Digital Appraisal: Variations on a Theme

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Most archivists writing on appraisal in the digital world have been moved to compare and contrast it with the world familiar to them before the advent of computers. Indeed, much archival writing on other aspects of the digital world approaches it by employing familiar concepts to understand an unfamiliar environment and the apparently new things in it. On the one hand, some writers find old concepts inadequate to understand this new world, and delight in declaring that completely new concepts and approaches are needed to cope with it. On the other hand, more conservative thinkers hold this new world up to the light of traditional archival concepts, and delight in finding relatively little new under the sun. My paper continues in this vein by offering what I call variations on a theme. It has two main aims: to clarify important aspects of digital appraisal by reflecting on differing characterizations of it in different contexts on the peculiar problems that arise in and digital archival documents or records, that is to say, on the ways in which "digital appraisal" differs from "traditional appraisal." It will begin with a little brush clearing to characterize appraisal and its context and to announce some assumptions, and then, still winding up, it will speak about aspects of the digital environment that have created problems for the conduct of archival appraisal in the digital world. This will set us up for a consideration of the critical aspects of digital appraisal and the ways in which it differs

from traditional appraisal. Finally, I will conclude with a few remarks about appraisal of digital data.

The Purpose of Appraisal: Some Assumptions

The common meaning of appraisal is that it is the "act of estimating the nature, quality, importance, etc." of something. In archival terms, appraisal is commonly recognized as the basic function of determining the disposition of records, either their continuing preservation or their destruction or alienation from their creator. "Appraisal involves making an estimation or judgment on the worthiness of continued preservation of archival material."[1] As we shall see, this is not the only meaning ascribed to appraisal in archival circles, but it is the common meaning of the term in most archival literature. It seems to be a common term in other circles where digital preservation is a concern. The common definition harbours two essential statements, one obvious statement about the purpose or aim of appraisal, to determine the fate of records, and another less obvious one, inherent in the notion that it is a basic archival function, that it is in fact not a single act, confined to a single point in time, but rather is a process that takes place in the context of a broader process of digital preservation. In abstract terms, saying nothing about real world institutional arrangements for its conduct, which are virtually unlimited, this process supposes two essential parties: an entity creating or producing and maintaining records to be appraised and an entity prepared to take responsibility for continuing preservation of them. Both parties have roles to play in the process, because, in the traditional construction of it, responsibility for care and custody moves from the

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[1] InterPARES Project, *The Long-term Preservation of Authentic Electronic Records: Findings of the InterPARES Project*, *Appraisal Task Force Report*, p. 2. Available at: http://www.interpares.org/book/interpares_book_e_part2.pdf. Accessed 1 October 2007

one entity, the creator, to the other, the preserver. Even in cases where a records creator takes on responsibility for continuing or long-term preservation of its records far into the future, it is wise to conceive of the two roles of creator and preserver or trusted custodian as being at play none the less. Because there is this change of state in the records, the process of appraisal, often characterized as the function of selection, encompasses the activities of both determining the disposition of archival material and carrying out that disposition to effect the change in responsibility for care and custody, which is the way the process will be considered in this paper. I am well aware that some students of appraisal claim that user communities have a part to play in the conduct of appraisal, but, if this is so, their needs, interests, and behaviour are better seen as constraints on the process expressed either in the values of the social system or in the mission of the preserver, and that the process itself must find ways to entertain such needs, interests, and behaviour.

The Context of Appraisal: More Assumptions

All acts of appraisal are conditioned by their context. It cannot be otherwise. Efforts to provide universal guidelines or criteria for appraisal have failed. Most archival discussion of appraisal has been about its purpose, the general goal and particular values it serves in society, and the proper conduct of the process. In the broad sense, appraisal determinations are conditioned and constrained by elements in the social system in which they take place, such as customs, values, laws, and regulations; by international, national or local standards; by archival concepts, principles, and requirements; by the mission of the preserver; and, particularly in the case of digital appraisal, by the state of technology.

Actual decision making takes place in the context of the relationship between the creator and the preserver. The process demands that the interests of both parties be taken into account, and that rules in the form of policies, strategies, procedures, and criteria govern it. In this sense, all acts of appraisal are local, that is, they are conditioned by aspects of their setting and by the needs, interests and behaviour of the parties involved in the process. Appraisal can be considered successful to the extent that it is done in as full knowledge as possible of contextual conditions and constraints that apply and with as full understanding as possible of the needs, interests, and behaviour of the parties involved. Thus, it is virtually fruitless to discuss appraisal in general terms of the values to be applied, except perhaps to note, as Luciana Duranti says, that "all appraisal is ideological,"[2] which is to say it should result in decisions to preserve records that serve the needs, interests, and behaviour of the society at large and particular communities within which and for whom those decisions are made. A much more fruitful approach is to examine the nature of the process and the forms of analysis in it to lay out a structured understanding of how it may be comprehensively performed.

Appraisal differs significantly depending on whether the mission of the preserver is to appraise the records of a single organization of which it is a part, such as in the case of a government, church, or university archives responsible to appraise the organization's records, or the mission is to serve as the trusted custodian of the records of many

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[2] Luciana Duranti, "So? What Else is New? The Ideology of Appraisal Yesterday and Today," *Archival Appraisal: Theory and Practice*, Proceedings of the Joint Meeting of the Association of British Columbia Archivists and the Northwest Archivists Association. Vancouver, British Columbia, April 26-28, 1990. Christopher Hives, ed. (Vancouver: Archives Association of British Columbia, 1990): 1-14.

organization's and individuals in society with which it has no administrative connection. In the latter of these two situations, the preserver needs to determine, for example, which archives in a given realm are of interest. The British writer Michael Cook once described such archives as "delegated archives" in the sense that natural or juridical persons that generate them or their current owners delegate responsibility for their long-term preservation to a designated trusted custodian. This difference will be reflected in the preserver's appraisal policies, strategies, procedures, and criteria, but preservers that accept delegated archives have rather circumscribed ability to influence, interact with, and monitor the behaviour of creators in realms of interest to them, with obvious implications for the conduct of appraisal. However clumsily I have done it, I trouble to make this distinction because, I think, the great majority of writing about digital appraisal considers the first kind of setting and not the delegated archives one, in particular not the realm of the digital materials produced by individuals.

Aspects of the Digital Environment Complicating Appraisal

Charles Dollar of the National Archives of the United States wrote one of the first scholarly articles on digital appraisal in his article entitled "Appraising Machine-Readable Records," published in 1978.[3] Dollar wrote in the time of centralized data processing and storage of computer data on magnetic tape. Much as did his contemporary at the Canadian national archives, Harold Naugler, who wrote a RAMP study for ICA on digital appraisal in the mid-1980s,[4] Dollar found a number of enduring difficulties, and

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[3] Charles Dollar, "Appraising Machine-Readable Records," *The American Archivist* 41 (October 1978): 423-30.

[4] Harold Naugler, The Archival Appraisal of Machine Readable Records: A Ramp Study with Guidelines (Paris: Unesco, 1984.)

predicted some others. Firstly, even in the centralized data processing environment of the

1970s, experience showed that it was difficult to identify "the definitive state of a data

file in a system at a given time." Although the difficulty Dollar and his colleagues

encountered at that time involved distinguishing between processing files and master files

for the most part containing data rather than records, it has been an enduring difficulty

ever since for organizations and individuals to identify authoritative digital records in the

fluid digital environment and manage them in ways that allow archival appraisal to take

place effectively. Dollar saw this problem growing worse with the advent of distributed

on-line computing, in the sense that the provenance and even the very existence of

authoritative data and records would be in jeopardy. He went on to predict that "rapidly

growing computer storage and retrieval technology," the expansion of word processing

capability, and the spread of desk top computers would lead to the proliferation of digital

records in "a highly decentralized environment, and make it "difficult to ensure [their]

proper disposition."[5] Subsequent writing on the subject, particularly in the 1990s almost

universally lamented, as Dollar predicted, that appraisal was severely hampered if not

made impossible by inadequate record making and record keeping practices on the part of

records creators. Dollar also foresaw that the inevitable proliferation of databases or

information systems would favour timely data and its manipulation in work processes

over record keeping requirements. Reporting in 2002 on research in the first phase of the

InterPARES project, Heather MacNeil remarked that to a great extent "electronic systems

are still being designed to manage data rather than records." Since Dollar's time,

archivists have almost universally shied away from entertaining appraisal of data and

confined their interest to digital records. As David Wallace put it, without a focus on

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[5] *Ibid*., 428.

records, "archivists will be lost in the electronic systems environment."[6] As to record

keeping, archivists in the 1990s who studied electronic records found few systems that

would meet the criteria trusted record keeping systems needed to meet, which Margaret

Hedstrom enumerated as: "rules govern which documents are eligible for inclusion in the

… system, who may place records in the system and retrieve records from it, what may

be done to and with a record, and how long records remain in the system, and how

records are removed from it."[7] The decade since Hedstrom wrote has seen the slow

spread of just the sort of record keeping system she and many others in the archival world

called for in the 1990s, often called electronic document and record management systems

or EDRMS, but much data implicated in administrative and operational processes, a

goodly proportion of it serving as records, remain outside the regimen of EDRMS.

Appraising records in trusted record keeping systems is relatively straightforward

compared to data or documents generated in the myriad software applications that do not

accommodate the requirements for records.

Second, as was commonly known in this era, the practice of digital appraisal showed that

it was impossible to understand and therefore to make an appraisal determination of data

unaccompanied by documentation that explained the character of the data, that is,

unaccompanied by what we would now call metadata. It has been an enduring problem

that creators have not captured data about records that make their identity and

relationships explicit. This problem caused archivists to advise that the design of

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[6] David Wallace, "Metadata and the Archival Management of Electronic Records: A Review," *Archivaria* 36 (Autumn 1993): 97.

[7] Margaret hedstrom, "Building Record-Keeping Systems: Archivists Are not Alone on the Wild Frontir," *Archivaria* 44 (Fall 1997): 57.

information systems take into account record keeping requirements, in particular

metadata requirements and provisions to effect disposition. Writing in 1997, the

International Council on Archives Committee on Electronic Records, argued that "tasks

associated with appraisal and selection must be initiated early in the life cycle, often at

the stage of "conception," because retention requirements based upon archival [or record

keeping] considerations should be built into an electronic system at the time of its

design."[8] Lately, some archivists have argued that digital appraisal must occur at the

design stage of systems and include the determination of when and which records are

created to ensure that evidence of actions and transactions exists and is responsibly

disposed. This kind of risk analysis is no doubt incumbent on organizations, for, as David

Bearman and Ken Sochats observed in the mid-1990s, "computing applications and

electronic communications systems … constitute a growing liability to [organizations]

even while they are contributing directly to day-to-day corporate effectiveness."[9]

Arguably, risk analysis to determine which facets of business processes need to produce

records for administrative and evidentiary reasons is an integral part of creators' design

of digital systems, but such prudent action is best seen as one of the activities in

managing current records and data, and not as part of the conduct of digital appraisal by

the preserver.

Thirdly, Dollar spoke about the "software dependency" of data and the problem of

overcoming it, which was the first manifestation of this enduring and most critical

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[8] ICA Committee on Electronic Records, *Guide for Managing Electronic Records from an Archival Perspective*, ICA Studies # 8 (Paris, 1997), 27.
[9] Cited in David Bearman, "Moments of Risk: Identifying Threats to Electronic Records," *Archivaria* 62 (Fall 2006): 31.

problem of long-term preservation, the susceptibility of digital objects to all kinds to

technological obsolescence. Dollar also spoke about the fragility of media. In his day, his

institution, the National Archives of the United States, had a policy of converting

software dependent files into files in a software independent state, which, he observed,

could be a time consuming and costly process. Taking into account processing and

preservation costs and considering the National Archives limited resources, he advised

that "increased caution and care must be exercised in selecting files to be accessioned."[10]

It has been recognized ever since that part of the process of digital appraisal involves

analysis of the feasibility of preservation of any given body of records from technological

and economic perspectives. Such analysis has always been part of appraisal to greater or

lesser degree, but it assumes heightened proportions for digital appraisal because there

must be an available and viable strategy to render the records readable and maintain them

unaltered over time, that is, preserve the records and their authenticity.

Summarizing the situation of digital appraisal, the InterPARES project states that

"preservation is a continuous process that begins with the creation of the records … [and]

"decisions relevant to preservation must be made as close as possible to the creation stage

because of the ease and speed with which digital objects can be manipulated, deleted by

accident or on purpose, or lost to technological obsolescence." Moreover, records

earmarked for long-term preservation "should be monitored throughout the life cycle by

the preserver, so that appraisal decisions and preservations considerations can be updated

… [to make sure that] changes to the records and their context have not adversely

affected their identity and integrity and that the details of the process of carrying out

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[10] Dollar, "Appraising Machine-Readable Records," 427-28.

disposition are still workable and applicable to the records."[11] Collectively, the whole

span of records activities and actions to effect is variously dubbed the chain of

preservation or the records continuum. Although these two concepts are expressed in

different terms and choose different means to achieve their ends, both aim to develop

"systems that can carry [records] forward with their 'fixed' content, render their structure

or documentary form, and maintain sufficient contextual links to preserve their meaning

through time," to use words of Sue McKemmish and her Australian colleagues."[12]

Whatever the case, the realities and confusions of records keeping and information

management often confound archival visions. This is especially so in the realm of

archives created by organizations and individuals lacking the paraphernalia of

information and records management. As one link in the chain or one part of the

continuum, the acts of appraisal are the leading edge of preservers' confrontation with the

anomalies of the digital world.

Critical Aspects of Digital Appraisal

What follows is based mainly my spin on the work of many people in the first phase of

the InterPARES project to produce a model of the activities conducted in the archival

function of selection of digital records and in the second phase of the project on a model

of the entire chain of preservation of digital records. You may be happy to know that I

will neither make direct reference to the models nor show them to you, although you can

look at them on the project's Web site, perhaps some night when you are having trouble

[11] InterPARES 2 Project, "A Framework of Principles for the Development of Policies, Strategies, and Standards for the Long-term Preservation of Digital Objects," p. 18, available at
http://www.interpares.org/ip2/display_file.cfm?doc=ip2(pub)policy_framework_document.pdf
[12] Sue McKemmish, Glenda Acland, Nigel Ward, and Barbara Reid, "Describing Records in Context in the Continuum: The Australian Recordkeeping Metadata Schema," *Archivaria* 48 (Fall 1999): 7.

sleeping. To set yourself up for this part of my paper, imagine you are confronted with a body of digital records to appraise.

1. Character of the analysis of digital records for appraisal purposes

As many authors stress, archival appraisal in general requires careful and detailed analysis of records and their context as a precondition to assessing their value. It is wise to investigate context before content. This involves gathering and understanding: i) relevant information about the societal situation of the organization or individual creating the records, including especially any legal circumstances impinging on the records; ii) the sphere or spheres of activity of the records creator, and, if it is an organization, how it is organized; iii) the administrative, business, scientific, artistic, or other procedures or routines it follows when producing the records in question; iv) the relationship of the records in question with other records of the creator, whether or not digital, and the organization of the records and relationships among them; and v) the characteristics of the technical components of the system (using the term 'system" very generally) in which the records reside or were created.

Of course, understanding this last context, the technological context, is vital. It may be necessary to understand the details of hardware in some cases, but the main task is to understand software, perhaps, in some cases, the operating system, system software, and network software, but almost certainly application software, that is, the software environment used in association the activities generating and keeping/preserving the records. It is even more important to understand the data (all digital records being data),

particularly the file structure and data format or file format, because this understanding will be critical in determining whether and how records/data can be extracted for transfer to the preserver. Recording the results of this analysis is essential in order to inform later aspects of the process.

The role analysis of content plays in archival appraisal is a matter about which there has been some contention in archival circles. At one extreme, some argue that records are essentially recorded information, and therefore decisions about continuing value should focus on the utility of the information they contain. At the other extreme, some argue that records function as artificial memory of activities, which by the way is another kind of utility, and that one can know enough from the context of records to make decisions without reference to their content, except to confirm the records quality as evidence of activity. Such arguments, although they are sometimes cloaked as arguments about fundamental theory, are really about the values one brings to the exercise, and those values need to be sorted out in coherent institutional policies, strategies, and criteria. No one can sensibly appraise records in the absence of such contextualizing, guiding statements. In the past quarter century or so, to my mind at least, there has been something of a revolution in the conduct of appraisal. It is not as many think that the analysis performed in order to draw inferences about value has been revolutionized – one need only read early writers on the subject to see that. It is rather that implicit understanding of the values being brought to the exercise are slowly, and sometimes painfully giving way to explicit, written statements of policies, strategies, and criteria, which are essential to account for its conduct. It is conceivable that such statements will

guide appraisals in some cases to assess records content as the prime factor determining disposition. It is folly to think that making appraisal choices in an information rich world can avoid wrestling with what Schellenberg called informational value, and this, as I shall come to is nowhere more evident than in the case of omnipresent databases and the data they contain.

Gaining this comprehensive understanding of all contexts of records and their content provides the knowledge base for drawing inferences to judge the continuing value of the records, that is, their capacity to serve the continuing needs either of their creator or society or specialized constituents of it, for instance the scientific community. As I said earlier, it is not possible to talk about the values or criteria to bring to this exercise without having a specific creator/preserver context. If records are identified for long-term preservation, we come to the second critical aspect.

2. Assessing the authenticity of digital records

It has not normally been the habit of archivists appraising traditional records to assess their authenticity. From certain rumblings and even a few open grumbles I hear, it would appear that some persist in thinking it is up to researchers to decide whether they can trust digital records. The point, I think, is that, without some exercise on the part of appraisers of digital records, researchers will not have sufficient sense of the grounds for trusting or not trusting digital records archival institutions have so tenderly preserved. Their default position may very well be to say, well, the archives has them, they must be the real thing, but appraisers of digital records can and should do more to help researchers assess the

trustworthiness of records. It is difficult to summarize simply the exquisite and sometimes tortured thinking InterPARES researchers went through to characterize this distinctive and critical aspect of digital appraisal, but let me try. Any of my colleagues on the project who are in the audience might want to cover their ears.

If you just plunk a record down in front of a researcher, well, on a computer screen presumably, and ask her, do you trust this record, I am pretty sure you would get either a blank stare or the remark, "how should I know?", but if you were lucky, she might say, "Well, let's see, who Made it, in the course of doing what, and when." The extent to which such facts about the record, its identity as we called it, can be known provides one aspect of the grounds for assessing its authenticity. Now the researcher might have been thinking in terms of another aspect when she said "how should I know?" for she might have thought, "Well, how do I know whether anyone has tinkered with the damned thing?" Given the vulnerability of digital records to change, some researchers might well ask for assurances that digital records have not been altered intentionally or unintentionally at some time after their creation, that is, whether they have kept their integrity. So, appraisers of digital records can seek out information to support the presumption that the records have remained in tact while they were in the hands of the creator, and package that information and report it so that future users can make an informed judgment of the records' trustworthiness. Essentially, records kept in a trusted system with safeguards to prevent alteration of digital records constitute good grounds for presuming the records to be authentic. The InterPARES project established requirements for maintaining the integrity of digital records. The safeguards are: i) control of access to

records for the purposes of their creation, modification, annotation, relocation, and destruction; ii) existence and implementation of procedures to prevent, discover, and correct loss or corruption of records; iii) guarantees against media deterioration and technological obsolescence; iv) control of the documentary form of records; v) if necessary, establishment of rules for authenticating records; vi) where multiple copies exist, procedures to identify the authoritative record; and vii) existence of procedures to insure that appropriate documentation follows records as they change state or status, such as when removed from an active system to storage in their semi-active phase. Of course, archivists also do things to digital records in the course of preserving them that might alter them, but that is not part of the story of digital appraisal but rather of digital preservation.

3. **Determining the Feasibility of Preservation**

I have already referred to this important and distinctive aspect of the process of digital appraisal, but the devil is in the details, so let me try to explain. Feasibility analysis initiates the preserver's actions in the chain of preservation. The goal is clear: to establish a viable plan for long-term preservation of the records. In short, it is necessary to conceive of a method or methods that the preserver is capable of instituting or knows exist or in the extreme can be envisaged to effect preservation of digital records over the long term. This is where the careful analysis of the technological context comes into the picture, but there is an archival facet to it. First, one determines the records elements to be preserved, which the project defines as the act "to identify the necessary documentary components, such as the record profile, attachments, annotations, etc., and elements of

form, such as the author, date, subject line, etc., of records to be preserved to determine which records elements must be preserved to protect the authenticity of the records." Next one identifies the digital components that manifest these record elements. Finally, one determines whether the digital components, which are usually a digital object or objects, manifesting the records elements we need to assure are preserved can in fact be preserved given the preservers current and anticipated preservation capabilities. This process will no doubt become more intricate as records are composed of a complex of digital objects that must be reassembled to render the record to future users.

4. Effecting disposition of digital records

In thinking of this critical aspect of digital appraisal – well, we had a devil's time, as researchers do, deciding whether the act of effecting disposition of records is part of appraisal or not, but let's not get into that – I am reminded of a hilarious moment one day when some of us were discussing our work with John McDonald, whose career has spanned almost the entire spectrum of archival experience with digital records. At one point as we probed into the intricacies of some matter – I forget just which one it was – John exclaimed, "that could get tricky." One meaning of tricky is "deceptive" and another is "difficult to deal with." Passing digital records from the creator to the preserver may appear on the surface to be simple but in practice it can be anything but. Remembering that digital appraisal may take place well before records are eligible for transfer and that monitoring them as closely as needed is an ideal not always realized, and that pre-established terms and conditions that set out which records are to be transferred and in what form and format and so on may not be perfectly followed, it is not surprising

that experience shows that the wrong records have been transferred, not all records earmarked for transfer have in fact been transferred, not all components of the records have been transferred, or records have not arrived from an authorized source, and so on. All this has to be verified before an accession can be accepted and properly registered or recorded.

To conclude this section, I would just like to say raise an issue that I hope is obvious by now and that I know is widely recognized in the literature, although there are different approaches to its resolution. All along the chain of preservation of digital records, facts about the records and about actions performed on them need to be documented, in some cases in metadata that can be associated with the records and in other cases in records of the creator or preserver or, and here's a twist, in information systems, databases for instance, external to the records. Advances in the conduct of appraisal are very likely to feature refinement of these documentary processes, and the results will go a long way to ensuring that the context, content, structure, changing states, and authenticity of digital records can be understood and accessed as needs be in the future. Computers do throw things at us in a virtual world; however, if records are to serve their purposes in the future users will have to see them in time, space, and circumstance to appreciate their significance because digital records themselves do not and I doubt ever will carry everything with them that people in the future will need to know to interpret them and assess their trustworthiness. Making that happen will be a very great challenge to the documentary acumen of archivists, really to all digital preservers. I just note that there is

a considerable gap between grasp of the problem in theory and actual addressing of it in practice. I am hopeful that people younger and more energetic than I will close the gap.

So, What About All That Data?

I promised to speak about appraisal of digital data. In fact, I know very little about appraisal of data, so you are fortunate that those who do will speak later at this conference. From my rather ignorant perspective, I venture to say something on this subject, because in all the research in which I have been involved since sometime in 1993 Luciana Duranti twisted my arm to twin with her to investigate electronic records problems, I have this niggling and disturbing sense that long-term preservation of data for the benefit of society falls between the various institutionalized stools erected to preserve documentary heritage. So, let me make some perhaps obvious, even naive observations on similarities and difference between appraisal of digital records and digital data.

Records are meant to have a fixed state, as we say, but data, particularly data associated with business processes, are meant to be fluid, dynamic, and timely. Records are not to be manipulated. If changes are made to a record in the course of affairs, it is generally conceded a new record is created. Data are meant to be manipulated and used in the conduct of affairs, but it takes special effort outside the database environment or, often awkwardly, inside it to associate the data with the actions or matters in which they are implicated. The magic of records as we know them in archival science is that they are a

product of action and speak directly and evidentially about action. Data often speaks about events and conditions in the world (or indeed the universe) independently of human action. For quite a long time now, humans have been accumulating such digital data. Dollar gives an example in a footnote to his 1978 article. He says: "records with informational value are being created in a number of [American] states. For example, in Vermont longitudinal data on wildlife population size, habitat, and migration patterns dating back to the 1930s is in machine-readable form." Archivists have a tendency to question whether such data as Dollar mentions are in fact records. These longitudinal data are not associated with actions. Much of data, one may assume, was taken from manual recordings of observation of wildlife officers, in short from a work product of public officials. You do not have to be a genius to suppose that data of this sort are now accumulated in proportions that defy comprehension, or to suppose that much hangs in the balance depending on whether or not we preserve that part of the forbidding mass of data possessing continuing utility for the future. My feeling is that archivists should get with the program here, and become experts in appraising data.

Data being different from records, data appraisal will need special policies, strategies, and criteria of its own, articulation of the form of analysis of data's context, content, structure and relationships. It will also need understanding of the qualities of data comparable to records qualities like authenticity. Frankly, the problem is not that archivists cannot do the job technically speaking. It is often that they do not have the mandate to establish that important relationship between creator and preserver that is the sin qua non for appraisal and long-term preservation. For instance, in my country, neither

the libraries nor archives at the national or provincial levels or in universities, which do so much natural, medical, social, and humanities research, have the mandate and the resources to preserve data outside a very limited sphere. Library digital preservation has concentrated on textual materials, such as scholarly output, and Web-based information. Archival effort has concentrated on seeking out familiar types of records in the digital world, and the early experience of data preservation some archival institutions had in the 1970s and 1980s is now disparaged and has largely been forgotten. A few specialized repositories for data exist, particularly for social science data, but neither the library nor archival field has championed data preservation, although communities creating data come to them for advice on digital preservation. I have no doubt at all that archivists' conceptualization of digital records appraisal has parallels for digital data appraisal, some few of which I hope my words today suggest to you.

Conclusion

Having got my little rant about digital data off my chest, I must conclude. As my friends know, my temperament is always to ask, when confronted with claims that an idea is new, is it really new or just the old wine of our thinking in a new bottle. Thinking about the digital world seems to be particularly susceptible to this common enough human trait. As I hope I have demonstrated in some measure (one could say much more but not in one hour), digital appraisal is not fundamentally different from traditional appraisal. Some aspects are heightened in their importance and have peculiarities tied to the nature of the digital world. In traditional appraisal, archivists often got away with being sloppy. They rarely documented their analysis of records or justified their decisions in writing as a

source of account for their appraisals. The peculiarities of the digital world demand that more care be applied to document the analysis of records, particularly of course their technological context, to assemble information about the grounds for presuming records authentic, and to plan and document the feasible means of their preservation, for all this information is critical at later stages in the chain of preservation, and will also be critical for future users in their assessments of digital records. Is that really so new?