces of links to other materials which are stored throughout a computer network and are constantly being updated.[86]

There is no question that compound, hypertext and hypermedia documents offer exciting possibilities for providing a more detailed picture of the past. On the other hand, the multiplication of sources from which a document can be constructed, which may not be visible to the user, and the dynamic nature of the databases from which the data are drawn, will also exacerbate the already difficult task of establishing the reliability and authenticity of those sources.

Zweig's enthusiasm for the potential of electronic records systems to provide historians with a more complete picture of the past than previously has been possible is tempered by a concern that the potential of electronic office systems to retain contextual information on usage, such as permissions, views, and audit trails may not be realized:

> ...many such systems ignore the usage information, in favour of mimicking as closely as possible existing office practices. Other systems abandon the systems management information on usage as soon as a copy of the document has been unaltered for a given period of time and it

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[85] Ronald Zweig, "Beyond Content: Electronic Fingerprints and the Use of Documents," in *Electronic Information* Resources, 254.
[86] *Ibid.*, 255.

> is archived. There are no agreed standards of what sort of usage information should be preserved, or how to do so.[87]

The lack of agreed standards is attributable, in part, to the fact that many electronic systems have been designed to function as *information* systems, rather than as *recordkeeping* systems. Bearman explains the difference between the two in the following way:

> ...record-keeping systems keep and support retrieval of records, while information systems store and provide access to information. Record-keeping systems are distinguished from information systems within organizations by the role that they play in providing organizations with evidence of business transactions (by which is meant actions taken in the course of conducting their business, rather than 'commercial' transactions). Non-record information systems, on the other hand, store information in discrete chunks that can be recombined and reused without reference to their documentary context.[88]

In many information systems, the usage context in particular cannot be preserved because the systems have not been designed to capture all the inputs and outputs in an auditable trail.[89] Zweig believes that existing policies and practices governing organizational recordkeeping need to be re-examined and revised to exploit the potential of electronic systems and that historians have a vital role to play in that re-examination and revision. Since records managers and archivists "are not necessarily aware of the special needs of historians, ...it is up to the [historical] profession to define which attributes of electronic documents should be preserved to facilitate our work in reconstructing the past."[90]

Other historians, such as Peter Denley, question the desirability of historians striking an alliance with records creators to determine how, and in what form, electronic records will be preserved:

> The rationale behind data creation is immensely broad, but might perhaps be categorised as 1) the need for a smooth flow of information to make corporate activity possible, 2) the need for proof of activity or entitlement, 3) the presentation of the 'public face' of that activity. When it comes to data storage, the second and third of these categories predominate, indeed take over from the first (to the extent that it becomes important to the data creators that records which challenge or compromise them are destroyed). By contrast, historians want to unpick

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[87] *Ibid.*, 254.
[88] David Bearman, "Record-Keeping Systems," *Archivaria* 36 (Autumn 1993): 17.
[89] Paul Marsden, "What is the Future? Comparative Notes on the Electronic Record-keeping Projects of the University of Pittsburgh and the University of British Columbia," *Archivaria* 43 (Spring 1997): 162.
[90] Zweig, "Beyond Content," 257.

> the public face that is presented. They want to read between the lines, to worm their way into the subtext and assumptions behind the presented image, and to discover the practices that are accidentally or deliberately hidden to view. It was ever thus. All that has changed is the nature and volume of the data, and the way it is created and accessed. That historians are increasingly being involved in the process at an earlier stage ...is good news, and helps the two sides to better mutual understanding. It would be illusory, and dangerous, though, to imagine that there could or should be real partnership. That is not the function of the historian.[91]

In Denley's view, the interests of the protagonists and interpreters of history are, inevitably, in conflict with each other. Given those conflicting interests, the historian's position in relation to records creators must, of necessity, remain an adversarial one.

A forum in which historians have adopted such an adversarial position and, in the process, raised the issue of what constitutes a trustworthy record in an electronic environment, is the American courts. In two recent cases: *Armstrong v. Executive Office of the President* and *Public Citizen et al. v. John Carlin in his official capacity as Archivist of the United States, et al.,* historians, journalists, and other researchers challenged the right of the government to destroy electronic records generated by federal agencies. The cases do not directly answer the question whether the techniques of external and internal criticism are adequate for verifying the authenticity and degree of reliability of electronic records. They do, however, reveal a number of implicit assumptions concerning what historians and other researchers consider to be the essential characteristics of reliable and authentic electronic records, some of which run counter to traditional assumptions.

In 1989, Scott Armstrong (who was then executive director of the National Security Archive) and others sought an injunction prohibiting the destruction of backup tapes from the IBM PROFS system, the electronic mail system which served the agencies of the Executive Office of the President (EOP), including the National Security Council (NSC).[92] The electronic mail on the system was created by the Reagan and Bush White House and government officials intended to erase all the data remaining on the system at the end of the Reagan administration. The lawsuit filed by Armstrong and others made three claims: first, that some information on the PROFS system qualified either as agency records under the Federal Records Act or as presidential records under the Presidential Records Act; that the Executive Office

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[91] Peter Denley, "The Flood and the Hunt: Data Creation, Storage and Retrieval in the Electronic Age," in *Electronic Information Resources*, 23.

[92] As David Bearman points out in his summary of the *Armstrong* case, "this is the same system that earlier achieved substantial notoriety because it revealed that Lieutenant Colonel Oliver North and his superiors had engaged in a scheme to sell arms to Iran and use the profits to aid the Nicaraguan Contras after North had destroyed the paper trails that might have implicated the National Security Council staff in the effort." See David Bearman, "The Implications of Armstrong v. Executive Office of the President for the Archival Management of Electronic Environment," *American Archivist* 56 (Fall 93): 675.

of the President failed to formulate and implement guidelines for the management of its electronic mail consistent with law and regulation; and that the Archivist of the United States neglected to carry out his statutory responsibilities with respect to the electronic records on the PROFS system. The plaintiffs sought relief "in the form of implemented guidelines for future electronic mail and for appraisal of the records on the PROFS system at the time of filing." [93]

The case was decided in favor of the plaintiffs and the decision was upheld on appeal. In 1993, the U.S. Court of Appeals for the District of Columbia in *Armstrong v. Executive Office of the President* ("*Armstrong II*")[94] held that electronic versions of documents are records that must be created, managed and disposed under the rules set out in the Federal Records Act (FRA).[95] The Act prohibits agencies from destroying records without the prior approval of the Archivist of the United States.[96] In making its ruling, the court rejected the government's claim that the PROFS system was not a recordkeeping system and that therefore the information within it could not be defined as records. The court observed that, while PROFS was not set up as a recordkeeping system, it was, nevertheless, used to carry out substantive business. Staff with access to the EOP and NSC electronic mail systems used the systems "to relay substantive--even classified 'notes' that, in content, are often indistinguishable from letters and memoranda."[97]

The court also rejected the government's argument that electronic versions of documents, once copied to paper, are no longer "records." [98] The court maintained that, unless an electronic message is an *identical* extra copy of a paper printout, it is considered a record whose disposition must be determined in accordance with the FRA. Moreover, the court argued, paper printouts of electronic mail are not exact duplicates of the electronic versions because they do not generally contain all the information found in the electronic original. Speaking for the court, Judge Wald stated that paper printouts that do not include "all significant material" contained in the electronic records "cannot accurately be termed 'copies'--identical twins--but are, at most, 'kissing cousins.'"[99] The court cited as examples of the kinds of "significant material" potentially absent in the paper printout the names of recipients and senders, the date and time of receipt, the link to prior messages and full distribution

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[93] *Ibid.*

[94] 1 F.3d 1274, 1287 (D.C. Cir. 1993).

[95] 44 U.S.C. para. 2201 *et seq.*, 2901 *et seq.*, 3101 *et seq.*, and 3301 *et seq.* The FRA requires that each federal agency "make and preserve records containing adequate and proper documentation of the organization, functions, policies, decisions, procedures and essential transactions of the agency."*Ibid.*, at 3101. The term "records" includes "all books, papers, maps, photographs, machine readable materials, or other documentary material regardless of physical form or characteristics, made or received by an agency of the United States."

[96] In his summary, Bearman notes, "the parties agreed that the Archivist did not give prior authority to the disposal of the electronic records of the PROFS system and the government admitted that the Archivist was advised by the plaintiffs of the proposed destruction of these records before it was scheduled to take place and did not elect to act." Bearman, "Implications of Armstrong," 677.

[97] *Ibid.*, 679.

[98] *Armstrong II,* at 1285.

[99] *Ibid.*, at 1283

lists.[100] According to David Bearman, the court's ruling established that "structural and contextual data, in addition to the content of messages, are crucial to "recordness," and "archiving" without capturing such critical evidence is equivalent to destroying the record.[101]

In *Armstrong*, electronic mail messages provided a focal point for the court's consideration of what constitutes a record in an electronic environment, what constitutes a complete record in that environment, and the value of an electronic version of a record, relative to its paper counterpart. In a subsequent court case, *Public Citizen et al v. Carlin et al*, the court was asked to consider the same questions in relation to a broader range of electronic records.

The ruling in *Armstrong* did not affect the ability of federal agencies to destroy incidental electronic records that, in the opinion of the Archivist of the United States, lacked sufficient administrative, legal, research or other value to justify their continued preservation.[102] In 1995, the National Archives and Records Administration (NARA) issued revisions to General Records Schedule 20 (GRS 20), [103] which authorized the destruction of electronic records in fifteen enumerated categories, including electronic records created by computer operators, programmers, analysts, systems administrators and government staff using office automation applications. A group of historians, journalists, and other researchers responded by launching a lawsuit, charging that the regulation was "arbitrary and capricious, irrational and contrary to law."[104] According to the plaintiffs[105] in *Public Citizen*, the Archivist had no authority to use a General Records Schedule to authorize the blanket destruction of electronic records, without first determining whether they were housekeeping records of short-term value or program records of long-term value.

The most contentious provisions in GRS 20 relate to word processing files (item 13), electronic mail message records, including attachments (item 14), and

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[100] Bearman, "Implications of Armstrong," 679.
[101] *Ibid.*
[102] *Armstrong II*, 1 F.3d at 1287.
[103] General Records Schedules are authorizations by the Archivist of the United States to destroy records that are of a specific "form or character common to several or all agencies" and that lack, "after a specified period of time" sufficient administrative, legal, research or other value to warrant their continued preservation. 44 U.S.C. para. 3303a(d). The scope of a General Records Schedule is restricted to administrative or housekeeping records maintained by federal agencies; operational or program records of federal agencies can only be destroyed through the promulgation of individual agency schedules. General Records Schedule 20, which was first issued in 1972, authorizes the destruction of electronic records that fall within the category of housekeeping records.
[104] *Public Citizen, Inc., et al v. John Carlin in his official capacity as Archivist of the United States, et al*, District of Columbia Circuit. Civil Action No. 96-2840, 10/22/97, 1 at http://www.nara.gov/records/grs20/opinion.html.
[105] The plaintiffs included Public Citizen, Inc., the American Historical Association, the American Library Association, the Center for National Security Studies; the National Security Archive; the Organization of American Historians; Scott Armstrong, and Eddie Becker. Public Citizen Inc., is a public interest lobby group founded by Ralph Nader in 1971).

electronic spreadsheets (item 15). Items 13 and 14 permit agencies to delete word processing files and electronic mail message records from the original system on which they were created "after they have been copied to an electronic recordkeeping system, paper, or microform for recordkeeping purposes." Item 15 permits the deletion of electronic spreadsheets once they have been copied to paper. [106] The plaintiffs maintained that the promulgation of GRS 20 had already resulted in agencies adopting a "print and delete" policy with regard to these types of electronic records.

In *Armstrong II*, the government had argued that the process of printing out an electronic record takes away its status as a record. In *Public Citizen*, it argued that the creation of a paper version of an electronic record under GRS 20 takes away the electronic version's long-term value and, in turn, its status as a program record. The view taken by the court in *Public Citizen* was that the government's argument was "no more persuasive than the one rejected by the court of appeals in *Armstrong II*. While an *exact* duplicate of a particular record might be discardable, electronic records cannot categorically be regarded as valueless '"extra copies' of paper versions. ... Simply put, electronic communications are rarely identical to their paper counterparts; they are records unique and distinct from printed versions of the same record." [107]

NARA's defence of GRS 20 was based on its assertion that, far from authorizing the destruction of valuable records created by office automation, GRS 20, along with NARA regulations and guidelines, aimed to preserve such records by requiring agencies to transfer them to an appropriate recordkeeping system. Agencies were not authorized to delete the versions on the electronic mail and word processing systems until the records had been properly preserved in an agency-controlled recordkeeping system, i.e., a system with the "capability to group similar records and provide the necessary context to connect the record with the relevant agency function or transaction." [108] For word processing records, such context would include, among other things, the office of origin, file classification code, key words for retrieval, addressee, author, signer, date and security classification. If the records were maintained in an electronic recordkeeping system, they had to be correlated with related records on paper, microform, or other media. [109] To meet the specific concerns raised in *Armstrong II* in regard to electronic mail messages, Item 14 of GRS 20 required agencies to copy the names of sender and recipients and dates of transmission or receipt, along with the message text, to the recordkeeping system before the message was destroyed.[110] According to NARA, the reason agencies were printing electronic records to paper was simply that their electronic systems

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[106] [U.S.] National Archives and Records Administration, "Federal Register Notice on 1995 revision of GRS 20, 60 FR 44643-44650, including the full text of the current version of GRS 20, 15-16 at gopher://gopher.nara.gov:70/00/managers/federal/grsfr.txt.

[107] *Public Citizen et al. v. Carlin*, 12.

[108] "Federal Register Notice on 1995 revision of GRS 20," 4.

[109] 36 CFR Chapter XII, Part 1234.22 subpart C: "Standards for the Creation, Use, Preservation, and Disposition of Electronic Records: Creation and Use of Text Documents."

[110] See also 36 CFR XII, Part 1234.24, "Standards for Managing Electronic Mail Records."

were incapable of meeting the recordkeeping requirements. Therefore, agencies had little choice but to print the electronic records out and incorporate them into a traditional paper recordkeeping system which was capable of maintaining the records in their documentary and administrative context. NARA pointed out that, as the technology progresses, "agencies will be able to consider converting to electronic recordkeeping systems for their records."[111]

Underpinning NARA's position were the twin beliefs that the long-term value of government records for both administrative and research purposes is intimately connected to their trustworthiness, and that maintaining records in a secure, centrally controlled recordkeeping system is the best means of ensuring it. Because electronic mail messages and word processing records typically are stored in disparate electronic files maintained by individuals rather than in centrally controlled files that are maintained by and for the agency as a whole, they lack the circumstantial guarantee of trustworthiness that such control provides. NARA believed that instituting procedures directed toward re-asserting centralized control over bureaucratic recordkeeping and bringing electronic records within the scope of that control offered the most appropriate solution to the problem of ensuring the trustworthiness of records and, hence, their value as evidence.

In the end, the court in *Public Citizen* sided with the plaintiffs concluding that, in promulgating GRS 20, the Archivist had exceeded his authority and failed to carry out his statutory duty to determine whether the records scheduled for disposal possessed sufficient administrative, legal, research, or other value to warrant their continued preservation. Accordingly, the court declared the regulation "null and void" and ordered it to be withdrawn.

In both *Armstrong* and *Public Citizen*, the courts accepted the plaintiffs' assertion that an electronic version of a record is inherently more complete and, by implication, more trustworthy than a printout version of that record. The courts also accepted the plaintiffs' view that for electronic records to be complete, the original functionality of the "live" system in which they were created must be preserved. According to the plaintiffs, word processing records and electronic spreadsheets, like electronic mail messages,

> contain information that is not preserved in a print-out record or even in other computerized systems of records. For example, print-outs of computer spreadsheets only display the results of calculations made on the spreadsheet, while the actual electronic version of the spreadsheet will show the formula used to make the calculations. ...Some word processing systems allow users to annotate a document with a "summary" or "comments" that contain information on the author of the document, its purpose, the date that it was drafted or revised, and annotations by authors or reviewers. ...These comments, however, usually do not appear on a printed copy of the record. Such

[111] "Federal Register Notice on 1995 revision of GRS 20," 4.

> differences between electronic and paper records illustrate the fact that the administrative, legal, research and historical value of electronic records is not always fully captured indeed, is usually not captured -- by paper or microfiche copies. Electronic records, therefore do not become valueless duplicates ...once they have been printed on paper; rather they retain features unique to their medium.[112]

The context the plaintiffs sought to protect in launching their lawsuit is both broader and narrower than the one with which NARA was concerned. It is broader because it encompasses the entire hardware and software environment in which records are generated, and narrower because it confines itself to the original electronic system and excludes the broader documentary and administrative context in which those records are created and used. From the plaintiffs' perspective, the electronic record in its "live" environment constitutes the best evidence because it allows researchers to see past events through the eyes of its original creator and user(s). The events to which the electronic records bear witness, however, are restricted to those that are captured (or "witnessed") by the computer and stored in its memory. In that respect, such records can hardly be described as "complete."

Moreover, in accepting the plaintiff's argument, the Court failed to take into account the fact that certain aspects of the live system's functionality, the capacity to manipulate records for instance, if preserved as a permanent feature of the records, could compromise their integrity as records (i.e., their authenticity). Nor did it consider that, practically speaking, preservation of electronic records in the live system cannot be implemented because media fragility and technology obsolescence necessitate the eventual migration of records out of the original system in which they were created and used. Even before migration, records that are no longer active need to be removed from the live system; otherwise the system will eventually collapse under the weight of the accumulated data.

At the same time, NARA's position is flawed in its refusal to grant any validity to the plaintiffs' argument that the technological context in which electronic records are originally created and used contributes to their trustworthiness and value as evidence. Since the presentation elements of an electronic record, such as annotations, colours, original fonts, letterhead, and other special signs, are shaped by the software used to create it, the transfer of that record into a recordkeeping system (whether electronic or paper) could result in the elimination or distortion of these elements. To the extent that the elements contribute to, and influence, the content of the record, their elimination or distortion is relevant to a consideration of their authenticity. While it may not be possible or feasible to maintain electronic records in their original technological context, it is both possible and feasible to preserve evidence of that context by means of annotations to the record or by preserving supplementary documentation about the record's original hardware and software environment.

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[112] *Public Citizen*, 12.

Though neither *Armstrong* nor *Public Citizen* explicitly answers the question whether the techniques of external and internal criticism are adequate for verifying the authenticity and degree of reliability of electronic records, they raise a number of issues concerning what historians and other researchers consider to be the essential characteristics of such records. In the last chapter it was suggested that, in relation to documentary evidence, the epistemically best evidence, for legal purposes, is that which is most complete. In an electronic recordkeeping environment, adherence to a best evidence principle would manifest itself in an obligation of the parties to produce, not only the content of the record, but its original structure and any original annotations, to the extent that these are relevant to an understanding of the record's content. The opposing positions in *Public Citizen* can be characterized as a debate over what constitutes the epistemically best evidence for research purposes: that which provides the most complete picture of the administrative and documentary context in which an electronic record was created and maintained (NARA's view), or that which provides the most complete picture of the technological context in which an electronic record was created, viewed, annotated, manipulated, and searched during its active life (the plaintiffs' view). Although the Court ultimately accepted the latter view, it is clear that neither position takes adequate account of the other and that the administrative, documentary, and technological context in which electronic records are created and used all contribute to an assessment of their completeness, trustworthiness, and, hence, value as evidence.

It is equally clear that further elaboration of both the technological and administrative and documentary context in which electronic records are created, maintained and used is essential to determining their trustworthiness. Thus far, the required elements for record completeness have been defined in relation to specific cases and cannot be generalized to all types of electronic records. Moreover, while they make a number of assertions about what constitutes a complete record, the two court cases described were motivated by a concern to ensure that potentially valuable electronic records were not destroyed without proper authorization, rather than by a desire to characterize in any definitive way what constitutes a reliable and authentic record. Questions concerning the reliability and authenticity of electronic records need to be addressed by a more general and systematic assessment of what constitutes a record, what constitutes a complete record, and what constitutes a reliable and authentic record in an electronic environment.

The historian R.J. Morris believes that the economic and social imperatives of bureaucracies, rather than the interests of historians, are likely to drive efforts to define and ensure record reliability and authenticity:

> Many of the problems anticipated by historians are already being experienced by users and information managers. Like historians those responsible for records within a company or government department want to know who saw what when and who was responsible for ideas and changes. In the initial stages of the shift to the electronic record, there has been a temporary solution to the problems of access,

> attribution and what is a document. Most users still make valiant efforts to mimic the old technology of paper. We all need our printer and still file 'hard copy'. In the long term the solution is likely to come from the inherent needs of capitalist and bureaucratic structures. Bureaucracies need to be able to attribute responsibility and capitalism depends upon the verifiability of contracts ... Only when the problems of verifiability and attributability have been solved will the paperless office really be possible within the social structures of capitalism and bureaucracy.[113]

While there is not general agreement on what elements will provide a circumstantial probability of trustworthiness, it is generally agreed that the capacity to capture those elements needs to be built into the design of electronic information systems. Such need is a recurring theme in the archival literature since archivists have been struggling with these issues for more than a decade. In recent years, some archivists have turned to the centuries old discipline of diplomatics to address this need. The next chapter will explore the way in which diplomatic methodology has been adapted to meet the needs of contemporary recordkeeping. In that adaptation, it has been transformed from a tool for retrospectively assessing the trustworthiness of medieval records into a standard for the creation and maintenance of complete, reliable, and authentic electronic records.

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[113] R.J. Morris, "Back to the Future: Historians and the Electronically Created Record," *History and Computing* 4 (1992): iv.

Chapter 4

Ensuring the Trustworthiness of Electronic Records: Contemporary Archival Diplomatics

Diplomatics was born in the seventeenth century as an analytical technique for determining the authenticity of records issued by sovereign authorities in previous centuries. Its primary purpose was to ascertain "the reality of the rights or truthfulness of the facts"[1] contained in such documents. In the nineteenth century, historians adopted diplomatics as a tool of documentary criticism for assessing the authority of medieval records as historical sources. At the end of the twentieth century, archivists have discovered new uses for this old science, based on its potential as a standard for ensuring the trustworthiness of electronic records.

The first diplomatist, Mabillon, defined diplomatics as "the establishment of certain and accurate terms and rules by which authentic instruments can be distinguished from spurious [ones]."[2] Modern diplomatists define it more broadly as "the discipline which studies the genesis, forms and transmission of archival documents, and their relationship with the facts represented in them and with their creator, in order to identify, evaluate, and communicate their true nature."[3] Inspired by this new definition, Canadian researchers working in the field of archival science have recently undertaken to reinterpret the concepts and principles of diplomatics in the specific context of electronic information systems. The purpose of this endeavor is to identify requirements for creating and maintaining trustworthy records within such environments. This chapter will examine the capacity of diplomatics as a conceptual and methodological tool for building trustworthiness into the design of electronic information systems, as well as the limits to that capacity. It will also address the extent to which it addresses some of the issues raised in earlier chapters, e.g., the nature and boundaries of a record in an electronic environment, and the status of an original in that environment.

According to Luciana Duranti, the primary contribution of diplomatics to the understanding of electronic records lies in its analysis of the attributes of a record based on concepts and principles that have evolved over centuries of detailed study of the documentary process. By decontextualizing and universalizing those attributes, the original diplomatists were able to recognize and evaluate records created over several centuries and across different, and, sometimes, bewildering, juridical systems. In the same way, Duranti argues, diplomatics is capable of teaching archivists to recognize and identify electronic records generated within many different and equally bewildering hardware and software environments. The concepts and principles of diplomatics also have the potential to guide the

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[1] Duranti, "Diplomatics I," (see chap. 1, n. 10), 17.

[2] Quoted in C.R. Cheney, *The Papacy and England 12th - 14th Centuries* (London: Variorum Reprints, 1982), 8.

[3] Duranti, "Diplomatics I," 17.

development and implementation of standards for creating and maintaining reliable and authentic records generated in contemporary record-keeping environments.

In a series of articles written between 1989 and 1992,[4] Duranti examined the principles and concepts developed by diplomatic theorists to evaluate the authenticity of medieval documents to determine whether they could be adapted to deal with records generated by modern bureaucracies. She found that the necessary elements of documentary creation identified by the early diplomatists, i.e., the *juridical system*[5] (the necessary context of document-creation), the *act* (its determinant cause), the *persons* (its agents and factors), the *procedures* (which guide its course), and the *documentary form* (which pulls together all the relevant elements and shows their relationships) are as relevant to an understanding of the nature of records generated by modern bureaucracies as they were to an understanding of records issued by medieval chanceries. The main difference is that, in modern recordkeeping environments, the same elements manifest themselves in different ways. Over the course of the six articles, Duranti refined, reinterpreted, and extended the classical concepts, and introduced new ones to take into account the variety and complexity of bureaucratic record-keeping environments.[6]

The articles laid the groundwork for a subsequent three year research project carried out by faculty in the Master of Archival Studies Program at the University of British Columbia (UBC), and funded by the Social Sciences and Humanities Research Council of Canada. A significant impetus for proposing the research project was provided by the decision in the *Armstrong* case, which had underscored the need for a more systematic analysis of the nature and boundaries of a record in an electronic environment.[7] The UBC research team comprised Duranti as principal investigator, Terry Eastwood as co-investigator and Heather MacNeil as research assistant.[8] The research project was entitled "The Preservation of the Integrity of

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[4] Duranti. "Diplomatics I," 7-27; "Diplomatics ...(Part II)," *Archivaria* 29 (Winter 1989-90): 4-17; "Diplomatics ...(Part III)," *Archivaria* 30 (Summer 1990): 4-20; "Diplomatics ...(Part IV)," *Archivaria* 31 (Winter 1990-91): 10-25; "Diplomatics ...(Part V)," *Archivaria* 32 (Summer 1991): 6-24; "Diplomatics ...(Part VI)," *Archivaria* 33 (Winter 1991-92): 6-24.

[5] A juridical system is a social group organized on the basis of a system of rules. It comprises the social group, the organizational principle of the group, and the system of binding rules recognized by the social group.

[6] Subsequent to the publication of Duranti's six articles, a joint seminar exploring the application of diplomatics to contemporary records was held by archivists from the Bentley Historical Library of the University of Michigan and by members of the faculty of the École Nationale des Chartes in Paris. The seminar took place in two sessions, the first in Paris 1992, the second in Ann Arbor 1993 and resulted in a series of articles which were published in French in *La Gazette des Archives* 172 (1996) and in English in *The American Archivist* 59 (Fall 1996). The articles reflect a consensus on the part of the contributors that the discipline of diplomatics can contribute significantly to an understanding of contemporary recordkeeping environments.

[7] Luciana Duranti and Terry Eastwood. "Protecting Electronic Evidence: A Progress Report." *Archivi & Computer* 5 (1995): 213

[8] For my contributions to the UBC research project see *supra*, chap. 1, fn. 11. The *description* of the UBC project in this chapter is based on an article I co-authored at the project's conclusion. See

Electronic Records," and its goal was to identify and define conceptually the nature of an electronic record and the conditions necessary to ensure its integrity, meaning its reliability and authenticity. The theoretical basis for the research derived from the integration of concepts and principles drawn from diplomatics and archival science.[9] The integration resulted in the elaboration of a hybrid discourse that may be characterized as *contemporary archival diplomatics*. The product of the research was a set of standards and rules for developing and implementing a trustworthy electronic recordkeeping system.

The definitions of reliability and authenticity used in the project are consistent with those used in the disciplines of law and history. Reliability means that the record is capable of standing for the facts to which it attests. Authenticity means that the record is what it claims to be.[10] In the research project, each of the two concepts has been associated with specific stages in the life of the record. Reliability is associated with the creation of a record and refers to the completeness of its intellectual form and the degree of control exercised over its creation procedures. Authenticity, on the other hand, is associated with the record's status, mode, and form of transmission, and the manner of its preservation and custody.

The research team began its work by articulating a set of general premises concerning the nature of a record in a traditional recordkeeping environment, and the conditions necessary to ensure its reliability and authenticity. Those premises were then interpreted within the framework of electronic information systems. This

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Luciana Duranti and Heather MacNeil. "The Protection of the Integrity of Electronic Records: An Overview of the UBC Research Project." *Archivaria* 42 (Fall 1996): 46-67. The *analysis* of the project in this chapter however, is my own interpretation of it and does not necessarily reflect the views of the research team. The analysis emphasizes aspects of the project considered relevant to my study of the evolution of legal, historical, and diplomatic methods for assessing the trustworthiness of records, and ignores aspects of the project considered irrelevant to my purposes. By analysis, I include the connections drawn to Duranti's earlier work on diplomatics, the discussion of the similarities and differences between the essential characteristics of an electronic record identified by the UBC project and those identified by the plaintiffs in *Armstrong* and *Public Citizen*, and the examination of the limits of the methods elaborated by the UBC project for ensuring record trustworthiness. For a more detailed analysis of the research project and its findings see the overview cited above as well as the following: Duranti and Eastwood. "Protecting Electronic Evidence," 213-250; Luciana Duranti, Heather MacNeil and William E. Underwood, "Protecting Electronic Evidence: A Second Progress Report on a Research Study and its Methodology," *Archivi & Computer* 6 (1996): 37-70; Luciana Duranti and Heather MacNeil. "Protecting Electronic Evidence: A Third Progress Report on a Research Study and its Methodology," *Archivi & Computer* 6 (1996): 343-404; Heather MacNeil, "Protecting Electronic Evidence: A Final Progress Report on a Research Study and Its Methodology," *Archivi & Computer* 7 (1997): 22-35.

[9] The need to augment diplomatic concepts and principles with those of archival science was based on the fact that, whereas the early diplomatists dealt with isolated documents, contemporary recordkeepers manage aggregations of documents. Archival science is the discipline that studies documents as aggregations. It emerged in the nineteenth century as a body of concepts and methods directed toward the study of records in terms of their documentary and functional relationships and the ways in which they are controlled and communicated.

[10] For a more detailed discussion of the concepts, see Luciana Duranti, "Reliability and Authenticity: The Concepts and their Implications," *Archivaria* 39 (Spring 1995): 5-10.

interpretation generated a number of hypotheses expressing the necessary and sufficient components of a complete, reliable, and authentic electronic record. The hypotheses constituted the conceptual basis for establishing firstly, whether a given electronic system contained records, and secondly, whether such records could be considered reliable and authentic. The hypotheses were subsequently translated into detailed rules for the creation and maintenance of reliable and authentic records.[11]

For the purposes of the project, the classical archival science definition of record was adopted,[12] according to which a record is any document created (meaning made or received, and set aside either for action or reference), by a physical or juridical person in the course of practical activity as an instrument and by-product of it. An *electronic* record was defined as a record created in electronic form. The research team was thus able to distinguish the entity *record* from other

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[11] That final step was accomplished with the assistance of the U.S. Department of Defense Records Management Task Force, which approached the research team one year into the UBC project for the purpose of collaborating with it. The Task Force's mandate was to develop a new departmental records management system for both electronic and non-electronic records and it was actively seeking a theoretical foundation for its reengineering effort. It contributed to the UBC research methodology its own standard modelling technique, which was useful for the purposes of analysing and graphically representing the diplomatic and archival concepts, and making their meaning comprehensible and relevant to information system designers. The hypotheses developed by the UBC research team provided the concepts to be represented, while the modelling technique provided the means of translating those concepts into activity and entity models that show the relationships of their components from well identified viewpoints and for determined purposes. On the basis of the activities identified in the models, the UBC research team developed detailed rules for creating and handling reliable and authentic records, both electronic and non-electronic.The hypotheses (which are articulated in templates), the activity and entity models, the glossary, and the rules associated with the activities are available for viewing at the UBC research project's web site located at http://www.slais.ubc ca/users/duranti/. For a more detailed explanation of the Department of Defense project, see William E. Underwood, Luciana Duranti, Daryll R. Prescott and Mark Kindle, "IDEF Methodology and the Reengineering of Records Management," in *Reengineering in Action: The Quest for World Class Action*, Chang Meng Khoong, ed. (London and Singapore: Imperial College Press, an imprint of World Scientific Publishing, 1998); William E. Underwood, "Records Management Research Sponsored by the US Army and the Department of Defense," *Archives and Museum Informatics* 11 (1997): 261-67; Kenneth Thibodeau and Daryll R. Prescott, "Reengineering Records Management: The U.S. Department of Defense, Records Management Task Force." *Archivi & Computer* 6 (1996): 71-78.

[12] After some deliberation, the research team decided against adopting the traditional diplomatic definition of a record, according to which a record is "the written testimony or evidence of a juridical fact, produced by a natural or juridical person in the course of practical-administrative activity, and kept for action or reference by that same person or its legitimate successors." This definition reflects a user's retrospective view of the record, a perspective consistent with that of early diplomatists who were looking at discrete, isolated records created in the distant past, whose original context of creation was not self-evident. However, because the perspective adopted by the UBC project was that of the creator who is making, receiving, and setting aside records in a clearly defined context (i.e., within an agency), it was decided that the diplomatic definition was not appropriate. See Luciana Duranti, "The Archival Bond," *Archives and Museum Informatics* 11 (1997): 214.

entities typically found in electronic information systems, i.e., documents, [13] information,[14] and data.[15]

Defining an electronic record was a necessary first step in characterizing it as a distinct species of recorded information. The next step was to identify and define each component of a record in a traditional environment and then interpret it in the context of electronic information systems. Such interpretation provided a basis for recognizing and identifying records created in an electronic system and for establishing their degree of reliability and authenticity. The contemporary diplomatic analysis of the necessary and sufficient components of an electronic record resulted in the identification of eight fundamental components: *medium*, *content*, *physical form*, *intellectual form*, *action*, *persons*, *archival bond*, and *context*.

The *medium* is the physical carrier of the content and it is a necessary component because a record does not exist until it is affixed to a medium. With more traditional forms of records, the medium (e.g., parchment, papyrus, paper) and the message are inextricably linked to each other. With electronic records, the medium (e.g., disc, magnetic tape) exists as a separate physical part of the record. This difference does not carry significant implications with respect to the record's reliability and authenticity because, in literate modern societies, the medium is not intended to convey meaning, but simply to provide a physical carrier for the message. Therefore, each record reproduction in which the only component that changes is the medium can be taken to be a complete and effective record identical to the one that it reproduces.

The *content* refers to the message the record is intended to convey. As suggested above, for a record to exist at all, it must be fixed and stable, i.e., its message must be affixed to a medium. By this criterion, an electronic document that consists solely of pointers to data residing in different locations within a database, or in multiple databases (sometimes referred to as a "virtual document"), cannot be considered a record in an electronic environment. This is because, although it is possible to see on a computer monitor the document resulting from the assembly of those data in a meaningful form, this document does not exist as such until its components are actually joined together in an inextricable way, i.e., until its content is explicitly articulated in a fixed form. With traditional records, a document that consists of pointers to information contained in other documentary sources is itself a record (it is a record of the sources to be used to make another record). With electronic documents of the kind described above, the pointers lead to data which -- being contained in databases that, by their nature, are dynamic -- will change over time. Thus, such a document lacks stability and, within a period of thirty minutes, may be ten different documents. For this kind of document to become a record it

[13] A document consists of information affixed to a medium in an objectified and organized way, according to specific rules of representation.
[14] Information is a meaningful group of data intended for communication, either across space or through time.
[15] Data are the smallest meaningful recorded facts.

must be set aside, meaning that all the information to which the pointers point must be saved into the electronic information system of the record creator.

The content of a record is transmitted by means of rules of representation that are embodied in its physical and intellectual form. *Physical form* is constituted by the formal attributes of the electronic record that, in traditional diplomatics, are called "extrinsic elements"[16] and which determine its external appearance. It includes, among other things, script (e.g., type font, format, inserts, colors, etc.), language, special signs (e.g., symbols indicating the existence of attachments or comments, mottoes, emblems, etc.), seals of any kind (including digital signatures, time-stamps, etc.), the configuration and architecture of the electronic operating system, the architecture of the electronic records, and the software. In other words; it includes all those parts of the technological context that determine what the document will look like and how it will be accessed, and that, in electronic systems, are usually invisible to the user. Unlike the medium, the elements of physical form are intended to convey meaning; therefore, any change in them generates a new and different record.

The *intellectual form* of a record comprises the formal attributes that represent and communicate the elements of the action in which the record is involved as well as its immediate documentary and administrative context. In relation to electronic records, intellectual form may be subdivided into three parts: the "information configuration," which refers to the type of representation of the content, whether text, graphic, image, sound, or a combination thereof; the "content articulation," which refers to the elements of the discourse and their arrangement, such as date, salutation, exposition, etc.; and "annotations," which refer to the additions made to the record either in the execution phase of the procedure (e.g., authentication of signatures), in the handling of the matter (e.g., indication of "urgent" or "bring forward," date and name of action taken), in the development of the procedure (e.g., mention of subsequent actions or their outcome), or in the management of the record (e.g., classification code, registry number).

Content articulation includes primarily elements that, in traditional documents, are called "intrinsic elements."[17] The most important are the elements referring to the persons concurring in the formation of the record, its administrative context, and the action to which it relates. These include the superscription,[18] inscription,[19] date of document, date of transmission, and subject. With electronic records that are transmitted across electronic boundaries, such elements are found in the header of

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[16] The extrinsic elements of documentary form are discussed in the context of medieval and modern documentary production in Duranti, "Diplomatics (Part V)," 6-10.

[17] The intrinsic elements of documentary form are discussed in the context of medieval and modern documentary production in Duranti, "Diplomatics (Part V)," 11-16.

[18] The superscription is "the mention of the name of the author of the document and/or the action." See *ibid.*, 12.

[19] The inscription is the mention of "the name, title and address of the addressee of the document and/or action." See *ibid.*, 12.

the record, which constitutes most of the record's protocol.[20]

The core component of any record is the *action* that gave rise to it. An action is any exercise of will that aims to create, change, maintain or extinguish situations. Accordingly, diplomatics categorizes records in terms of their relationship (or proximity) to actions.[21] A *dispositive* record is one whose written form is required by the juridical system as the essence and substance of the act, i.e., the act comes into existence with the creation of the record (e.g., a written contract, a hospital admission record). A *probative* record is one whose written form is required by the juridical system as proof that an act has taken place (e.g., a birth, marriage, or death certificate, or a research laboratory notebook).

A *supporting* record is one on which an action is based, but which is not necessary for the action to occur and does not constitute proof of its occurrence. Supporting records are created in the course of carrying out a specific business activity and are intended to provide support for that activity. Most electronic records have a supporting function with respect to the action in which they take part. For example, a geographical informational system, a database which presents data in a geographic arrangement, typically contains documents, information, and data, rather than records. However, the system as a whole can be considered a record, if its function as a database is to support the decision-making in a specific business activity (when regarded as a unit it possesses all the necessary components of a record). It can also produce documents that, once extracted from it and linked to other records of action, become records, (e.g., a representation of the density of population in a given location that is attached or linked to a report containing recommendations for the development of new housing). A *narrative* record serves as memory of an action, but does not participate in its formal development: in other words, it is not procedurally linked to an action. Many electronic records have a narrative function, that is, they simply reflect the various and informal motions individuals go through in order to organize themselves to carry out activities and make decisions. An employee's electronic daybook or journal are typical examples of narrative records, because they are individualistic expressions of intent.

The agents and factors of the action that originates the record are *persons*,

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[20] In diplomatic terms, the protocol is the first of three physical subsections of a document. It "contains the administrative context of the action (i.e., indication of the persons involved, time and place, and subject) and initial formulae". See *ibid.*, 11.

[21] Traditional diplomatists identified two categories of record: dispositive and probative, whose written form is required by the juridical system. Though these two categories continue to be relevant, their scope is too narrow to accommodate the diversity of records generated within modern bureaucracies and by electronic information systems. Therefore, in her original series of articles, Duranti identified two further categories of record: supporting and narrative, whose written form is discretionary, rather than required. For further explanation of the medieval and modern diplomatic analysis of actions and the categorization of records in relation to them, see Duranti, "Diplomatics (Part II)," 4-17.

i.e., the physical and juridical entities acting by means of the record.[22] Traditional diplomatic doctrine maintains that, while many persons may take part in the creation of a record, only three persons are necessary to its existence, that is, the *author* (i.e., the person having the authority and capacity to issue the record or in whose name or by whose command the record has been issued), the *addressee* (i.e., the person to whom the record is directed or for whom the record is intended), and the *writer* (i.e., the person having the authority and capacity to articulate the content of the record).[23] With electronic records, it is necessary to identify two other persons: the record's *creator* (i.e., the person to whose archival fonds[24] the record in question belongs), and the *originator* (i.e., the person owning the electronic address or space from which the record is transmitted or in which it is compiled and saved). Traditional diplomatics does not require that the creator of the record or its originator be specifically identified because those persons are usually obvious from the location of the record. With electronic records, however, their identities are not so self-evident.

The identification of the creator in connection with each electronic record is necessary to the preservation of its provenance over time. While a record resides in the electronic system in which it is made or received, its creator is easily identifiable as the person having jurisdiction over the system for making, receiving and accumulating records in the conduct of business. But, once the record is taken out of the system, its location on a storage medium and in a given storage facility is no longer meaningful for the purpose of identifying its creator. In an ideal system, the identity of the creator of an electronic record would be revealed by a visual representation such as a logo or a crest which would be attached as an annotation to each record just as, in the past, the stamp of a receiving or registering office was imprinted on each record.

The identification of the originator in connection with each electronic record is necessitated by the fact that such person may be different from the author or writer of the record: the issue here relates primarily to responsibility and accountability. For records that are electronically transmitted, the name of the record's originator is found in the header of the electronic mail message, for records that do not cross electronic boundaries, the originator's name is stored either in the data dictionary or in a document profile and corresponds to the name of the owner of the electronic individual space in which the record is saved.

It is a fundamental tenet of classical archival theory that records are necessarily composed of both documents and the complex of their relationships. For that reason, the UBC research team identified the *archival bond* as an essential component of a record. The archival bond is the relationship that links each record to

[22] The diplomatic identification of the various persons concurring in the formation of a document in the context of medieval and modern documentary production is discussed in Duranti, "Diplomatics (Part III)," 4-20.

[23] It is important to point out that these are conceptual persons. In fact, the author and writer of a record may be the same physical person.

[24] The archival fonds is the whole of the records created by a physical or juridical person by reason of its activity and preserved for action or reference.

the previous and subsequent one and to all those which participate in the same activity. It is "originary (i.e., it comes into existence when the record is made or received), necessary (i.e., it exists for every record), and determined (i.e., it is characterized by the purpose of the record)."[25] It is also incremental because, as the connective tissue that joins a record to those surrounding it, it is in continuing formation and growth until the activity is completed.

In a traditional recordkeeping environment, the archival bond -- which conceptually arises at the moment a record is set aside, and which therefore determines the moment of the record's creation -- manifests itself in a number of ways: in the physical arrangement of the records within a file, in annotations made to the record, such as a classification code, which connects it to other records belonging to the same class, and, in the case of incoming and outgoing records, in the registration number assigned to the record, which connects it to previous and subsequent records made or received by the creator and dealing with the same matter. The purpose of classification is to make explicit the relationship between records and the actions in which they participate, to authenticate and perpetuate that relationship and to make sure that as long as the records exist, such relationship will not be altered. The purpose of registration is to provide evidence of the recorded interactions between the creating body and the external world by recording pertinent data concerning each record that enters and exits the agency, e.g., name of sender, sender, name of addressee, date and time of receipt, date and time of transmission, action or matter, handling office, classification code, and action taken.[26] As an instrument of documentary control, the protocol register is designed to serve both records management and accountability purposes. At the same time, it is a valuable instrument for capturing documentary context, since it reflects the relations among all the records that have entered and exited the agency. Because the physical arrangement of electronic records is random, the classification and registration of

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[25] Giorgio Cencetti, "Il fondamento teorico della dottrina archivistica," *Archivi* II, VI (1939): 8, reprinted in Giorgio Cencetti, *Scritti archivistici* (Rome: Il Centro di Ricerca editore, 1970), 39. Jenkinson uses the term "interrelatedness." See Hilary Jenkinson, "Introductory," in *Public Record Office, Guide to the Public Records, Part I* (London: Public Record Office, 1949), 2.

[26] During the middle ages, registration was an important aspect of papal and royal chancery procedures. It involved the copying of important outgoing documents into a book called a register. Registers served as memory of acts and decisions taken and could be referred to if necessary to check precedents and to establish the authenticity of documents issued by chanceries. For the nature and use of registers in papal and royal chanceries see Maria Luisa Ambrosini and Mary Willis, *The Secret Archives of the Vatican* (Boston: Little Brown, 1969), *passim*; Robert I. Burns, *Society and Documentation in Crusader Valencia*, vol. 1 of *Diplomatarium of the Crusader Kingdom of Valencia: The Registered Charters of Its Conqueror, Jaume I, 1257-1276* (Princeton, N.J.: Princeton University Press, 1985), 48-47; Alain de Boüard, *Manuel de diplomatique française et pontificale*, vol. 1 (Paris: A. Picard, 1929), 190-211; Arthur Giry, *Manuel de Diplomatique* (New York: Burt Franklin, 1893), 687-88, 752-54; Poole, *Lectures on the History of the Papal Chancery* (see chap. 1, n. 31), 123-36. The practice of registration continues to this day in most European countries and consists of making an entry into a register that identifies salient data concerning the administrative and documentary context of every incoming and outgoing document. In Italy, the registers are called "protocol" registers because the data recorded is drawn from the top portion of the record, i.e., its protocol. An illustration of the data elements captured in a modern protocol register is provided in Elio Lodolini, *Archivistica: Principi e problemi*, 4th ed. (Milano: Franco Angeli, 1987), 92-93.

them are essential methods for making explicit the archival bond. Since such methods are not typical features of electronic information systems, they need to be defined as requirements, codified in administrative procedures, and embedded within the system as part of its workflow rules.[27]

The final component of a record is its *context*, which refers to the framework in which the action (in which the record participates) takes place. The research team identified four contexts it considered relevant to non-electronic and electronic records alike: the *juridical-administrative context* (i.e., the legal and organizational system in which the creating body belongs), the *provenancial context* (i.e., the creating body, its mandate, structure, and functions), the *procedural context* (i.e., the procedure in the course of which the record is generated); and the *documentary context* (i.e., the internal structure of the archival fonds of which the record forms a part). This last context represents the totality of all the archival bonds existing within a creator's fonds. While it is clearly impossible for any single record to fully communicate these contexts, it is possible to provide clues and pointers to them through the other identified components. For example, a pointer to the record's provenancial context is the name of the creator (identified under *persons*); an annotation, such as the classification code (identified under *archival bond*), is a kind of shorthand for the record's administrative, procedural and documentary context.

A conspicuous omission from the research team's categories is the technological context of an electronic record. From the point of view of the court in both *Armstrong* and *Public Citizen*, the technological context of an electronic record (understood as the original hardware and software environment in which an electronic mail message, word processing record, or spreadsheet was generated, including its manipulatability, searchability, and auditability) must be captured and preserved because it contributes essential structural and contextual data to such record, and uniquely defines it. The UBC research team chose not to treat technological context as a unique context for two reasons: first, if technological context refers to the technology generating determined groups of records, this conditions and penetrates their physical form and is, therefore, from a diplomatic perspective, a component of the records rather than their context. For example, the architecture of electronic records and of their operating system, the word processing or other software used to create them, and the method by which they are encoded, are all attributes of their physical form.

Secondly, treating the technological context of electronic records creation as something separate and distinct from the juridical-administrative, provenancial, procedural, and documentary contexts of its creation, is inconsistent with the methodology adopted by the research project. A typical technological context of

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[27] The UBC research team has articulated the procedural rules for classifying and registering records in an electronic system. See rules A121 (create classification scheme), A131(l) (establish procedures for registration), under "Rules for Activities Involved in Manage Archival Framework;" and A23 (classify records), and A24 (register records), under Rules for Activities Involved in Create Records, Handle Records, and Preserve Records," located at the UBC research project's web site.

record creation is a database that is shared by more than one agency. The technological context (the shared database) implies that the records within the database are also shared. From the perspective of contemporary diplomatics, however, "shared electronic records" do not exist. While a "shared database" contains documents, information, or data accessible to many persons, that database is the responsibility of only one juridical person (which may be a consortium of persons), and each person who uses the documents, information or data contained in that shared database in the course of its own activity generates with them, in its own electronic system, its own electronic records. For those reasons, the research team determined that a separate category for technological context was both unnecessary and, potentially, misleading.

On the basis of its identification of the components of a record in a traditional environment and their interpretation within the framework of electronic information systems, the research team found that electronic records possess essentially the same components as traditional records. However, like the litigants in both *Armstrong* and *Public Citizen*, the team found that, with electronic records, those components are not inextricably joined to one another as they are in traditional records. Instead, they are stored and managed separately as metadata, which are "data describing data and data systems; that is, the structure of databases, their characteristics, locale, and usage."[28]

The research team classified metadata into two main categories. The first category, *metadata of the electronic system*, consists of data that describe the operating system, the program generating the records, the physical location of the records in the electronic system, which are stored in the system's data directory, and the value of each data element, which is stored in the system's data dictionary. The second category, *metadata of the records*, on the other hand, consists of data that place the record within its documentary and administrative context at the moment of its creation, e.g., the name of the sender, receiver, and creator. In some electronic systems, such data may be assembled into a document profile[29] attached to the record; in others, they are stored in the data dictionary.

The team determined that an adapted version of the document profile (renamed *record* profile), constituted the best means of bringing together the components of a record and, specifically, those components that establish the record's administrative and documentary context. A record profile is an electronic form that is generated when the order is given to the system to send or to save an electronic record. It is synonymous with the moment of setting aside a record, thereby establishing its moment of creation. Its purpose is to uniquely identify a

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[28] Lewis J. Bellardo and Lynn Lady Bellardo, *A Glossary for Archivists, Manuscript Curators and Records Managers* (Chicago: Society of American Archivists, 1992), s.v. "metadata".

[29] For an examination of the role of the document profile in open document exchange standards and a comparison of the attributes of this type of document profile with the intrinsic and extrinsic elements of form identified by diplomatics, see Anthony Gregson, "Records Management Attributes in International Open Document Exchange Standards," (Master of Archival Studies thesis, University of British Columbia, 1995).

record and place it in relation to other records belonging in the same aggregation. The profile is considered an annotation to the record and is, therefore, inextricably linked to it for as long as the record exists.

Depending on whether a record is made or received, the profile would include the following elements:[30]

- registration number
- date of receipt
- time of receipt
- date of transmission
- time of transmission
- date of record
- archival date (date on which the record becomes part of a dossier or class)
- registration number of sending office
- originator's name
- originator's address
- author's name
- author's address
- writer's name
- writer's address
- action or matter
- number of attachments
- type of file of attachment (e.g., Wordperfect, Microsoft Word, Excel, MIME encoded)
- medium
- handling office
- action taken
- addressee's name
- addressee's address
- receiver's name
- receiver's address
- class code
- dossier identifier
- record item identifier
- mode of transmission
- status of transmission (i.e., original, draft, copy)
- draft number

The record profile contains a more comprehensive list of contextual elements and, thus, reveals more of the record's administrative, procedural, and documentary context than the one articulated by NARA in the *Public Citizen* case, which limited itself to the identification of the office of origin, file classification code, key words for retrieval, addressee, author, signer, date and security classification, in the case of word processing records; and to the names of sender and recipients and dates of

[30] The procedural rules developed by the research team for the creation of a record profile may be found at rules A131(h), (i), (j), (k), under "Rules for Activities Involved in Manage Archival Framework," located at the research project's web site. Some of these fields would be filled in by the system, others by the author or writer, and others still would be filled in by the record office. The fact that all the fields must be included on the form does not mean that every field must be filled in for every record made or received. Only the profiles of the records for which maximum reliability and authenticity are required would have all the fields filled in.

transmission or receipt, in the case of electronic mail messages,

The research team's identification of the components of a record and the way in which they manifest themselves in an electronic system provided a basis on which to recognize, capture, and stabilize records created within dynamic electronic information systems. It also provided a foundation on which to build methods for establishing the reliability and authenticity of such records. Before the research team considered the specific concepts and methods associated with record reliability and authenticity, however, it was necessary to first identify and elaborate the overarching procedural framework in which those concepts and methods would be situated. In other words, the research team had to identify the salient features of an agency-wide electronic recordkeeping system capable of creating and maintaining reliable and authentic records. The need for such identification was established in *Public Citizen*. In that case, NARA maintained that the reason agencies were printing electronic records to paper was simply because their electronic systems lacked the capacity to maintain records in their administrative and documentary context and to implement the procedural controls necessary to ensure their reliability and authenticity. Agencies, therefore, had little choice but to print the electronic records out and incorporate them into a traditional paper recordkeeping system that met those requirements. Though it was not formulated with the *Public Citizen* case in mind, the procedural framework articulated by the UBC research team is an attempt to incorporate agency-wide recordkeeping requirements into the design of electronic information systems. The requirements identified by the research team are intended to preserve not only the administrative context of electronic records creation demanded by NARA, but, also, certain aspects of the technological context demanded by the plaintiffs in the same case.

The research team decided an essential first step to ensure the reliability and authenticity of electronic records was to embed procedural rules for creating, handling, and maintaining such records in an agency-wide records system, and to integrate documentary procedures with business processes. The *records system*, as defined for the purposes of the project, comprises the creator's records, along with the procedural rules of its recordkeeping and record-preservation systems. Both systems are controlled by the creator's records management function. The purpose of the recordkeeping and record-preservation system[31] is to control the creation, handling, and maintenance of all the active and semi-active records of an agency, both electronic and non-electronic, with the integrated control of all the records taking place within the electronic system. The need for integrated control is mandated by the fact that, in most bureaucracies, a significant percentage of records continue to be created and maintained in non-electronic form as textual, graphic,

[31] The *recordkeeping system* comprises a set of rules governing the making, receiving, setting aside, and handling of active and semi-active records in the usual and ordinary course of the creator's affairs, and the tools and mechanisms used to implement them. The *record-preservation system* is a set of rules governing the intellectual and physical maintenance by the creator of semi-active records, and the tools and mechanisms necessary to implement them. Although semi-active records are no longer needed for action, they are still required for purposes of reference.

cartographic, and architectural records. To maintain the archival bond between records that are created to carry out the same activity but that are generated and/or stored on different media in different physical locations, it is necessary to connect those records intellectually.[32]

Control over the electronic records is accomplished by establishing record management domains within the electronic system that define the boundaries of *individual space*, (corresponding to the jurisdiction of the officer to whom it is assigned by the agency); *group space* (corresponding to the jurisdiction of the office, program, team, committee, working group, etc., to which a specific competence, charge, responsibility, task, etc., has been assigned by the agency); and *general space* (corresponding to the jurisdiction of the records office, which is responsible for the records system of the agency). The procedural rules define, on the basis of these boundaries, the space in which records can be made, received, revised, modified or otherwise altered; the space in which they can be individually destroyed; the space in which they will be classified and registered; the space in which originals are stored; the space in which specific elements of the record profile must be filled in; the space in which the retention schedule is implemented; the right of access to each space; and the way in which records will move inside and outside the agency. For non-electronic records, a similar degree of control is established by assigning exclusive competence to the records office for the classification, profiling, registration (when applicable), and consignment to the central records system (the non-electronic equivalent of the general space) of all incoming, outgoing, and internal non-electronic records.

The recordkeeping and record-preservation system establishes agency-wide control over the creation and handling of both electronic and non-electronic records. The integration of business processes and documentary procedures advocated by the research team is intended to strengthen this control, thereby enhancing reliability, by embedding it within specific business processes. As part of its analysis of the procedures governing medieval documentary production, traditional diplomatic doctrine posited a distinction between the "moment of action" and the "moment of documentation" and identified two distinct procedures, with distinct phases, in relation to each of these moments. In her original series of articles exploring diplomatics, Duranti observed that

> the most obvious fact which differentiates the genesis of medieval documents from that of modern documents ...[is that] [e]ach medieval document contained the whole transaction generating it, and its creation, as the apex of the transaction, was either sequential to it

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[32] The research team has attempted to accomplish this by instituting procedures for creating an electronic record profile for every non-electronic record that is consigned to the central records system as well as for every electronic record that is set aside, and by establishing a repository of those record profiles. The procedural rules for showing the connection among active records in all media which belong in the same aggregation may be found at A131(q), under "Rules for Activities Involved in Manage Archival Framework," located at the research project's web site.

> (probative documents) or parallel (dispositive documents), that is, perfectly distinguishable from the transaction as an exercise of will. On the contrary, each modern document incorporates only one phase of the transaction, or even less, and its creation, as a means of carrying out the transaction, is integrated in each of the phases through which the transaction develops, and is not distinguishable from the action of the will. This fact invalidates the definition of the moment of the action and the moment of documentation as two separate sets of routines, or two distinct procedures. They are still two *conceptually distinct moments* ...[however] they are considered integral parts of one procedure.[33]

Integrating business and documentary procedures constitutes the research project's adaptation of the traditional diplomatic concepts relating to procedures and consists of the following steps: identifying all the business procedures within each agency function; for each procedure within each function, determining the category into which it fits,[34] i.e., whether the procedure is constitutive,[35] executive,[36] instrumental [37]or organizational; [38] breaking the procedure down into six phases[39], i.e., initiative,[40] inquiry,[41] consultation,[42] deliberation,[43] deliberation control,[44] and execution;[45] determining, for each phase of each procedure, its component actions, the records that must be used in relation to each action; the records that must be made, received, and handled in the course of each action[46] and by whom; the manner in which the records are to be classified, audited, and disposed; their level of confidentiality; and the specific methods for ensuring their reliability and authenticity. The integration of business and documentary procedures results in a description of

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[33] Duranti, "Diplomatics (Part IV)," 14.
[34] The definitions of the various categories of procedures that follow are from *ibid.*, 19.
[35] Constitutive procedures are those procedures which create, extinguish or modify the exercise of power of the addressee. Constitutive procedures may be categorized as procedures of concession, of limitation, or of authorization, and their purpose is to fulfill the agency's mandate.
[36] Executive procedures are those procedures which allow for the regular transaction of affairs according to rules established by a different authority, e.g., personnel, finances.
[37] Instrumental procedures are those procedures which are connected to the expression of opinions and advice.
[38] Organizational procedures are those procedures, the purpose of which is to establish organizational structure and internal procedures and to maintain, modify or extinguish them.
[39] The definitions of the diplomatic phases of a procedure that follow are from *ibid.*, 14-19.
[40] The initiative phase comprises those acts that start the mechanism of the procedure.
[41] The inquiry phase comprises the collection of the elements necessary to evaluate the situation.
[42] The consultation phase comprises the collection of opinions and advice after the relevant information has been assembled.
[43] The deliberation phase is constituted by the decision-making.
[44] The deliberation control phase consists of the control exercised by a person different from those making the decision on the substance and/or form of the deliberation.
[45] The execution phase consists of all the actions that give a formal character to the deliberation, such as the validation, communication, notification, or publication of the related record.
[46] The records are identified, not only on the basis of their intellectual form, but, also, on the basis of their function with respect to the action to which they relate (whether dispositive, probative, supporting, or narrative).

the records associated with each phase of each procedure and the specific requirements linked to them in relation to access privileges, classification, registration, authentication, auditing, and so on.

Once it had established the procedural framework for creating and maintaining reliable and authentic records on an agency-wide basis, the research team analyzed the more specific concepts and methods associated with reliability and authenticity respectively. As mentioned at the beginning of this chapter, reliability refers to the ability of records to stand for the facts they are about. From the point of view of diplomatics, it depends upon two factors: the degree of completeness of the record's form and the degree of control exercised over its procedure of creation. The completeness of the form of the record refers to the fact that the record possesses all the elements of intellectual form necessary for it to be capable of generating consequences. Traditionally, no record is considered complete if its intellectual form does not contain the *date* of the record's creation, which expresses the relationship between its author and the act it documents, and the *signature*, which assigns responsibility for the record and its content.

With electronic records, the date given to the record by its author does not make it complete: the date and time of transmission to either an external or internal addressee, or the date and time of transmission to the dossier or class to which the record belongs are also necessary. Moreover, because a handwritten or typewritten signature can be attached to an electronic record by anyone, it cannot serve its traditional function and therefore cannot contribute to the record's completeness. Instead, the function of the signature is accomplished, either by the name contained in the header of electronic mail messages, or in the profile of other record types (and which is automatically assigned by the system), and/or by electronic seals or signatures. An electronic signature is "a computer data compilation of any symbol or series of symbols executed, adopted, or authorized by an individual to be the legally binding equivalent of the individual's handwritten signature." A special type of electronic signature is a digital signature, which is "an electronic signature based upon cryptographic methods of originator authentication, computed by using a set of rules and a set of parameters such that the identity of the signer and the integrity of the data can be verified."[47] The purpose of a digital signature is to ensure that a particular data message originated from a particular person (thereby fulfilling its authentication function); that the data message has not been altered since its creation and transfer (thereby fulfilling its verification of integrity function); and that the recipient cannot alter the message received (thereby fulfilling its non-repudiation function)."[48]

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[47] Definitions taken from [U.S.] Department of Health and Human Services. Food and Drug Adminstration, 21 CFR Part 11, "Electronic Records; Electronic Signatures; Final Rule; Electronic Submissions; Establishment of Public Docket; Notice," March 20, 1997, 13465.

[48] United Nations Commission on International Trade Law [UNCITRAL], *Report of the Working Group on Its 30th Session,* Vienna, 26 February – 8 March 1996, A/CN.9/421 [1996], 13. The UNCITRAL considered but, ultimately, chose not to require digital signature technology as a standard in its Model Law on Electronic Commerce. See *ibid.*, 14. The conclusion of UNCITRAL mirrors the one reached by the ULCC in drafting its uniform evidence act for electronic records. Since digital signature

The date and signature constitute necessary, but not sufficient, elements of a complete electronic record. On the basis of its analysis, the research team determined that for an electronic record to be capable of generating consequences it should possess the following elements of intellectual form: *date* (time and place of creation, transmission, and receipt), *persons* (author, addressee, originator, writer, creator), *action* or matter (title or subject), *classification code*, and any other element required by the creator's procedures and/or juridical system.

The diplomatic conception of completeness is somewhat different from the one implied by the plaintiffs in *Armstrong* and *Public Citizen*. There, completeness was linked to the original functionality of the electronic system in which the record was created. However, certain aspects of that functionality (e.g., a system's auditability), while relevant to an assessment of record reliability and authenticity, are part of the metadata of the system as a whole rather than an integral part of the record's intellectual form. Other aspects are either irrelevant to a consideration of record reliability or authenticity (e.g., the searchability of the system, which relates purely to record retrieval), or actually detrimental to such consideration (e.g., the manipulatability of the system which, potentially, undermines record authenticity).

Nor has the research team specifically identified a record's physical form as an essential element of a complete electronic record, notwithstanding its centrality to the plaintiffs' arguments in both *Armstrong* and *Public Citizen*. Physical form refers to the formal attributes of a record that shape its external appearance and that, in electronic systems, is largely determined by system software. The research team maintained that, although it is an essential component of an electronic record, the physical form of any given type of electronic record (i.e., its status as a particular kind of spreadsheet, word-processing record, or electronic mail message and the presence of special features, such as colors, emblems, and other special signs), will be self-evident so long as the record resides in the electronic records system (as that system has been described by the research team) and therefore its identification does not need to be specified. The need to preserve an electronic record's original physical form, or evidence of it, only becomes an issue at the point at which the record is copied or migrated and, therefore, is more appropriately addressed in the

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technologies serve to ensure the integrity of data, the ULCC observed, "their use may be relevant as foundation evidence or in the event that the integrity or weight of the electronic record is challenged." However, since the technologies are continuing to evolve, it was decided that would be premature to make reference to digital signature technology as a minimum standard for the purpose of creating a statutory presumption. "Uniform Electronic Evidence Act: Consultation Paper," 11 (see chap. 2, n. 115). However, in electronic contracting law and a number of other areas of the substantive law, digital signatures, increasingly, are becoming the standard method of ensuring the reliability and authenticity of electronic records. See, for example, [U.S.] Dept. of Health and Human Services. 21 CFR Part 11, 13430-13466; European Commission Directorate-General XIII, "Towards a European Framework for Digital Signatures and Encryption: Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions Ensuring Security and Trust in Electronic Communication," COM (97) 503 [1997]; Bernard D. Reams, Jr., *Electronic Contracting Law: EDI and Business Transactions, 1996-1997 edition* (New York: Clark, Boardman, Callaghan, 1997).

context of preserving a record's authenticity rather than in the context of establishing its reliability.

Reliability is also determined in relation to a record's procedure of creation, which refers to the body of rules governing the making, receiving and setting aside of records. Some of these rules refer to record makers by establishing who is competent for creating, modifying, and annotating records, others refer to how records will be handled in the course of their compilation, and others still refer to how records will be routed and filed. According to Duranti, "[t]he more rigorous and detailed the rules, the more established the routine, the more reliable the records resulting from their application will be."[49]

The research team identified two kinds of methods in electronic information systems for ensuring that such rules are respected and that the reliability of record makers is ensured. The first kind is directed toward prevention, and includes three main methods. One method consists of embedding access privileges within the system. Conferring access privileges involves assigning to each person who has access to the electronic system, on the basis of his or her specific competence, [50] the authority to compile, classify, annotate, read, retrieve, transfer, and/or destroy only specific groups of records. The rules governing access privileges elaborated by the research team prohibit the modification of records once they have been classified; assign access privileges to officers for each class of records on the basis of their competence; allow the officer that creates the records unrestricted access to them; allow the handling officer and the records office to annotate records; allow access to the records by the records office for the purpose of classification; and give the records office exclusive authority to access the records for purposes of transfer or destruction.[51]

A second method consists of embedding "workflow rules" [52] in the system. In accordance with those rules, the system permits only the person competent for each action to access the specific records needed to carry out that action and solicits the making of the appropriate record at the proper time in the automatic development of the procedure. The embedding of those rules is made possible by the integration of business and documentary procedures described above. A third method consists of limiting physical access to the technology or to parts of it by means of magnetic cards, passwords, fingerprints, and so on.

The other kind is directed toward verification and includes one primary method. It consists of designing within the electronic system an "audit trail," which is

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[49] Duranti, "Reliability and Authenticity," 6

[50] Competence is a sphere of functional responsibility entrusted to an office.

[51] The procedural rules for defining access privileges may be found at A123 under "Rules for Activities Involved in Manage Archival Framework," located at the research project's web site.

[52] A demonstration prototype based on an automated work flow process has been developed by the National Archives of Canada. For a description of the prototype, see John McDonald, "Towards Automated Record Keeping, Interfaces for the Capture of Records of Business Processes," *Archives and Museum Informatics* 11 (1997): 277-85.

a means of recording all the interactions with records within the system so that any access to the system can be documented as it occurs, whether it is a modification made to a record, a deletion, an addition or a simple viewing of a record. [53]

From a diplomatic perspective, reliability and the methods for guaranteeing it are linked to record creation. Authenticity is linked, on the other hand, to the record's *mode*, *form* and *state* of transmission, and to the manner of its preservation and custody. Authenticity is protected through the adoption of methods that ensure that the record is not manipulated, altered, or otherwise falsified after its creation and that it is precisely as reliable as it was when first created. It follows that an authentic electronic record is one that is transmitted in a secure way, whose state of transmission can be ascertained, that is preserved in a secure way, and whose provenance can be verified.

Methods of ensuring the security of an electronic record's transmission include maintaining an audit trail of every transmission, encrypting records, and establishing the status of transmission of each record. In diplomatic terms, the *mode of transmission* of a record is the method by which a record is communicated over space or time. The more secure the method of transmission, the higher the probability that the record received is what it purports to be. The *form of transmission* of a record is the physical and intellectual form that the record has when the addressee receives it. Traditionally, authenticity has been ensured by maintaining a record in the same form through transmission, both across space and through time.

In relation to transmission, the main difference between non-electronic and electronic records resides in the *state of transmission*.[54] The state of transmission of a record refers to its degree of development and authority when it is set aside; in other words, its status as a *draft*, *copy*, or *original*. A *draft* is a temporary compilation of a document intended for correction; drafts may be in various stages of completion. A *copy* is a reproduction of a record made either from an original, a draft or another copy. It may take the form of an authentic copy, [55] an imitative copy,[56] a copy in the form of an original,[57] a simple copy,[58] a *vidimus*, [59] or a conformed copy.[60] An

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[53] The procedural rules for auditing may be found at A131(t), under "Rules for Activities Involved in Manage Archival Framework," located at the research project's web site. As mentioned in the introduction to the dissertation, the Somalia Inquiry identified the absence of audit procedures and the lack of system audits to ensure that the National Defence Operations Centre (NDOC) data logs were being properly maintained as significant failures of the electronic system. See *supra.*, intro., 3.

[54] The state of transmission of a record in the context of medieval and modern documentary production is discussed in Duranti, "Diplomatics I," 18-21.

[55] An authentic copy is "a copy certified by officials authorized to execute such a function, so as to render it legally admissible in evidence." See *ibid.*, 21.

[56] An imitative copy "reproduces, completely or partially, not only the content but also the forms, including the external ones (layout, script, special signs, medium and so on), of the original [record]." See *ibid.*, 20-21.

[57] A copy in the form of an original occurs when "two originals of the same document, addressed to the same person and having the same date, are sent to that person in two subsequent deliveries." In such a case, "the oldest document is considered to be the original, the second is qualified as *a copy*

original is the first complete and effective record. For a record to be original, it must be complete (i.e., its form must be the one intended by its author and/or required by the juridical system), primitive (i.e., it must be the first to be produced in its complete form), and effective (i.e., it must be capable of reaching the effects for which it was produced).

With electronic records, the state of transmission is assessed in relation to their routing in the electronic system. Any record that is neither transmitted to an addressee nor consigned to the general space of the electronic records system, but that is saved in the electronic space in which it is made, is considered a draft because it is incomplete. This is because the act of transmitting a record across either external or internal electronic boundaries necessarily adds components to the record which make it complete (e.g., the date of transmission and the name of the originator and/or author). Any record that is transmitted across electronic boundaries is received at the other end as an original, but it is saved in the space of the originator as a final draft because it is not capable of reaching its purpose and therefore lacks effectiveness.

Each time a person retrieves a record from the general space, he or she has a view of the original--in the case of a record received or an internal record--or of the last draft--in the case of a record sent. If the person copies the record to his or her own electronic space, the result is an imitative copy rather than a copy in the form of original, because some of the record's metadata (i.e., the data that place the record within its documentary and administrative context at the moment of its creation) will change. Each time a person forwards a record to another person, he or she creates an insert of the type of a *vidimus*, and so on.

All of this suggests that, with electronic records, the state of transmission is assessed on the basis of the way in which electronic transmission affects the physical and intellectual form of the records. The analysis also demonstrates that it is possible to identify an original record in an electronic environment despite the fact that courts and commentators have all but abandoned the concept on the grounds that such designation is difficult and artificial. The law's position is understandable given the difficulty of establishing the state of transmission retrospectively if the system is not designed to preserve that information. On the other hand, an electronic system can be designed to specify the record's status as an original, draft, or copy,

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in the form of an original." *Ibid.*, 19. While it is as complete and effective as the original, it lacks the quality of primitiveness that the original has.

[58] A simple copy "is constituted by the mere transcription of the content of the original." *Ibid.*, 21.

[59] A vidimus falls within the category of an authentic copy and takes the form of an insert, i.e., a document "entirely quoted (if textual) or reported (if visual, like maps) in subsequent original documents in order to renew [its] effects. ...An authentic copy in general and a vidimus in particular, only guarantees the conformity of the copy to the original text." *Ibid.*, 21, n. 38 and 39.

[60] A conformed copy is "an exact copy of a document on which has been written explanation of things that could not or were not copied, e.g., written signature may be replaced on conformed copy with notation that it was signed by the person whose signature appears on the original." *Black's Law Dictionary*, 5th ed., s.v. "conformed copy."

making such identification relatively straightforward.[61]

Ensuring the authenticity of electronic records in the manner of their preservation and custody requires the preservation of semi-active records[62] in a climactically suitable and physically secure environment, well-documented procedures for the reproduction and migration of both active and semi-active records,[63] and an uninterrupted line of physical custody. In relation to preservation and custody, the main difference between electronic records and traditional records is that the latter are kept authentic by maintaining them in the same form and state of transmission in which they were when made or received and set aside, while the former are kept authentic by continuous copying and periodic migration. All media designed to carry magnetically or optically affixed signals have limited longevity, due to the deterioration of the material and, more significantly, the obsolescence of the technology required to read it. An electronic record is unlikely to survive[64] for more than a decade in its original form and all records generated in the obsolescent environment must be copied or migrated to the new one, otherwise they will become inaccessible and, for all intents and purposes, non-existent.

Copying and migration have different consequences for a record's authenticity. Because copying is a complete reproduction of both the content and formal elements of the records (e.g., microfilming, or transferring the same strings of bits from one magnetic tape to another), the resulting records may be considered faithful reproductions of the original records' physical and intellectual form. Migration,[65] on the other hand, is a reproduction of the content of the record, with changes in configuration and structure (e.g., imaging of analog records, or transferring of hypertext records from one database to another having a different configuration). While, after migration, the resulting records may look like the ones

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[61] The procedural rules elaborated by the UBC research team for establishing the state of transmission of records may be found at A131(m), under "Rules for Activities Involved in Manage Archival Framework," located at the research project's web site.

[62] Because the UBC project focused on the methods of ensuring trustworthiness from the point of view of the records creator, their identification related to the activities undertaken while the records are still needed by the creator, i.e., during their active and semi-active life.

[63] The procedural rules elaborated by the research team for copying and migrating active and semi-active electronic records may be found at A131(n), (p), (u), (v), under "Rules for Activities Involved in Manage Archival Framework," and at A33 and A43, under "Rules for Activities Involved in Create Records, Handle Records, and Preserve Records," located at the research project's web site.

[64] Survival means not only the survival of an electronic record's physical existence, but includes the survival of its readability and intelligibility.

[65] In *Preserving Digital Information: Report of the Task Force on Archiving of Digital Information* (Washington: The Commission on Preservation and Access and the Research Libraries Group, 1996), 5, migration is defined as "the periodic transfer of digital materials from one hardware/software configuration to another, or from one generation of computer technology to a subsequent generation." For a contrasting definition of migration as well as an extensive discussion of the consequences of copying, reformatting, conversion, and migration on the preservation of an electronic record's readability, intelligibility, and authenticity, see Charles M. Dollar, *Authentic Electronic Records: Strategies for Long-Term Access (Chicago:* Cohassets Associates, 1998). Dollar's discussion of authenticity draws on the diplomatic analysis of the concept found in Duranti's *Archivaria* articles and the UBC project findings.

that have been migrated, their physical form has substantially changed, with loss of data on the one hand, and the addition of new data on the other hand.

This fact underlines the need for self-authenticating and clearly documented processes of reproduction and migration, as well as an uninterrupted line of physical custody.[66] If the records are still needed by the record creator for the usual and ordinary conduct of its business, the continuing reliance of the creator on the products of the migration process in itself authenticates them. However, once the records are no longer needed by the records creator to conduct its business, the migration process will need to be carried out by a neutral party and its products verified and authenticated: the resulting records would thus become authentic copies of the obsolescent records.

Strictly speaking, issues relating to the long-term preservation of authentic inactive electronic records did not fall within the scope of the UBC research project. However, on the basis of its analysis, the research team drew the preliminary conclusion that the integrity of electronic records is likely best preserved over the long term by entrusting the creating body with primary responsibility for their reliability and authenticity while they are needed for business purposes (i.e., during their active and semi-active life), and a separate preserving body with responsibility for their authenticity over the long term (i.e., once they are inactive). The conclusion was based on the team's belief that the custody of inactive electronic records by a trusted recordkeeper is a necessary precondition for safeguarding their authenticity in general and the integrity of the authentication procedures in particular.

The concept of a trusted recordkeeper draws on both contemporary and ancient practice. Today, it is usually discussed in the context of electronic contracting law, where it refers to an entity who is entrusted with independently maintaining the records of Electronic Data Interchange (EDI) partners. The reason for having a trusted third party recordkeeper is to increase the probability that records of an EDI transaction will be accepted in court as evidence. To be considered a trusted recordkeeper, the entity must demonstrate, among other things, that it has no reason to alter retained records itself; that it has no interest in allowing others to alter records; and that it is capable of implementing security procedures to a degree that meets the necessary standards of reliability and authenticity.[67]

The instrumental purpose served by a third party recordkeeper in electronic contracting is analogous to that served by archives in the preservation of inactive

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[66] The significance of custody to the authenticity of older records is reflected in the U.S. Federal Rules of Evidence, where the ancient documents rule has been extended to electronic records. The Advisory Committee's notes explain that, since the importance of appearance diminishes in this situation (because an unsuspicious appearance will certainly be deceptive in the case of electronic records), the importance of custody increases correspondingly. See *Wigmore on Evidence*, (Chadbourn rev., 1978), vol. 7, para. 2129, n. 1, example 7.

[67] Bernard D. Reams Jr., L.J. Kutten and Allen E. Strehler, *Electronic Contracting Law: EDI and Business Transactions, 1992-93 Edition* (New York: Clark, Boardman, Callaghan, 1994), 37.

records. As pointed out in Chapter 1, such role dates back to Roman antiquity when citizens would deposit private records in the *Tabularium* for the express purpose of rendering them authentic. As a trusted keeper of records ancient archival institutions sustained and lent credibility to contractual relationships between citizens. It also lent credibility to the implicit social contract between citizens and the state by preserving the records of the state's past actions on the basis of which the state could be held to account.

This instrumental purpose, arguably, is still valid today and may be accomplished by the routine transfer of inactive records from the creating body to an autonomous archival body. In a contemporary context, such body would be an autonomous office within an agency (if it maintains its own historical records, as is usually the case with private bodies) or an external body (if records are routinely transferred to a central archival depository, as is usually the case with public bodies). It is accepted, both as a matter of law and of general principle, that records that are still needed by their creator possess a circumstantial probability of trustworthiness. Once the records are no longer being created and maintained in order to carry out administrative actions, however, this inference of trustworthiness is no longer supportable because the motivation to maintain accurate records ceases to be compelling.

In fact, record creators likely look at their own inactive records in much the same way that historians and traditional diplomatists look at records, that is, retrospectively, as evidence of past actions, and with the benefit of hindsight. The difference is that, unlike the historian or diplomatist, the records creator has been intimately involved in those past actions. If the records show those actions in an unfavorable light, the fear of exposure to negative criticism creates a powerful motivation to alter or even destroy the records.

The argument for archival custody has particular resonance for the preservation of the authenticity of public records. Because public records are preserved not only to understand the past but also to hold it to account, there is an inherent conflict of interest in allowing a public agency to retain responsibility for the long term preservation of its own records.[68] Even if records are not, in fact,

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[68] The potential conflict of interest is illustrated in a 1996 incident concerning the White House "speech archives." The White House webmaster had created and made available to the public an "archives" of White House speeches. In May 1996, a television show in Michigan, which was attempting to illustrate the use of this archives in a program, found that the archives had disappeared from the Web. The T.V. reporter's concern "was that someone in the White House was afraid that this archives could be used to support 'opposition research' ...a process common in modern campaigning." In response to complaints, the White House restored the archives to the website. The webmaster admitted that it had been a mistake to remove it, saying, "We thought it had the potential for causing problems, but we have thought further and decided to restore it." The T.V. reporter observed that the incident called "into question the wisdom of having a government agency maintain its own archives of news or historical materials ....The real question becomes this: can we ever expect a particular government agency to exercise appropriate stewardship over archives of its own information? ...If my interpretation of how agencies behave is correct, then there is an inherent conflict of interest in having an agency manage its own archives. A trusted third party – whether it be

tampered with, the perception that they could have been tampered with is equally damaging because, as is well understood by now, it is not enough that the actions of government be above reproach; they must be seen to be above reproach. In the same way, it is not enough that records continue to be trustworthy over time; they must be seen to continue to be trustworthy over time. To leave records in the hands of agencies who may be held to account for their actions through them threatens to erode the already shaky foundations of public trust in government. Moreover, it inevitably raises doubts about the authenticity of those records that will linger for future generations.

The argument for archival custody, therefore, is based on the fact that as a neutral party the archives has no stake in the records and thus no motive to falsify or destroy them. Put another way, the probability of trustworthiness is higher when records are in the possession of an autonomous archival body than when they remain in the possession of their creator.[69]

It is important to reiterate that, while the UBC project identifies some of the problems associated with preserving the authenticity of inactive electronic records over the long term, it does not propose detailed procedural or technological solutions to them, beyond arguing for the continuing validity of archival custody. Further research is still required to determine the various means of ensuring the long-term trustworthiness of electronic records. Margaret Hedstrom has identified a number of research issues to be addressed in this area, which are based on the assumption that "exact replication of digital objects is rarely feasible or cost-effective and that archivists must accept some loss of information when migrating digital information from one generation of technology to the next."[70] Future research needs to focus, therefore, on defining "acceptable levels of information loss during migration" and on identifying "a set of minimal record attributes, which if not retained would make investments in preservation pointless."[71] The migration of electronic records containing color encoding, compression, and encryption are cited by Hedstrom as "examples of extremely complicated processes that require complex algorithms, software routines, and in some cases, specific hardware." Yet, she maintains, very little research has been undertaken to assess the extent to which alterations in the physical structure of electronic records during the migration process will result in the loss of some of the meaning and trustworthiness of those records, or the nature and degree of that loss.[72]

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the National Archives, or a major research library, or even C-SPAN – has no such conflict of interest." Rich Wiggins, "The Mysterious Disappearance of the White House Speech Archives: A Pioneering Application of Technology Vanishes,"cited in Alf Erlandsson, *Electronic Records Management: A Literature Review* (Paris: International Council on Archives, 1997), 76, n. 248.

[69] The argument for archival custody is explored in more depth in Luciana Duranti, "Archives as a Place," and Terry Eastwood, "Should Creating Agencies Keep Electronic Records Indefinitely? *Archives and Manuscripts* 24 (November 1996), 242-255, 256-67.

[70] Margaret Hedstrom, "Research Issues in Migration and Long-Term Preservation." *Archives and Museum Informatics* 11 (1997): 288.

[71] *Ibid.*

[72] *Ibid.* Some of the specific questions Hedstrom identifies include: under what circumstances is lossy compression an acceptable storage format? When is it necessary to retain the color encoding

Further research is also needed to explore the procedural and technical means by which to preserve the integrity of the archival bond over time. For example, how can the essential link between a record and its profile be maintained intact over time and through migrations? How can the link between the profiles of the records belonging in the same dossier be maintained intact over time and through migrations? How can the periodic migration of electronic records be conducted in a way that their archival bond with non-electronic records will remain intact?[73]

Although it does not provide answers to questions concerning the long term preservation of electronic record trustworthiness, the UBC project's conceptual analysis of electronic records offers a fairly precise answer to the question of what constitutes a complete, reliable, and authentic record in an electronic environment. That answer is relevant, not only to record creators but, also to lawyers and historians for a number of reasons. First, the diplomatic analysis of a record's status of transmission in an electronic environment demonstrates why the concept of an original continues to be relevant. Secondly, the methods advocated by the project for ensuring record reliability and authenticity provide a substantial foundation on which record creators can build electronic information systems capable of satisfying the rebuttable presumption of record integrity required by the Uniform Electronic Evidence Act. Thirdly, the project's findings take into account the significance of the technological context of electronic record creation in assessing record trustworthiness, thereby addressing some of the concerns raised by the plaintiffs in *Armstrong* and *Public Citizen*. At the same time, the findings acknowledge the continuing relevance of the administrative context of electronic record creation as an equally significant factor. Finally, because they assume the form of standards for identifying electronic records and for evaluating their reliability and authenticity, the products of the research are capable of serving as a tool for *retrospectively* assessing record trustworthiness and for identifying gaps in the security and

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scheme of a digital object? If color is an essential attribute of the document, must the exact color scheme be retained or are degrees of degradation acceptable? Is it necessary to retain voice annotations in their original format or is a computer-generated transcript of the voice annotation an acceptable alternative? *Ibid.* Some strategies for long-term preservation have been proposed by Charles Dollar in his *Authentic Electronic Records: Strategies for Long-Term Access.*

[73] These issues, along with those identified by Hedstrom above, are the subject of an international research project, in which I will participate as co-investigator, aimed at determining methods for preserving the long-term authenticity of electronic records. This international and collaborative research project is entitled: "International Research on Permanent Authentic Records in Electronic Systems" (INTER PARES). It will be formally launched on January 2, 1999. The project builds on the results of the UBC research project and represents an international collaboration among Canadian, American, European and Australian archivists in recognition of the fact that the method of long-term preservation must be applicable across juridical systems, cultures and technologies and must constitute the foundation of international standards and protocols. It also draws on knowledge from a wide range of disciplines and on the expertise of private, public and academic organizations from countries around the world. The Project's Director is Luciana Duranti, who also chairs the International Research Team comprised of the chairs of six working groups from Canada, the United States, Australia, Northern Europe, Italy, the Collaborative Electronic Notebook Systems Association (CENSA), as well as the directors of research teams from eight national archival institutions involved in the testing of the research results.

verification procedures operative in electronic recordkeeping systems. Such capacity is of particular relevance to historians who will be looking at electronic records long after they have exhausted their original administrative purpose.

Nevertheless, while it is important to acknowledge the potential of contemporary archival diplomatics as a disciplinary framework for the creation and maintenance of reliable and authentic electronic records, it is also important to acknowledge the limits of its potential which are, in general the inevitable limits to bureaucratic ways of knowing. To understand the specific nature of those limits it is necessary to understand the grounds for bureaucratic recordkeeping.

The findings of the UBC research constitute a model of administrative control reflective of Weber's ideal bureaucracy, many aspects of which can be traced back to medieval chancery procedures. From Roman times to the Renaissance, chanceries exercised an exclusive competence over the creation of records issued by sovereign authorities. Because the records granted privileges, elaborate and rigorous procedures were required to ensure the trustworthiness of the records. The structure and functioning of medieval chanceries reflect, in embryonic form, five salient features of Weber's "ideal" modern bureaucracy: (1) an unambiguous hierarchical authority structure; (2) a rationalization of offices; (3) the specialization of labor and specification of competencies; (4) the existence of rules, policies and procedures; and (5) the formalization of activities by means of written documentation.

The first feature, an unambiguous hierarchy, is reflected in the structure of chanceries. Chanceries were structured in a clear hierarchy with a nominal chief at the top (the archicancellarius), followed by an effective chief (cancellarius), scribes (scriptores) and clerks at the bottom. The second, a rationalization of offices, is implicit in the organization of chanceries into four branches, each assuming responsibility for one stage in the preparation of the document: the compilation of the draft, the preparation of the original, the registration of the document and the affixing of the seal. This organization ensured the prevention of fraud at each step in the documentary process. The third feature, specialized labor and specific competencies, is reflected in a number of ways. Virtually all the chancery staff were required to be notaries because only notaries possessed the special training of *ars dictaminis*. Among the chancery staff there was further specialization: the datarii dated (thus validating) the document; the dictatores compiled the drafts; the scriptores prepared the original; the sigillatores had custody of the seals (their special qualifications were their illiteracy and their religious vows which were intended to deter them from committing forgery); and the registratores transcribed the documents. The fourth feature, the existence of rules, policies and procedures, is apparent in the requirement that documents be prepared in strict accordance with formularies, which were manuals that provided samples of specific types of documents. The formularies ensured that strict standards for ensuring that every documentary form issued by the chancery was complete and effective, with the correct seal affixed, the correct date attached, the appropriate clauses inserted and

the necessary signatures included. The final feature of Weber's ideal bureaucracy is the formalization of activities by means of written documentation. In modern organizational theory, formalization includes not only the existence of policies and procedures but, also, documentary memory which is associated with the obligation of the agency to account for its actions through its records. In the middle ages, the memory function is implicit in chancery procedures for registering important outgoing documents. The registration of such documents was important for at least three reasons: it served a pure memory function, it could be referred to if necessary to check precedents, and it provided an overview of sovereign policy on various matters.[74]

While Weber's ideal type is discernible in medieval chancery procedures, it finds its full expression in the structure and functioning of modern bureaucracies. Eugene Kamenka characterizes its guiding spirit in the following terms:

> Pure or 'ideal-type' bureaucracy, for Weber ...is depersonalized, rationalistic, rule-bound behaviour ordered by laws and administrative regulations. It separates the bureau from the private domicile of the official; it divorces official activity from the sphere of private pursuits and attitudes ....[it] takes place on the basis of an *impersonal, hierarchical structure of authority* and a *centrally controlled and supervised delegation of functions*. ...For in bureaucracy, the command structure is unified, not fragmented. A true bureaucrat is free to act only in so far as he is empowered to do so and in the light of bureaucratic procedures and specified goals.[75]

In the research project, the characteristics of Weber's ideal-type manifest themselves in the project's focus on the establishment of centralized control over record-writing and record-keeping, on the imposition of rules to govern the behavior of record-writers and record-keepers, and on the treatment of officers within an agency as exclusively juridical persons.[76] Such control mechanisms are essential because bureaucrats are obliged to account for their actions through records. Jane Parkinson explains the intimate link between record trustworthiness and bureaucratic accountability in the following way:

> The principle that underlies the concept of accountability ...is linked to the conveying and evaluation of information ....For ongoing bodies,

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[74] For the structure and functioning of medieval chanceries see Giry, *Manuel de Diplomatique*, 661-820. For the structure and functioning of modern bureaucracy according to the classical organizational theory of Weber, see Max Weber, *The Theory of Social and Economic Organization*, trans. A.M. Henderson and Talcott Parsons (New York: The Free Press, 1947), 329-341. See also Kathleen Carney, "Managing Integrated Record Systems: A Conceptual Foundation," (Master of Archival Studies thesis, University of British Columbia, 1995), 11-31.

[75] Eugene Kamenka, *Bureaucracy* (Oxford: Basil Blackwell, 1989), 1, 3.

[76] For example, the individual space of the electronic system is assigned to individuals working within an agency on the basis of their official title rather than on the basis of their name.

> accountability required the development and refinement of procedures for carrying out actions and documenting them, "to ensure that everything was done according to rule and in proper sequence, so that administrators could account ...at any time precisely for anything that had been done." Effective institutional accountability has therefore depended on record-making, record-keeping and access to records, and it has influenced the procedures and timing of their creation, their form, their maintenance, their accessibility and their centralization.[77]

In an earlier chapter, it was established that, in a bureaucracy, records depend for their reliability on the claim of the observer/recorder to have been present at the events (or "actions") the record purports to record.[78] From the perspective of the bureaucrat who uses the record, "the concern with reliability is a practical expression of the basic fact that the absent non-observer's [i.e., the bureaucrat's] structural position is always and irremediably one of dependence in a world where the truth resides in the local nature of immediate events." [79] According to Raffel, because the event reported in the record "is, strictly speaking, unknowable, ...the adequacy of any record is problematic. Certainty is impossible, the only sure thing being that the record exists."[80]

Bureaucracy has developed essentially two approaches to deal with this dilemma. In the first approach, bureaucrats assess records indirectly by focussing on the reliability of record-writers. As Raffel puts it:

> Instead of evaluating *records*, administrators can concentrate their efforts on attempting to ensure the reliability of record-*keepers*. Administrators can use the following logic: although the truth of records cannot be directly determined, records are true to the extent that record-keepers are reliable. Therefore, by attempting to make record-keepers reliable, they are indirectly attempting to make records truthful. They can assert their supervisory prerogative, not by watching over records but by watching over observers.[81]

In traditional bureaucracies control over record-writers was typically exercised by issuing commands and by close supervision. However, as Raffel cogently observes, in relation to hospital records, close supervision is more likely to reduce, rather than increase, candor in record-writing:

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[77] Jane Parkinson, "Accountability in Archival Theory," (M.A.S. thesis, University of British Columbia, 1993), 25-26.

[78] See *supra*, chap. 2, 57-59.

[79] Raffel, *Matters of Fact* (see chap. 2, n. 67), 89.

[80] *Ibid.*, 18.

[81] *Ibid.*, 91. The use of hospital records specifically for auditing and supervisory purposes is discussed in Kai Erikson and Daniel Gilbertson, "Case Records in the Mental Hospital," in *On Record*, ed. Stanton Wheeler (New York: Russell Sage Foundation, 1970), 390 and in Phyllisis M. Ngin, "Recordkeeping Practices of Nurses in Hospitals," *American Archivist* 57 (Fall 1994): 616-630, *passim*.

> Supervising now looks not like controlling, guiding, or watching over us but seeking to overhear us. However, the spy's problems are legion of course. If his enemies know he is there they will stop talking freely. Hence, the fact ...that all records about topics that are touchy from a supervisory point of view are defensive. It is always patients who die, never doctors who kill them. 'Proper' procedures, even those that self-respecting doctors would never stoop to perform, are always reported to have been followed.[82]

In the UBC research project, close supervision is a characteristic means of ensuring the reliability of record-writers and is manifested most clearly in the imposition of access privileges over the makers and keepers of records.

As computers are increasingly used in support of carrying out bureaucratic procedures, close supervision is being replaced by impersonal technological control systems.[83] In the research project, an audit trail is maintained of all the activity that takes place within the electronic recordkeeping system. A technological control system, which impassively witnesses and captures the actions and interactions of record-writers with the computer on a microscopic scale and stores them in its indefinitely expandable memory, appears to be the ideal observer of observers. The system is present at all the record-creating events that take place within the computer but its recording of those events is not contaminated by human self-interest. Of course, here too, as technology is used more and more for the purposes of controlling human observers, the line separating observation, supervision, and surveillance becomes increasingly thin and record-writers are likely to experience a corresponding reluctance to communicate freely.

In court cases such as *Armstrong*, the electronic mail system of the Office of the President was targeted by historians and other researchers largely because, as a vehicle for less formal and, likely, more candid communications among Office staff, it was seen as a valuable source of information concerning the operations of the Office. Similarly, during the Somalia Inquiry, the Commissioners sought to obtain access to email messages generated within the Department of Defence in connection with the incidents being investigated. They were interested, specifically, in a series of email transmissions concerning efforts by a particular Major General (MGen Vernon) to organize several colleagues to present evidence before the Commission and the response of a Lieutenant General (LGen Reay) to those efforts. The Commissioners had obtained a copy of the transmissions from a third party and found particularly noteworthy references made by LGen Reay to "the idea of producing the King James Version of events" as well as his statement that, "How we respond is entirely up to us and we control what is written ....Every time the Commission asks for amplifying info or more briefs or whatever, we will respond and we control how we respond." According to the Commissioners, "this example

[82] Raffel, *Matters of Fact*, 100.
[83] Kamenka, *Bureaucracy*, 168.

illustrates the candour in a less formal communication medium such as e-mail and the value of such records for our work."[84] In his testimony before the Commission, MGen Vernon testified that members of the Canadian Forces frequently used email to communicate what he called "demi-official matters."

> He described demi-official correspondence as being private correspondence and contrasted it with official correspondence which 'belongs to Her Majesty'. He explained that demi-official communications were a normal method of staff work: establishing consensus through less formal liaison before the results are presented to superiors for official consideration. He also testified that the 'demi-official net' accounts for a great deal of the consultation and discussion behind official decisions.[85]

In the interests of accountability and record trustworthiness, the UBC research project advocates bringing an agency's electronic mail system under the centralized control of the agency-wide records system. One of the rules of the recordkeeping system states that every email transmission entering or exiting the agency must pass through the general space of the electronic system to be registered before it is transmitted to the individual to whom it is directed. The Somalia example suggests that, while such a procedure may advance the objectives of formal reliability and authenticity, it may also contribute to a chilling effect on email communications. Given this possibility, to encourage candor in certain kinds of bureaucratic communication and in the interests of historical accountability, less surveillance, rather than more, may be preferable during the records' active life.

Controlling record-writers is one solution to the dilemma created by the fact that the bureaucratic user of the record cannot be present at the event the record reports. A second solution, Raffel suggests,

> is to reorganize the idea of presence to the local event by extending what is meant by the event to include the record. Administrators can gain presence and hence make possible their non-participation by reconceiving of the record as the event. If the record itself can be conceived of as the event, then the administrator, who obviously can be present with the record, is no longer necessarily in a state of ignorance.[86]

In this approach, records are evaluated, not in terms of their effectiveness in mirroring events, but, rather, in terms of their completeness in accordance with bureaucratic standards. In the UBC project, completeness is an aspect of reliability. To be considered complete, a number of specific elements, e.g., a signature, date, class code, registration number, must be present in the record profile. A record's

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[84] [Canada], *Dishonoured Legacy*, vol. 5 (see intro., n. 5), 1212-1213.
[85] *Ibid.*, 1213.
[86] Raffel, *Matters of Fact*, 102

reliability is then assessed in relation to the presence or absence of any of these elements: a reliable record will be one that appears to be reliable by anyone looking at it.

In diplomatic terms, the signature carries special resonance as an indicator of a record's reliability. The requirement that record-writers sign their records is the commonest means by which bureaucrats evaluate a record's reliability and is associated both with record completeness and with controlling the behavior of record-writers. As Jack Goody observes, the signature "is not only a card of identity, as individual as the print of the finger or the hand, but also an assertion of truth or of consent."[87] Because the bureaucracy needs to be able to treat a record's contents as knowledgeable and definite, rather than uncertain, it requires record-writers to sign their records, thus making them responsible for the records' contents. The bureaucracy thus removes from itself the responsibility for knowing the event. According to Raffel:

> By getting the writer to sign the record the administration has gotten the writer to declare or say (by signing) that the record is adequate. His declaration is then treated by the bureaucrat as that which is showing itself to him. He does not know whether the record mirrors the event but he does know that someone *says* that the record mirrors the event. That someone has said that the record is adequate becomes the fact (event) which is presenting itself to the administrator. The administration can therefore point to the declaration as its reason for saying what it says about the record or, better, as its reason for not having to say anything about the record. ...The record appears to be adequate in that the writer has declared it to be adequate.[88]

As a sanction for controlling the behavior of record-writers, the signature provides the bureaucrat with two options:

> If he decides to rely on the observer, he can know about the event. If he does not rely on the observer, then he can at least know whom he finds unreliable. ...If administrators choose this option then, although they cannot know the event, they can know who they blame for their lack of knowledge, they can know who it is that is unreliable.[89]

The signature's sanctioning function is reinforced by the requirement that certain records be signed by more than one person.

Clearly, the presence of a signature does not rule out unreliability. As Raffel points out, "the fact that records must be signed makes some record-writers even

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[87] Jack Goody, *The Logic of Writing and the Organization of Society* (Cambridge: Cambridge University Press, 1986), 152.

[88] Raffel, *Matters of Fact*, 110.

[89] *Ibid.*, 94.

less inclined to be accurate when, as so often, the truth would incriminate them."[90] The point of the signature, from the bureaucrat's perspective, is to foreclose questions about the record-writer's intent. According to Raffel, to overcome the problem of intent, the bureaucracy requires the record-writer "to *declare* his intent, in this case his intent to have spoken the truth. The declaration is supposed to solve the problem of intent by making intent into something that can be spoken rather than that which any speech leaves unsaid."[91] Technological efforts to adapt the signature to an electronic environment reinforce the traditional purpose served by the signature in a bureaucracy. One of the central functions of the digital signature is its "non-repudiation function," which echoes the indisputability of the medieval sovereign's seal. Both are symbols of authority and responsibility that are intended to foreclose any further speech concerning the reliability (and authenticity) of the object to which they are attached. With medieval seals, the sovereign's status gave the seal its authority. With electronic signatures, the complexity of the technology confers authority on them.

These observations suggest some of the natural limits to bureaucratic ways of knowing and, therefore, to the methods for ensuring record trustworthiness proposed by the UBC research project. What remains to be examined are some of the inevitable limits to the application of the UBC methods for ensuring record trustworthiness in a given bureaucracy. The Weberian model emphasizes efficiency, functionality, and formalization and tends to underestimate the importance of informality, and the extent to which the pursuit of trustworthiness may impede other worthy organizational objectives. It has been pointed out by Robert Merton and Philip Selznick, for example, that

> Weber's emphasis on precision and reliability in administration, on its rule-bound character, has to be supplemented by a recognition that human attitudes and relationships are involved. The norms of impersonality may bring administration into conflict with citizens and thus make them 'inefficient'. Functional sub-divisions will set up sub-group loyalties in the bureaucracy vital to the successful functioning of the sub-division, yet leading to conflicts within the whole ....That which is 'functional', 'efficient', is not always a coherent logical structure -- efficiency may depend, and usually does, on a delicate balancing, in concrete contexts, of competing and conflicting trends and *desiderata*. A bureaucracy needs both impersonality and 'good relations', predictability and flexibility, rules and discretions, central control and local initiative.[92]

Merton and Selznick's comments underline the fact, already observed in connection to email communication, that too rigid a focus on formal mechanisms for ensuring

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[90] *Ibid.*, 95.

[91] *Ibid.*, 112.

[92] Kamenka, *Bureaucracy*, 160

record trustworthiness may have the detrimental effect of chilling candid communication. This understanding is not overlooked in the findings of the UBC research project which recognize that reliability is a matter of degree, and that individual bureaucracies will need to establish the degree of trustworthiness required for the various types of records. In fact, one aspect of integrating business and documentary procedures is to identify the category of each procedure, whether constitutive, executive, instrumental, or organizational.[93] The reason for determining the category for each procedure is to assess which procedures, and the records generated from them, require the most control. Because an agency's constitutive procedures create, extinguish, or modify the powers of persons with whom it interacts, the records generated in carrying out these procedures require the most control aimed at ensuring their reliability and authenticity. Instrumental procedures, on the other hand, which are connected to the giving and receiving of opinions and advice, do not directly result in any action, and the records generated from those procedures are most effective when they are least controlled.

Merton and Selznick's comments also reinforce the point that Weber's model of bureaucracy is just that – a model -- and that actual bureaucracies tend to be complex beasts that rarely fit the "ideal-type" at all points. Moreover, in different cultures, the bureaucratic ideal will be interpreted differently, being determined, to a considerable extent, by cultural priorities. Not all cultures attach the same value to formalization and centralized control nor do they all share a need to ensure predictability and reduce uncertainty. Geert Hoftstede has explored some of the differences among national cultures in a research project studying work-related values.[94] Using research data obtained by comparing the beliefs and values of employees within the subsidiaries of a large multinational corporation in forty countries around the world, he identified four main criteria by which these national cultures differ. These criteria have been labeled dimensions and are as follows: *Power Distance*, *Uncertainty Avoidance*, *Individualism-Collectivism*, and *Masculinity-Femininity*.

The first two dimensions are the most relevant to understanding how bureaucracies function in different cultures. *Power Distance* "indicates the extent to which a society accepts the fact that power in institutions and organizations is distributed unequally." People in large Power Distance cultures prefer centralized decision-making and control while people in small Power Distance cultures prefer such control to be decentralized. *Uncertainty Avoidance* "indicates the extent to which a society feels threatened by uncertain and ambiguous situations and tries to avoid these situations by providing greater career stability, establishing more formal rules, not tolerating deviant ideas and behaviors, and believing in absolute truths

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[93] See *supra*, chap. 4, 121.

[94] Geert Hofstede, *Culture's Consequences: International Differences in Work-Related Values* (London: Sage Publications, 1980). See also Hofstede, "The Cultural Relativity of Organizational Praces and Theories," *Journal of International Business Studies* 14 (Fall 1983): 75-90; Hofstede, "Motivation, Leadership, and Organization: Do American Theories Apply Abroad?" *Organizational Dynamics* 9 (Summer 1980): 42-63.

and the attainment of expertise."[95] While Power Distance relates to centralization, Uncertainty Avoidance relates to formalization. People in strong Uncertainty Avoidance cultures need written rules and regulations while people in weak Uncertainty Avoidance cultures believe there should be as few rules as possible.

Richard Mead has translated these four dimensions into four distinct styles of bureaucracy: *Full Bureaucracy*, which most closely mirrors Weber's ideal type bureaucracy, is characterized by large power distance and strong uncertainty avoidance; *Market Bureaucracy* is characterized by small power distance and weak uncertainty avoidance; *Workflow Bureaucracy* is characterized by small power distance and strong uncertainty avoidance; and *Personnel Bureaucracy* is characterized by large power distance and weak uncertainty avoidance.[96]

Hofstede's research shows that cultural differences will yield different attitudes toward the value of record trustworthiness relative to other organizational goals, and will result in different strategies for ensuring it. Commenting on Hofstede's research, Bearman observes that, in American organizations (which tend, in general, to be market bureaucracies),

> Technologies have been acquired in order to enhance the ability of individuals throughout the organization to do their jobs rather than in order to further corporate control or norms. European organizations [which tend, with the exception of Scandinavia and the Netherlands, to fall into the category of full or workflow bureaucracies] have been much more hesitant to introduce these technologies, and when they do so they usually develop substantial administrative controls surrounding their use.[97]

Similarly, in Bearman's view, American organizations are more likely to rely on technological intervention rather than on administrative rules and regulations to ensure the trustworthiness of electronic records.[98] The perceived advantage of a

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[95] Hofstede, "Motivation, Leadership," 45.

[96] Richard Mead, *Cross-Cultural Management Communication* (New York: John Wiley and Sons, 1990), 25-28.

[97] David Bearman, Diplomatics, Weberian Bureaucracy, and the Management of Electronic Records in Europe and America." *American Archivist* 55 (Winter 1992): 178.

[98] The preference for a technology-oriented approach over a policy-oriented approach is apparent in a recent American research project, in which Bearman himself participated, investigating methods for ensuring the trustworthiness of electronic records, essentially, from a database management perspective. The "Record-keeping Functional Requirements Project" was carried out between 1993 and 1996 at the University of Pittsburgh. Its primary purpose was to develop and test functional requirements for recordkeeping in the context of electronic record-keeping systems. The identified requirements were derived from laws, regulations, and professional standards and best practices. Each requirement was then translated into the formal and more specific language of production rules. The requirements and rules were then used, "to delineate the type of metadata that should accompany each record and [to group] the metadata into a model for a metadata encapsulated record. ...[The] reference model "describes how the documentation of the content and structure of a record can be linked to, and retained with metadata that describes the context of the business transaction that caused the record to

technology-oriented approach is that the control exerted over record-writing and record-writers is automatic and invisible to the users of the system. On the other hand, the very invisibility of technological control mechanisms is precisely what makes them more insidious than traditional mechanisms of bureaucratic control. While the extent of technological surveillance is unknown to the user, the fact of such surveillance is not. Over the long term, uncertainty over its precise extent is bound to translate into a generalized atmosphere of distrust within an organization. In an ironic reversal, technological remedies to the problem of ensuring record trustworthiness may themselves become the next problem requiring a solution.

Ultimately, the limits of contemporary archival diplomatics as a body of concepts and methods for ensuring the trustworthiness of electronic records are inseparable from the limits of the Weberian model of bureaucracy on which those concepts and methods are built. As Mary Douglas points out, bureaucracies "systematically direct individual memory and channel our perceptions into forms compatible with the relations they authorize."[99] Records are the most visible manifestation of that directing and channeling function and the procedural and technological methods for creating and controlling them the primary means of accomplishing it.

Notwithstanding the fact that the relationship between records and reality is a problematic one, there is no question that the pursuit of record reliability and authenticity is a valid and necessary one and that it requires the imposition of standards. Standards, of necessity, organize reality into universalistic rather than particularistic categories and prescribe, rather than describe, the features of that reality in order to control and evaluate specific manifestations of it. This underlying purpose connects the concepts and methods developed by the UBC research project, to those that have been developed by the disciplines of law and history. Contemporary archival diplomatics aims primarily to control concrete manifestations of recordkeeping reality, while the legal and historical principles and rules of evidence aim to evaluate those manifestations. The conclusion will summarize the dominant themes that have emerged in the course of this exploration of record trustworthiness.

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be created. The metadata "guarantees that the record will be usable over time, only accessible under the terms and conditions established by the creator, and have the properties required to be fully trustworthy for purposes of executing business."" The Project's investigators claim that organizations developing electronic information systems "that comply with this reference model will ensure the preservation and accessibility of understandable and trustworthy records over time." As a corollary, the Project also undertook five case studies of organizational culture in an attempt to predict the extent to which different organizations will adopt record-keeping requirements and the tactics they are likely to use in addressing them. For an overview of the Pittsburgh Project, see Wendy Duff, "Ensuring the Preservation of Reliable Evidence: A Research Project Funded by the NHPRC," *Archivaria* 42 (Fall 1996): 36, 37.

[99] Mary Douglas, *How Institutions Think* (New York: Syracuse University Press, 1986), 92.

Conclusion

This thesis has explored the concepts and methods associated with record trustworthiness from the perspectives of law, history, and diplomatics, and traced their evolution from antiquity to the digital age. In the course of that exploration a number of interconnected themes have emerged. The overarching theme has been the extent to which legal, historical, and diplomatic methods for assessing and ensuring the trustworthiness of records operate within a framework of inferences, generalizations and probabilities. Inferences about record trustworthiness rest on generalizations which, in turn, are furnished primarily by common sense experience and logic. In his discussion of the theories of relevancy on which legal rules of evidence rely, Peter Tillers neatly summarizes the limits of such generalizations:

> ...our conceptual knowledge of tendencies in the world is such that it is always necessary for the fact-finder or actor to determine whether the complex and varied features of a particular event are sufficient to distinguish that situation, either partially or entirely, from the types of events to which the generalization speaks. ...The thesis that all generalizations, when applied, have this sort of range of potential indeterminacy seems to rest on the twin metaphysical assumptions (which we find quite plausible) that (1) actual events are always inherently distinctive in the sense that they have a large complex of features that may, in principle, affect the appropriateness of regarding them as being within the domain of any particular generalization, and that (2) any generalization, however complex, is in principle only a partial description of tendencies of nature since no generalization that we presently possess describes the significance of all features and characteristics that are to be found in the world of existence.[1]

Given these limits, the methods for assessing and ensuring record trustworthiness are more accurately characterized as a hedge against uncertainty concerning our knowledge about past events, than as a guarantor of certainty about it.

The "range of potential indeterminacy" inherent in all generalizations about the nature of reality is not ignored in analyses of legal, historical, and diplomatic methods. As one textbook on legal evidence explains,

> [b]ecause one cannot usually return in a time machine to show a trier of fact "what really happened," investigations do not produce "facts." They produce evidence, from which the trier of fact will resolve the parties' factual dispute(s) by deciding the *probable* facts. [2]

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[1] *Wigmore on Evidence*, vol. 1A (Tillers revision, 1983), para. 37.7 at 1078.
[2] Quoted in Richard H. Gaskins, *Burdens of Proof in Modern Discourse* (New Haven and London: Yale University Press, 1992), 26.

In his book *Historical Knowing*, Goldstein describes the process of historical research as a construction of an historical past, rather than the reconstruction of a real past: "it involves treatment of evidence and thinking about evidence and is preoccupied with the determination of what conception of the historical past makes the best sense given the character of the evidence in hand."[3] The documentary universe described by diplomatic methods is, similarly, less a representation than it is a construction of the real world. As Duranti explains:

> Diplomatics saw the documentary world as a system and built a system to understand and explain it. Early diplomatists rationalised, formalised and universalised document-creation by identifying within it the relevant elements, extending their relevance in time and space, eliminating their particularities, and relating the elements to each other and to their ultimate purpose.[4]

Implicit in these observations is a recognition that law, history, and diplomatics operate within a coherence, rather than a correspondence, theory of fact-finding.[5] Within a coherence theory of fact-finding, the truth of a proposition is assessed in relation to its coherence with other propositions that we accept as true, rather than in relation to its correspondence with an external, verifiable reality. The Rationalist tradition of legal evidence, the Modernist tradition of historical scholarship, and the Weberian model of bureaucracy on which contemporary archival diplomatics is built all constitute particular constructions of the world, rather than demonstrably accurate reflections of it. They represent ideal types and, as such, are normative and aspirational. The Rationalist tradition aspires to the ideal of justice, the Modernist tradition to that of historical truth, and the Weberian model to that of accountability. To realize these aspirations, reality has been organized into universalistic rather than particularistic categories that prescribe, rather than describe, its features in order to control and evaluate specific manifestations of it. The validity and strength of each discipline's methods for assessing and ensuring record trustworthiness can only be judged, therefore, in relation to the integrity and internal coherence of its procedures, rather than in relation to any verifiable standard of correspondence with the past as it actually happened, simply because such a standard is unattainable. In this context, the limits of assessing record trustworthiness, are attributable, ultimately, not to defects in method, but to "well-founded ambiguities" that defy resolution.[6]

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[3] Leon J. Goldstein, *Historical Knowing* (Austin and London: University of Texas Press, 1976), 141.
[4] Luciana Duranti, "Diplomatics ...(Part IV)," 10.
[5] For a detailed philosophical examination of the coherence theory of truth and its relation to the correspondence theory of truth, see Ralph C.S. Walker, *The Coherence Theory of Truth: Realism, Anti-Realism, Idealism* (London and New York: Routledge, 1989). For an examination of the theories in the context of historical methodology, see W.H. Walsh, "Truth and Fact in History," in *An Introduction to Philosophy of History*, 3rd ed., rev. (Atlantic Highlands, New Jersey: Humanities Press, 1967), 72-92.
[6] The phrase is Paul Ricoeur's. As he puts it, "History ...wants to resuscitate and it can only reconstruct. It wants to make things contemporary, but at the same time, it has to restore the distance and depth of historical time that separates it from its object ...These difficulties do not arise from defects of method, they are well-founded ambiguities." Quoted in Le Goff, *History and Memory*, 105.

This is not to suggest that the methods for assessing record trustworthiness are, necessarily, untrustworthy, or that a correspondence theory of truth has no place in the fact-finding process. Dorothy Haecker maintains, in relation to historical ways of knowing, "that the concept of coherence is an indispensable part of the analysis of historical verification, that the concept of correspondence is indispensable to the understanding of historical reference, and that both are involved in the notion of historical meaningfulness."[7] The same may be said in relation to legal ways of knowing. As Peter Tillers eloquently argues:

> [I]t is a mistake to suppose that we can trust nothing whose validity or reliability is not subject to a logically compelling demonstration. The fact is that nothing in this cosmos is susceptible to a logically compelling demonstration (except upon arbitrary premises), and yet it is plain enough that we do not distrust everything we believe merely because the validity of our beliefs is not in that sense logically demonstrable ....the supposition that it is irrational to believe anything that cannot be proved rests on a basic misapprehension of what it means to be rational. Reason is not an instrument that can establish *anything* with certainty; but it is nonetheless certain that we can and do use reason and thought in wending our way through life and the cosmos ....In our daily life, we draw innumerable inferences upon which we rely and upon which we stake our lives and fortunes and we will not be easily persuaded that the inferences we have drawn are untrustworthy.[8]

Tillers' argument suggests that, while we cannot defend foundationalist standards, at the same time, we cannot avoid them. Common sense dictates a certain leap of faith in accepting that the propositions we make about the nature of reality are valid, if not, ultimately, verifiable. Moreover, the pursuit of justice, historical truth, and accountability are important and socially necessary endeavors and the pursuit of all three requires a commitment to the value of accurate fact-finding.[9] At the same time, the realization that the methods for assessing record trustworthiness, and the generalizations on which they are built, are human constructs, rather than transcendent verities, leads to the conclusion that those methods need continually to

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[7] Dorothy A. Haecker, "The Historical Way of Knowing," (Ph.D. thesis, University of Kansas, 1981), abstract.

[8] *Wigmore on Evidence*, vol. 1A (Tillers revision, 1983), para. 37.7 at 1085.

[9] Jonathon Cohen goes so far as to argue, in relation to the law's pursuit of justice, that "only by producing generally acceptable verdicts on facts at issue can a legal system ensure that in the long term it will continue to retain the respect of the informed public ....What is crucial here is not so much actual accuracy of trial outcomes, but rather the extent to which people believe in this accuracy, especially in criminal cases. Moreover *only by using broadly the same fact-finding procedures as those that the informed public respects can a legal system ensure that it will produce generally acceptable verdicts* [emphasis mine]." Jonathon Cohen, "Freedom of Proof," in *Facts in Law: Association for Legal and Social Philosophy Ninth Annual Conference at Hatfield College, University of Durham, 2nd - 4th April 1982*, edited by William Twining (Wiesbaden, Germany: Franz Steiner Verglag GMBH, 1983), 4-5.

be reassessed and re-evaluated as new ways of looking at the world present themselves.[10]

The second theme that has emerged in the course of this exploration concerns the specific generalizations on which the legal, historical, and diplomatic methods that have been discussed are based. In all three disciplines, the methods for assessing and ensuring record trustworthiness in general, and record reliability, in particular, are rooted in observational principles.[11] Records are viewed as a source of information that permit us to make inferences about the real world. Because they are assumed to reflect events in the real world, records depend for their reliability on the claim of the observer to have been present at those events. Accordingly, the methods for assessing record trustworthiness aim to ensure that the record accurately reflects those events, and that it is uncontaminated by the distorting influence of bias, interpretation, or unwarranted opinion on the part of the observer/recorder.

For records created by bureaucracies, the organizational context simply enlarges the traditional conception of the observer's/recorder's presence in time and place. The bureaucratic controls exercised over observation and recording constitute a further dimension of observation whereby the bureaucracy itself becomes a watcher over observers and recorders. The reliability of bureaucratic records is thus ensured, not only because the observer/recorder is close to the event recorded but also because the recording itself takes place within a framework of bureaucratic observation and surveillance. The degree of reliability of the records can then be measured in relation to the degree to which the bureaucracy shapes and constrains the speech of observers and recorders.

The gradual replacement of traditional mechanisms of bureaucratic supervision by impersonal technological control systems, has not resulted in an abandonment of bureaucratic observational principles as a means of assessing and ensuring record trustworthiness. It has tended, rather, to perpetuate and reinforce them. The computer has become the perfect observer, with its capacity to witness and capture the actions and interactions of record-writers on a microscopic scale. It is present at all the record-creating events that take place within it but its recording of those events is not contaminated by human self-interest. The computer's

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[10] A recent example of a new way of looking at the world is the Supreme Court of Canada's overturning of the trial court's decision in *Delgamuukw v. British Columbia*, and its specific rejection of the trial judge's decision to exclude or to accord no weight to oral histories of aboriginal peoples on the grounds that they constituted hearsay and were thus inherently unreliable. In its decision, the Supreme Court recognized the need for the legal system to "adapt the laws of evidence so that the aboriginal perspective on their practices, customs and traditions and on their relationship with the land, are given due weight by the courts. In practical terms, this requires the courts to come to terms with the oral histories of aboriginal societies, which, for many aboriginal nations, are the only record of their past." *Delgamuukw v. British Columbia*, [1997] 3 S.C.R. 1010 at 64.

[11] Observer principles may also be read into the methods associated with assessing record authenticity, specifically, in the preference for documentary originals over copies. If we consider the creation of the record itself to be the event, the original record is the one closest to the event.

homunculus eye view is, nevertheless, a narrow one, since it is confined to the electronic information system and fails to capture the broader documentary and administrative context in which electronic records are created, used, and made meaningful.

The observational principles on which methods for assessing and ensuring record trustworthiness are based reflect a conception of records as witnesses to events and a corresponding view of the world as one that is capable of being witnessed. As Raffel explains:

> it becomes possible for a record to correspond to the world only when 'the world' is formulated as itself revealing the things which must be said about it. This is not to say that the world *does* disclose itself. Rather: in so far as one can formulate the world as made up of things which present or fail to present themselves, it thereby becomes possible for a record to 'represent' the world. It is neither correct, or incorrect, then, to treat records as corresponding to the world. The proper statement of the relationship of records to the world is that, in so far as one wants to see records as corresponding to the world, one *must* treat the world as revealing or presenting what must be said about it.[12]

Raffel's comments underline the fact that the legal, historical, and diplomatic methods are all rooted in a particular way of looking at the world and in a particular conception of records as a kind of testimony about that world. His comments also reinforce the point that the methods reflect a particular mode of instantiation, one that is shaped by each discipline's procedures of investigation and, therefore, does not exhaust all the possible ways of looking at the world or at the relationship between records and the world.

Mark Cousins observes, for example, that the practice of both legal and historical investigation pivots around the same questions: did an event occur or not? Do reports or allegations that an event has occurred correspond to the best evidence of the existence of such an event? Into which class of event does the event fall? Who and what are responsible for it? What are the lines of causality to be drawn in respect of the event? What degrees of responsibility do or can particular persons bear? As a consequence, the past that is of concern to legal and historical inquiry, "is not the past in general, but only the past as it concerned the event and the questions of responsibility which such events raise." While the truth uncovered by a court of law or by an historian is subject to appeal, "such an appeal will merely extend reasoning about the event and responsibility for the event. The production of new evidence will permit a representation which was not [previously] available ...Arguments concerning failures of [previous] reasoning ...will seek to overthrow its representation of the event."[13] Grounded in a view of the world that is witnessable

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[12] Raffel, *Matters of Fact*, 64.

[13] Cousins (see chap. 3, n. 44), 132.

and event-full, legal and historical procedures thus tend to focus on actions and their agents and are better equipped to assess responsibility than to expose intentionality. In the same way, bureaucratic methods for ensuring record trustworthiness are directed largely at foreclosing questions about the intentionality of record-writers, preferring to focus instead on ensuring that record-writers are made responsible for the statements made in the records.

Another theme that has emerged in the course of this thesis is the continuing validity of a best evidence principle to the assessment of record trustworthiness. As espoused by Nance, that principle refers to the obligation of litigating parties to present the "epistemically best," meaning the logically most probative, evidence. The adherence to such principle, in the more specific context of the rule governing documentary originals, it has been suggested, might manifest itself in an obligation of the litigating parties to produce the most complete record, i.e., the record containing all the elements of physical and intellectual form present in the original. It has been shown that the dimension of completeness is particularly pertinent to electronic records, given that their structural, contextual, and discursive components may exist in separate parts of a database and can be managed separately unless they are purposefully brought together. The foundation evidence that supports a presumption of record integrity, therefore, should be capable of demonstrating, not only the reliability of an information system's input and verification procedures, but, also, the completeness of procedures for reproducing the original structure of the record and any original annotations, to the extent that these are relevant to an understanding of the record's content. This implies that courts will have to come to terms with the question of what constitutes a complete record and be capable of assessing the significance of missing elements with respect to the record's reliability and authenticity.

The best evidence principle may also be extended, by analogy, to the historian's use of documentary evidence. The adherence to the principle in an historical context might manifest itself in historians' obligation to ensure that the electronic records on which they base their stories about the past are also the most complete. In fact, in the two American court cases that have been discussed, historians have already demonstrated their concern to ensure the preservation of the most complete version of federal government records.

Understood broadly, the best evidence principle implies that judges, litigants, as well as historians, need to educate themselves about the nature of electronic records and how they manifest themselves in various information systems in order to be capable of assessing record completeness and to ensure that the epistemically best evidence is presented. For all their limitations, the standards for ensuring record trustworthiness, based on contemporary archival diplomatics, that have emerged in the course of the UBC research project, are an invaluable means of facilitating that understanding. The standards provide a precise and detailed answer to the question of what constitutes a complete, reliable, and authentic record in an electronic environment, one that is relevant to lawyers, judges, and historians, as

well as to record creators. The standards not only provide a substantial foundation on which to build trustworthy electronic information systems, they are also capable of serving as a tool for retrospectively assessing record trustworthiness and for identifying gaps in the security and verification procedures operative in electronic recordkeeping systems. Such capacity is particularly relevant to historians who will be looking at electronic records long after they have exhausted their original administrative purpose.

Historians, in particular, need to understand information technology, not simply because it soon will be the primary vehicle through which stories about the human past are told but, also, because technology, and the tension between empowerment and surveillance it embodies, are an essential part of that story. R.J. Morris speculates that:

> Historians will seek to understand the late twentieth century in order to relate it to collective identities and experiences of their own period. If the current analysis of 'post modernism' is any guide to this, that experience will be complex and fragmented ....The archives of IT, the e-data, will be one base from which that complexity and fragmentation can be recreated and interrogated. Even the current fragmentation of historical practice should warn us that historians will want to tell many stories. IT and e-data will not only be a source of these stories but part of the story itself. [14]

Historians need to understand the products of the digital age, both to comprehend it, and to assess its effect on late twentieth century culture.

A final theme that has been explored in this thesis concerns if and where a line should be drawn between observation and surveillance in designing technological mechanisms for ensuring record trustworthiness. Recent research in the history and sociology of technology, Margaret Hedstrom points out, emphasizes the "social construction of technology," and the significance of human choices in shaping it. This perspective

> considers technology to be the embodiment of human choices that influence how a machine is designed, what it is designed to accomplish, and how it is intended to accomplish its objectives. The design, development, marketing, acceptance or rejection, and interpretation of a technology are social processes shaped by rich interaction between cultural norms, economic and political power, social values, and the potential of a new machine or process.[15]

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[14] R.J. Morris, "Electronic Documents and the History of the Late 20th Century: Black Holes or Warehouses -- What do Historians Really Want?" in *Electronic Information Resources and Historians*, 311-12.

[15] Margaret Hedstrom, "Understanding Electronic Incunabula: A Framework for Research on Electronic Records," *American Archivist* 54 (Summer 1991): 340-41.

Electronic information systems are still in their infancy and there is time yet to explore and debate questions concerning the appropriate balance to be struck between the social value of trustworthy records and the social costs of increased surveillance. Such exploration needs, however, to take place sooner rather than later. As Hedstrom cautions, the "social construction of technology" perspective also suggests that "technologies ultimately reach 'closure' – a point at which debate over the features of the technology ceases and the artifact or process stabilizes. Upon reaching closure, technical features alone may limit or eliminate possibilities, require adjustments in social and political systems, undermine deeply-held cultural values, and alter power relations."[16] This suggests the need to weigh the social value of record trustworthiness against other social values in order to ensure that the technological mechanisms we develop and implement reflect an equitable balance among those values and do not simply shore up the worst excesses of bureaucratic surveillance.

This exploration has demonstrated that the societal need to ensure record trustworthiness has been recognized since antiquity and that such need continues to be recognized at the end of the twentieth century. It has also shown that, while the technological means of assessing and ensuring record trustworthiness have changed fundamentally over time -- the sovereign's seal of the middle ages has given way to the electronic seal of the digital age -- the underlying principles guiding those technologies have remained remarkably consistent. The conceptual adjustments that have been made constitute incremental, rather than radical, change. It seems safe to predict that this pattern of technological transformation and incremental conceptual change, which has characterized the evolution of methods for assessing and ensuring record trustworthiness since antiquity, will survive into the coming century and into the next age of recordkeeping.

[16] *Ibid.*, 341.

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