# PART I

# History, Challenges, and Emerging Contexts

# 1. The Digital Turn in Textual Scholarship

## *Historical and Typological Perspectives*

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## Three Perspectives

This chapter is written under the assumption that the history of textual scholarship from its very beginnings to the digital age can be understood from three perspectives. These perspectives are not the perspectives of the historian who tries to grasp the development of textual scholarship, but rather the perspectives held by the practitioners of the art and science of editing texts, for scholars who edit, comment, and analyze texts written by other people. This chapter assumes that editors may choose to look backward, outward, or inward.

First, looking backward means to search for the origin of the text and to trace its development through time. When dealing with classical and medieval works, the editor has to track the process of copying, starting with the original text and then moving on from one copy to the next. When dealing with post-Gutenberg texts, the editor needs to trace the development from the first drafts made by the author until the end product, usually a printed edition. Second, looking outward means to view the text as a product situated in a sociohistorical context. This implies that its contents, its use, and its organic relationship to other texts and sociocultural realities is of greater interest than its origin and material transmission. Third, looking inward implies viewing the text as an individual expression of its own right, as a self-contained document, to be read and understood on its intrinsic merits. One of the characteristics of texts and literature, highlighted by the New Criticism in literary studies in the 1950s, is the existence of multiple layers of meaning and of a wealth of interpretations.

The approach defended in this chapter reflects the belief that the self-contained nature of texts, as advocated by this New Criticism (looking inward), and the awareness of the organic relationship of texts to their world (looking

outward) can benefit from a historical approach to the text and its transmission (looking backward). The purpose of this chapter is to show how these three perspectives may shape digital text scholarship.

The tripartite view outlined above is, of course, a simplification, and it is not intended to be a scheme in a Hegelian sense for the actual history and development of textual scholarship. It includes, rather, three aspects that have been differently weighted in the practice of textual scholars over the years, to the extent that these perspectives can be seen as competing but not mutually exclusive points of orientation. Any scholar who primarily looks toward the origin of a text and tries to chart its development will understand and acknowledge the fact that each stage of the text also has a contemporaneous setting and interpretation and will indeed exploit such contextual knowledge. Any scholar focusing on the setting of a text, on its *Sitz im Leben* (German: literally, its "setting in life"), or its uses is well aware that the text also has a material history and a physical aspect.[1]

This chapter takes a broad look at the history of textual scholarship with these perspectives in mind. While the history of textual scholarship is commonly traced back to the birth of Western philology in the Hellenistic age, shaped and cultivated in the Library of Alexandria, the starting point here is the methodological foundation of textual scholarship in the early nineteenth century. This does not mean that the long history of textual scholarship in antiquity, in the Middle Ages, or indeed in early modern times should be disregarded as "prescientific," but that major approaches to textual scholarship, in print and online, can be exemplified and discussed with reference to scholars of the nineteenth and twentieth centuries.

## *Looking Backward: The Formalist Approach*

The conception of modern textual criticism is commonly thought of as belonging to Karl Lachmann (1793–1851) and his generation of editors in the first half of the nineteenth century. Lachmann's work covered all three major fields of editorial philology—classical philology, Bible philology, and medieval philology—and thus has become a point of reference in all of these fields. Lachmann expressed clearly the basic tenets of a scientific textual criticism very early in his career in a critical review published in 1817 of Friedrich von der Hagen's edition of *Der Nibelungen Lied* (1816). Lachmann claimed that the editor should search for the original version of the text, or, if that was unattainable, for as close an approximation to the original as possible: "On the basis of a sufficient number of good manuscripts, we should and we must build a text which reflects all of these, a text which either would be the original text or a text which would come very close to the original."[2] This position found support in the contemporary

historical source criticism, or *Quellenkritik*. In fact, textual criticism and historical criticism, following Lachmann's reasoning, should be seen as two aspects of the same approach. Only when younger and less authoritative witnesses had been removed through a strict analysis would the editor (or historian) be able to understand the text in its true context.

Later in the nineteenth century this program was enthusiastically adopted by the German Romanist Gustav Gröber (1844–1911) and the French Romanist Gaston Paris (1839–1903). The first contribution in this field was Gröber's analysis of the manuscripts of the story of the Saracen knight Fierabras (1869), but the most important and consequential work proved to be Paris's edition of the Alexis legend (1872), published together with the French scholar Léopold Pannier (1842–1875). This edition contained a thorough analysis, a recension, of all manuscripts of the Alexis legend as well as a complete text based on the results of this analysis. The introduction gave a clear and concise discussion of the principles for the recension of manuscripts, from a theoretical point of view as well as from a practical one. This edition became a paradigm for French editorial philology for more than half a century.

The position of Karl Lachmann and Gaston Paris is one of strictness and formalism. The recension of manuscripts is, in the memorable words of Paris, an almost mechanical operation, "une opération pour ainsi dire mathématique" (Paris and Pannier 1872, 13). Recension also implements a highly reconstructive approach, since it strives to trace the text to its origins. After the original author had finished his work, textual deterioration was likely to set in. The task of the textual critic was to remove as many corruptions as possible from the text in order to restore it to its former glory. This perspective is certainly not new; it was already an integral part of the Homeric scholarship of the Alexandrian age (as shown by Honigman 2003 and Niehoff 2007). The practice of indicating corruptions by a dagger sign, the obelus, was probably introduced by Zenodotus of Ephesus, the first librarian (ca. 325–ca. 234 BC), and *Echtheitskritik* (German: "criticism of authenticity") has been part of textual scholarship ever since. The novelty of the Lachmannian approach resides in its systematic exploitation of corruptions, or errors, as a means of establishing the filiation or derivation of a text. Looking for errors became not only a part of the examination of the text but also the very foundation of its recension and its genealogical analysis. Gaston Paris emphasized the basic fact that copyists very seldom make the same mistakes at the same places (1872, 10). From this observation it follows with logical necessity that the filiation of a text can be established on the basis of the errors in the manuscripts.

When Joseph Bédier (1864–1938) edited the medieval text *Le Lai de l'Ombre* in 1890, it was, as he himself observed, under the sign of Lachmann ("sous le signe de Lachmann"), or, he might have said, under the auspices of Gaston

Paris, the ever-present editor of the journal *Romania*. The introduction to the edition concluded with a stemma showing the relationship of the manuscripts and continued with a text constituted on the basis of this stemma. The story might have ended here, and Bédier might have moved on to other fields of study and left the *Le Lai de l'Ombre* edition as a youthful exercise. However, he felt uneasy with his recension and returned to the text over the years. After revising his edition in 1913, he published in 1928 an article in *Romania* in which he discussed the recension of *Le Lai de l'Ombre* and the methodological conclusions to be drawn from it. In this article Bédier draws no less than eleven different stemmata for the text, all equally valid and possible as explanations of the transmission of the manuscripts. Rather than moving from uncertainty to certainty, as the 1890 edition with its single stemma would seem to indicate, Bédier had indeed moved from certainty to uncertainty. Above all, he suspected any stemma construction of being heavily biased. Leafing through the volumes of *Romania,* he noticed that the overwhelming majority of stemmata published in this journal had only two major branches. That was indeed a strange forest, a *silva portentosa,* and rather than reflecting a historical fact, Bédier suspected that it reflected a weakness in the method and its usage. So after almost four decades of struggling with the manuscripts of *Le Lai de l'Ombre* and a growing uneasiness with the Lachmannian method, Bédier concluded that the method had to be suspect. There was simply too much bifidity in the recensions—that is, too many stemmata in which there were only two main branches. Bédier provocatively claimed that the best answer still was that of the old humanists: to choose the best manuscript in the tradition, the *codex optimus*, and rely on that, save for obvious corruptions (Bédier 1928, 356). Editions of this type are usually referred to as *best-manuscript editions*, and in spite of the seemingly unscientific selection procedure, these are still recognized as a major type of edition (see, e.g., Foulet and Speer 1979, 38, and elsewhere in this book).

In spite of—or possibly as a consequence of—Bédier's fundamental criticism and doubt about the genealogical method, the study of manuscript traditions has continued to be the object of logical or mathematical approaches. Along this line can be placed people like Henri Quentin (1872–1935), Walter Wilson Greg (1875–1959), and Dom Jacques Froger. Quentin was very critical of the use of common errors, "*fautes communes*," which were so central in the Lachmannian tradition. He would accept only variants and nothing but variants (1926, 37): "I do not recognize errors or common mistakes, neither good nor bad readings, only the variant forms of a text, on which I by a method of the strictest statistics first delimit the families, then the classes of manuscripts within each of these, and finally the families within these classes."[3] In spite of this criticism, Quentin should be regarded as a formalist and thus a textual critic who basically shares Paris's conviction of the regularity and analyzabil-

ity of manuscript evidence. In fact, Quentin claimed that he had been able to formulate an iron rule, "une règle de fer" (1926, 37), that would remove all subjectivism from manuscript recension.

Already in 1963, dealing with the rich inventory of New Testament manuscripts, Ernest Colwell and Ernest Tune advocated to carry out a statistical comparison of each manuscript with all other available manuscripts witnessing a given text. While it would be difficult to disagree with this program, the development of the necessary tools took some time. However, when the Centre National de la Recherche Scientifique (CNRS) summed up the status of modern textual criticism in the conference report "La pratique des ordinateurs dans la critique des textes" (Irigoin and Zarri 1979), there was a large array of methods available. However, considering the rapid spread of software tools and the increase of computing power, progress in this area seems to have been slower than anticipated. Indeed, the emergence of powerful methods of multivariate data analysis contributed to strengthen the awareness of practitioners that universal and irrefutable methods allowing the editor to infer filiation from incomplete textual sources may not exist. Since 1979 the list of multivariate techniques has been extended with biplot methods, such as correspondence analysis (see Apollon 1985), and in more recent decades graph-oriented methods, such as phylogenetic analysis, a methodological pillar of evolutionary genetics, have emerged as a new contender. Peter Robinson and colleagues have argued that phylogenetic analysis can come a long way toward solving the chronological problem inherent in any recension (Barbrook, Blake, Howe, and Robinson 1998). Recently, a Finnish research group tested a number of quantitative techniques using an artificial data set and concluded that phylogenetic analysis is indeed a strong contender, but not the only serviceable technique nor possibly the best one in the field (Roos and Heikkilä 2009). Unfortunately, we do not have any complete manuscript filiations from antiquity or the Middle Ages; we have only fragments of unknown proportions. The "true" filiation of a text can thus never be ascertained, but only approximated. These recent methodological advances have the seemingly paradoxical side effect of confirming the position and role of editor at the center of the editing process.

While the basic tenets of the genealogical method have not been questioned since the time of Lachmann, and the method, ideally, should still be regarded as valid, it is not always practicable. A manuscript filiation can indeed be modeled by analyzing the distribution of errors over time, but only if the recension is uncontaminated—that is, each copy has been made from a single exemplar. If there have been multiple sources along the line, the method breaks down quickly. Against contamination no remedy has been found, Paul Maas concluded—"Gegen die Kontamination ist kein Kraut gewachsen" (1960, 30). The depressing fact is that so few traditions are uncontaminated. In classical Latin literature,

Karl Stackmann, for example, believes that only the works of the most important authors were transmitted without contamination (1979, 252). In vernacular medieval literature, texts were often copied quite freely, blurring the distinction between the copyist and the redactor. In short, the genealogical method remains a valid method, but only for a minority of manuscript traditions. There is no such thing as a "genetic tracer," any textual equivalent of mitochondrial DNA, that may help the editor and readers to irrefutably identify an original text.

What a mathematical analysis can offer is a way of mapping the distribution of variants of a text. While this has been envisaged for a long time (see, for example, the bold statement by Henri Quentin quoted above), it is only in the last decades that this has been made possible in practice. Mathematical models do have their limitations, however. They can undoubtedly help the critic to establish a focal text, in the sense that they can identify clusters of variants and thus the likely centers in the transmission of the text. It is less certain that they can help in establishing an archetypical text—that is, a text in which the diachronic axis has been revealed, and thus showing which variants belong to an earlier stage of the text and which belong to a later stage.[4]

Rather than dethroning the editor, early computer-assisted textual criticism has confirmed his or her central position, adding tools and enlarging his or her decision space. Given the wide array of document-encoding tools and standards available nowadays, as described elsewhere in this book, and the general availability of presentational tools and easy access to online publication, the digital text scholar may choose to offer all elements of the inward perspective to a wide array of readers and users.

### *Looking Outward: The Ecology of Texts*

The backward-looking perspective described in the section above endeavors to establish a text that is as irrefutably as possible and as close as possible to an original prototype. Only to the extent it is deemed necessary and only when material criteria are not available are external aspects taken into consideration. Therefore, exploiting external aspects, such as sociocultural, psychological, or institutional knowledge, occurs mainly on a case-by-case basis. And indeed when such external aspects are exploited by the textual critic, the genealogical method practiced does not encourage the critic to fully integrate these aspects and exploit some kind of overarching theory about the relationship between the text and its environment.

The first turn from an exclusively backward-looking perspective toward an outward-looking perspective exploits the awareness that a text or document is authored or at least put together by a human compiler or editor with a particular intention. One assumes that the originator of such a text exhibits a minimum of

linguistic, literary, or historical consistency, reflecting a more general practice that is typical of his or her time and environment. The German biblical redaction criticism schools (*Redaktionskritik* or *Redaktionsgeschichte,* see Reinhard and Merk 1997) offer an example of a careful transition from a strictly backward-looking perspective to a more open perspective focusing on the authoring or editing activity that is thought to subtend and effectively produce the literary and philological form of the text. Since critics in the German *Redaktion* tradition investigated biblical texts, they had to emphasize the predominant role of an editor (*Redaktor*) in the genesis of the text. By doing so, they had to take into consideration the literary and ideological habitus of the editor and exploit a partly attested, partly hypothetical contemporary political, linguistic, and religious context in order to describe this habitus. They assumed that even when dealing with a significantly edited product, which synthesized oral and written material from diverse sources, periods, and contexts, the Redaktor intentionally compiled, recomposed, and reformulated significant portions of the text handed down to us. The history of the text-critical and redaction-critical treatment of the biblical Genesis offers a good illustration of the impact of redaction criticism (see, e.g., Kratz 1997, Perrin 2002). Indeed, the critical edition of the *Epic of Gilgamesh* (George 2003), one of the oldest known literary narratives, functions as a redaction-critical comparison between the cuneiform texts available as well as numerous other Sumerian, Babylonian, and Hittite fragments.

The main difference between the redaction-critical and the contemporary textual genetic school (discussed in greater detail in chapter 3 of this book) is that the former deals with ancient text traditions without known authors nor access to preliminary material, and the latter deals with well-documented authored contemporary literature. Textual genetics sets out to trace with considerable accuracy the authorial process with material proof in hand (e.g., the various drafts of Flaubert's *Madame Bovary*). However, both schools described here remain text-centric, tied to the inscriptional nature of text, carefully avoiding treating such texts as historical sources among others, or witnesses to a much larger environment, encompassing other documents and artifacts.

As a first conclusion, one may start to distinguish between varieties of a text-centric perspective and an environment-centric perspective. In the following, we briefly discuss some outward perspectives with no intention to cover all instances. To point out that a text has a context, that it has a *Sitz im Leben*—or to use a more recent metaphor, an ecology—is as near to a tautology as one may wish to come. A text is, after all, a weave, a product of many strands, which presumably are not cut along the borders of the text itself but continue outside and tie the text to other texts and to society at large. On the other hand, exploiting the contextual dimension and transforming it into an editorial strategy remains a daunting challenge. It involves among other things shaping a theory, which

must describe how the diverse strands of the text, such as the linguistic, literary, and ideological characteristics, express a functional relationship to historical, social, ethic, religious, and other characteristics of an environment. The more theoretical the approach is, the more refutable it becomes. One then has to deal with a variety of competing approaches involving the text and its world. If the perspective of the editor is still governed explicitly or implicitly by the desire to reconstruct and establish an authoritative text, the whole enterprise might become rather perilous. If, however, the perspective of the editor is more eclectic, less committed to reconstruction, and more committed to contextualizing exposition and interpretation, then the variety of outward perspectives may turn into structuring various forms of text ecologies. For such an "ecological editor," text-centric perspectives, such as the redaction-critical or textual genetic approach, may be combined with other, sociocultural approaches, such as classical-reconstructive or even environment-centric approaches. At the end of the nineteenth century, Gustave Lanson (1894) introduced elements of a sociocritical model, outlining a rather deterministic functional relationship between a social environment, the authorial process, and the "text." However, Lanson did not elaborate on his approach, nor did he abandon a strict biographical approach, but he chose to focus on text-centric, detail-oriented close reading (*explication de texte*).

One has to wait until the end of the 1980s to see a renewed and more principled attempt at removing historical bias in textual scholarship and refute some of the basic tenets of the genealogical method by invoking the environment within which texts were produced and disseminated. Bernard Cerquiglini in his book *Éloge de la variante* (1989a) intended to deliver the fatal blow to a genealogical method that was already severely shaken by new critics on both sides of the Atlantic. To do so, he demonstrated how medieval texts reflected conditions of production that were qualitatively different from those presupposed by the genealogical school. Distinguishing longitudinal variants (emerging within a given text and due to repetition) from lateral variants (emerging from the existence of several diverging copies of the same text), Cerquiglini showed how recent editing practices resorted to harmonizing and repairing these problems, thus "correcting" the imprecision, redundancies, and joyful excesses of medieval copyists. With printing spreading as a technology guaranteeing faithful copies of texts, the negative attitude of text critics toward textual variation implied a strong belief in the unique and true copy (see Eisenstein 1979, 2005; see also Menzer 2001). Furthermore, the slow emergence of intellectual ownership and copyright strengthened the need to stabilize not only contemporary texts but old traditions as well. Cerquiglini argued that the straitjacket of such a restrictive approach could not do justice to the production principle of medieval writing (Cerquiglini 1989b), which was governed by the principle of "joyful excess."

This medieval textual exuberance fundamentally challenged nineteenth- and twentieth-century critical editors, because the possibility that a diversity of "original" texts might exist was always there. The "modern" response to what was perceived as a possible mess was to force the scientific straitjacket of textual standardization, using the method of philological reconstruction. In his fourth chapter of *Éloge de la variante*,"Gaston Paris and the Dinosaurs," Cerquiglini overtly criticizes the ideological underpinnings of the reconstructive approach defended by traditional editorial philology (mainly Lachmann, Paris, and Bédier, who were discussed above in the section on the backward-looking perspective), accusing their main figures of succumbing to a desire for origins and actually rewriting the text in the name of science. The main value of Cerquiglini's contribution lies in its radical and refreshing reappraisal of textual variance. It also shows that the backward-looking perspective cannot confine itself to the Lachmannian approach, but must take into account the cognitive, literary, and technological environment of a text, as failing to do so will lead to anachronistic rewriting. Therefore, while fundamentally different from redaction criticism, Cerquiglini's new philology actualizes the necessity to relate the critical editorial process to the world of the text.

On American soil the "new philology" (or, rather, "renewed philology" or "new materialism") was heralded in an issue of the journal *Speculum*, edited by Stephen G. Nichols (1990b), in which the study of the medieval manuscript in its materiality was seen as a product of interaction with a cultural context (1990a, 1997a, 1997b). At this time "philology" had almost become obsolete in English, and if it was still used, it referred to pre-Saussurean comparative linguistics (Sampson 1980, 13ff). The *Speculum* issue talks about a new philology, proudly reintroducing the concept into the English language. It should be pointed out that English seems to be the odd man out in this context; philology had remained as a field of study in other European languages, most prominently in German and subsequently in the Nordic languages. In French, *philologie* also has a wide meaning and usage and includes all linguistic, literary, hermeneutical, and historical methods applied to written records.

Since the 1960s the wide diffusion and immense popularity of competing structural, semiotic, psychoanalytic, and Marxist methods led many literary critics of philology to widely reject it as being a fossil science and fundamentally irrelevant to the exploration of texts. These new approaches sought their inspiration in various disciplines that combined, often rather freely, very different perspectives, such as Russian formalism (Propp 1927), structuralist linguistics (Ferdinand de Saussure, Roman Jakobson), early manifestos from the French Nouvelle Critique (Maurice Blanchot, Roland Barthes, Michel Foucault),[5] and psychoanalysis (Sigmund Freud, Jacques Lacan), to mention just a few. The most significant thrust to the post-philological movement was the discovery

or invention of intertextuality (a term coined by Julia Kristeva in the 1960s), emphasizing study and interpretation of the interaction between multiple layers, strands, and links that weave a given text or text tradition to other texts, artifacts, or representations. As a consequence, textual analysis, as practiced by structuralists and others, became more concerned with mapping relations and echoes between texts, with no ambition of tracing the "origin" of the various items involved in such analysis. The lasting contribution of structuralist and various brands of new critics does not reside primarily in the strict and much criticized application of reductive methods borrowed from linguistics and mathematics. Their main success was to establish a large interdisciplinary consensus that texts are integral parts of a continuous discourse. Social text theories criticized, as one would expect, the inwardness of structuralist and semiotic methods. Both Marxist and socio-critics like Marc Angenot (1985; see also Angenot and Robin 1985) endeavored to demonstrate the social roots of such a general discourse in "grand narratives" (*grands récits*). The resulting opinion was that texts should be analyzed and edited not as monadic structures but as parts of a much larger discursive space.

All of these ideas and programs showing that what was inside the text was also outside and vice versa were already formulated several decades before the invention and spread of the Internet. Although they generally lacked a technological vision (with Cerquiglini as one noteworthy exception), and although they were in many aspects fundamentally incompatible, they nevertheless contributed to preparing the ground for later hypertext theory.[6] They also contributed indirectly to opening an intellectual space that allowed scholarly editors some decades later to imagine online text editions weaving primary material (e.g., author's drafts) into a much larger navigable space and, as paradoxical as it may seem, allowing them to reinstall philological textual criticism as one textual dimension among other possible dimensions as part of a wider critical space.[7]

## *Looking Inward: Defining a New Philology*

In 1968 Roland Barthes, in the wake of Maurice Blanchot (Blanchot 1942, 1955), who had redefined writing as the "absence of the author," announced the "death of the author," followed by Michel Foucault's question "What is an author?" (Foucault 1969). The French Nouvelle Critique rejected a long tradition epitomized by Charles-Augustin Sainte-Beuve's biographical method and Gustave Lanson's historical determinism (close reading, or French: *explication de textes*). The much-criticized biographical method insisted that the reader or critic needed to gain an understanding of the author's life and thought in order to interpret and edit the text correctly. To make it worse, the *nouveaux critiques* voiced a fundamental distrust in the notion, utility, and even reality of the concept of "author"

and claimed a correspondingly fundamental interest in the reader, announcing that "the birth of the reader has to be paid by the death of the author."[8] The text should no longer be restrained by the creator but should be allowed to lead its own life, attain new meanings, and enter into new contexts. From the theme of the death of the author in the French Nouvelle Critique, it is possible, obviously, to draw a direct line to the theme of the death of the archetype in textual studies. No longer should the text be judged by its closeness to a supposed original version, nor should this Holy Grail, the pristine product of some original genitor of the work, be considered the ultimate prerequisite for interpreting texts. Each writing, to paraphrase Barthes (1968), should constitute thereafter a work of its own. Barthes's author, reduced to an abstract representation of the reader's mind, appears more as being constructed by the work than the work by the author. The work is no longer to be approached as an extension of the author. Barthes and his followers programmatically removed the author as the origin of the text and replaced him or it with language (French: *langage*) or discourse. So if it still makes sense to speak of critical editions after Barthes and Foucault, the focus has moved from reconstructing a true copy of the author's hand and mind to an exploration of the polysemic universe of texts.

As pointed out in the previous paragraphs, the impacts of semiotics and socio-criticism have modified the vision of what is to be considered "inward" and "outward." In many cases the boundary has become blurred, leading to endless debates. The new philology may be seen as an attempt to bridge these two perspectives, avoiding falling into the traps of reconstructive genealogy on the one hand and extreme socio-criticism on the other. Any text should be allowed to be appreciated as an individual expression that is valid and representative for its time and setting. In a sense this view somehow reflects a social democratic vision of conditions required for the production of texts: the habitus of an individual is seen as being shaped by the upbringing, not by the genes. Texts are functionally related to some general social and cultural ethos. Some new philologists have taken this position and, understandably, proposed an alternative to philological reconstruction. The strict recensions of the nineteenth century and the *eliminatio codicum descriptorum* meant that many late manuscripts were simply disregarded as corrupted late products. If it could be proved that they were nothing but late copies of other known manuscripts, their only merit would be to add new errors to the tradition. When looking single-mindedly backward toward the (most often hypothetical) original, it was meaningful to declare such manuscripts as manuscripts of "no critical value." In some cases this meant the baby was thrown out with the bathwater. Even if the text contained in a manuscript could be considered as a derivative product from a diachronic point of view, such a manuscript could also be of considerable interest from a synchronic point of view, offering a valuable witness to the time and locale of its

production. For this reason, new philologists have made a case for rehabilitating a number of late manuscripts. Indeed, it may be useful to adopt a less principled approach to the material original of texts and to rehabilitate the contemporary settings of all manuscripts in order to see their details more clearly. Hence, disregarding the filiation of the manuscript can indeed constitute a valid procedure as an interim act of focusing on the totality of a text tradition as we know it.

However, empirical facts are difficult to refute, even if they are inconvenient. No one will dispute that manuscripts have been copied from one another, and at the end of the line there is an original, a first version of the text as it has unfolded through the filiation. In almost all classical and early medieval text traditions, the original has been irrevocably lost. What remains are later copies, distant by several centuries and stages of copy from the original. The scholarly editor has to deal with traditions where a majority of the once existing manuscripts have been lost through damage, neglect, fire, shipwrecks (many saga manuscripts were lost on the perilous sea voyage between Iceland and Norway, for example), through the *auto-da-fé* of Jewish and Islamic manuscripts of the Spanish Inquisition, during the Wars of Religion, or through the widespread destruction of papist literature during the Reformation. For this reason, not only the original but a major part of the whole manuscript tradition as well may have disappeared forever. Only an educated approximation of the original is possible, based on an analysis of the earliest surviving textual witnesses. This is the concept of the archetype, as defined by Paul Maas in his austere "Textkritik" (1927 and later editions). The archetype, to avoid misunderstanding, is not a physical source but, rather, a theoretical concept, and as such it is not prone to any death, but is no final proof of the existence of an original and is not irrefutable. The archetype simply reflects the labors of reconstructive efforts made by textual critics. As a concept it is strictly neutral. The text of the archetype is not a priori "better" than that of later manuscripts; it is at best one of the least refutable hypotheses of the original state of the text. Only when the original reading of a text is deemed to be of higher value than secondary readings can the archetypical text be said to be the better text.

Although new philologists have succeeded to a certain degree in reconciling the material witnesses of a text tradition with their historical environment, they may have introduced a problematic relativism. If all manuscripts (or any material source, physical or digital, for that matter) are regarded only on their intrinsic values, their genealogical links will be severed. It will then no longer be possible to assign a given manuscript a precise position its own genetic history. Such mapping can only be done using a diachronic approach, by looking backward, however faulty the results of the genealogical or similar methods may be. As a consequence, the new philology may eventually fall into the same kind of extreme posture as the pure synchronic analysis of a linguistic stage, which

dives into the study of idiolects, the language spoken in a family, or even by an individual, at a certain point with no or little consideration for macro trends through time. In geology or evolutionary genetics, such simplifications would amount to failures.

There are also highly pragmatic reasons for looking backward. Some texts have been copied in very large numbers. In a wealth of manuscripts it is a pressing question to know where a particular manuscript is situated within its tradition. Does it belong to a representative core, retaining most of the presumed original readings? Is it peripheral, typical of only an era or a geographic locale? Is it an *Einzelgänger*, a loner, with few or no immediate relatives?

Unless new philology intends to evolve into a pure idiographic science, it needs to reflect and take into consideration the diachronic axis of a manuscript tradition. This is why, in our opinion, there should be no opposition between the diachronic approach of the "old" philologists and the synchronic approach of the "new" philologists. It is a matter of perspective and of priority.

## The Resilience of a Two-Dimensional Spatial View

The introduction of printing by movable type in the fifteenth century is often seen as a revolution and a main turning point in human history. However, looking at textual scholarship, and especially at textual editing, the most outstanding trait of early printed books is the close mimicking of manuscript codices of the day. Johannes Gutenberg's Bible looks like a well-executed manuscript in its overall design of pages with two columns, in the frequent usage of colored initials, and in the illuminations in the margin. Even the Gothic type was carefully copied from handwritten script.

The papyrus roll and the codex have two dimensions. The column of the roll and the page of the codex define the space for the text, and the margins of the page add a separate but not unrelated field for comments, additions, and illuminations. This geometry has been carried over into the display of digital editions. Like Gutenberg in his age, digital editors want to communicate with their users, to present their texts in a format that is as familiar as possible. The screen displays a two-dimensional image, exactly like the codex and the book. The text is contained within columns and set off with margins. The display in most cases is oriented toward printouts. Texts of some length are still being read on paper, and it is thus practical to make the display on-screen as printer-friendly as possible. The presentation of writing and text, on parchment, paper, or online, relies on several thousand years of accumulated intellectual technology, a fundamental visual literacy that may be as difficult to eradicate as alphabetic script.

With the Internet, the World Wide Web, and hypertextual writing space, this has changed. Digital texts have moved away from their page-bound confinement

in two dimensions. Social media have also deeply influenced how individuals look at texts and how standard narratives are constructed. There are, however, two important factors that have contributed to retaining, for a while at least, the two-dimensional page layout paradigm in new media. The first is the inherent mimicking conservatism of new reading appliances that are intended to replace the book in many contexts. So far it seems that the metaphor of the printed page is quite resilient, using and even expanding its visual toolbox, including lines, columns, margins, text blocks, headers and titles, and other visual aspects. In fact, the increasing number of PDF (Portable Document Format) files based on this conservative model demonstrates the immense popularity of the paginated book. The second and more fundamental factor is the nature of writing itself. Writing—or script—is inherently two-dimensional, linear, and sequential. The direction of writing may vary from left to right, as in Greek, Latin, and Cyrillic script; from right to left, as in Arabic and Hebrew script; from top to bottom, as in traditional Chinese writing; or from bottom to top, as in most ogham inscriptions of Old Irish. In all cases writing remains linear: it has a starting point and an end point (however, reading may become highly nonlinear). It is hard to see any realistic alternative to alphabetic script in our societies for the nearest future. There may be a drift from the logographic scripts of China, Japan, and Korea toward alphabetic scripts, but alphabetic, two-dimensional script remains an integral part of written culture. The orthography may be simplified and made more regular, new typefaces will continue to be drawn, the use of nonalphabetic icons may increase, but the alphabet as such is not likely to change. If this holds true, the display of texts will basically remain two-dimensional. For obvious reasons it cannot be reduced to one dimension, and there does not seem to be any immediate advantage in trying to make script truly three-dimensional. Braille is probably the only exception to this rule; because it is a tactile script, it must be rendered in three dimensions. Book lovers might add that the slight impression of lead type on paper, recognizable by touch and by the faint shadows of each letter, is an added dimension to alphabetic script, but as we know from offset printing on glossy paper, such impressions are a side effect rather than an integral part of the script.

Script is an intellectual technology for representing human language. The success of alphabetic scripts lies in the fact that, in the words of André Martinet (1965), they copy the double articulation of the spoken language. The phonemic units of the spoken language are represented by the graphemes (i.e., the letters) of the alphabet, as far as possible in a one-to-one relationship, and these units, by themselves meaningless, on the next level constitute words, phrases and sentences of distinct meanings. Some would object that multimedia—mixing text, graphics, moving pictures, sound, and real-time processes—invalidate the paradigm

of the alphabetic script. It seems more likely, however, that online material will continue to be assimilated into the two-dimensional textual representation. The resilience of the two-dimensional spatial model versus the possible adoption by a large public of more dynamic, nonlinear texts, as well as the emergence of a new literacy will be at the center of debate in the years to come.

The thrilling fact is that all aspects of scholarly editing and textual criticism discussed so far—ideologies and methods—are eminently applicable to new texts. Indeed, the contemporary concern for trust, positive identification of authorship, and countermeasure against content falsification on the Internet may draw on the experience of genealogical method and text genetics.

## The Emergence of New Texts

Perhaps the most significant contribution to textual studies of the digital age is loss-free copying. The fallible act of copying has indeed been the rationale of textual studies for well over two thousand years. At the time of the Alexandrian philology, the Homeric texts had been handed down over several hundred years and, through the process of copying, a number of textual variants had arisen. Removing these errors became one of the first objectives of textual scholarship, and this has continued to be of prime importance, especially for what has been termed the formalist approach. Indeed, the genealogical method of Lachmann and his contemporaries can be summed up as a method of common errors (German: *Methode der Fehlergemeinschaften*). However, what are erroneous readings in a manuscript from one point of view may be seen as innovations from another point of view. In a treatise on textual criticism, Martin L. West points out that instead of talking about "errors," he would prefer to talk about "readings of secondary origin," thus distancing himself from the most prescriptive interpretations of the formalist tradition (1973, 32n3).

The main, perhaps even exclusive, focus of critical editors is on texts that have been produced and handed down before the modern techniques of loss-free copying. The major divide is still between texts written and filiated in the age of the manuscripts and texts written and reproduced after the invention of printing—in other words, a divide between the pre-Gutenberg and the post-Gutenberg periods. The genealogical method described in this chapter is primarily concerned with the study of manuscript traditions and is of less relevance for printed texts. The editing of printed texts has a different focus, since these editions so often have focused on the end product, the *Ausgabe letzter Hand* (the edition of the author's final version), rather than the origins, the *Ausgabe erster Hand* (the edition of the author's first version). What this branch of philology shares with manuscript philology is the awareness of change and errors—both

changes in the drafts by the author himself and changes throughout the process of printing. In the age of lead typesetting, new runs of printed books were often set anew. In most cases type used for the previous run had been used for new jobs. Thus, within the story of a printed book, errors were introduced by the typographers. Changes were sometimes made after consultations with the author or the publisher (especially if the text contained sensitive matters of religious or political contents). Other changes were made inadvertently, on the judgment of the printer, or after the author's death.

As suggested above, modern digital texts may change the traditional divide between pre-Gutenberg and post-Gutenberg editorial philology. First of all, loss-free copying has made it impossible to reconstruct the filiation of many texts. Moreover, the life expectancy of many modern digital texts is much shorter than for any printed text. SMS (Short Message Service) messages, Twitter flux, ICQ ("I Seek You," instant messaging) chat logs, to mention a few new textual usages, may be deleted a few minutes after they have been received. E-mails, blogs, and chats are also living on the margin. A great number of texts simply vanish each year, probably to a much higher degree than what has ever been the case for printed texts. The widespread adoption of social media may indeed shorten the life cycle of such texts more brutally. The future scholarly editor of such post-Gutenberg textual traditions may have to resort to the whole armada of textual scholarship and invent new ways to deal with short-lived documents.

## The Digital Philology

Digital philology is both a revolution and not a revolution. It has brought new tools, efficient data handling, and a wholly modern outlook to philology. Yet the texts studied and edited remain grossly the same, and the questions asked by digital philologists do not seem to be qualitatively different from the questions asked by pre-digital philologists. Indeed, online editions have been produced mainly within the philological paradigm. Surprisingly, projects favoring the intertextuality more than the quest for authenticity and origins, or sociocriticism endeavoring to demonstrate the functional links between content and sociocultural realties, have produced few if any online critical projects. What remains to be seen is whether digital tools will change the direction of philology not so much because of internal preferences but because of the alluring possibilities opened up with such tools. It should be added that in many cases digital tools are not new. They are simply more efficient; tools have become so fast and fail-proof that investigations that were once too huge to contemplate now have become possible to implement. In the following pages we outline a few characteristics of critical online editions.

### *Dissemination: Still an Issue*

There exists an impressive physical infrastructure for disseminating printed books. Shops and libraries can be found in almost any city, and new and used books can be ordered over the Internet from a growing number of vendors. Physical and digital distribution of books are slowly merging, but not without problems, including resistance from traditional publishers. Price may be an argument, but not always, at least when it comes to scholarly editions. For scholarly editions on paper, prices can be fairly high, especially for gentlemen's editions like *Íslenzk fornrit* for Old Norse texts, *Henrik Ibsen's Writings* (2006–2009), or the many learned editions of *La Pléiade*. Digital editions are in their infancy, and pricing versus open access is still a question that must be decided.[9] Some products are simply free (Woolf Online), while others are quite expensive—for instance, the CD-ROM of Chaucer's *General Prologue* (Solopova 2000) costs as much as several cloth-bound tomes. As for the dissemination of these products, many editions, especially those containing facsimiles or other large files, are still stored and sold on solid media such as CD-ROM or DVD (e.g., *Wittgenstein's "Nachlass": The Bergen Electronic Edition,* published by Oxford University Press [2000], which as of October 2012 was priced at US$2,500). This means that digital editions are subject to the same legal, commercial, and institutional restrictions as printed editions.

### *Display and View: Unresolved Tensions*

A printed edition has a single display, typically a single column per page, sometimes with line numbering on alternate pages and a critical apparatus at the bottom of the page. Having more than one display means adding wholly new pages, perhaps another volume, to the edition. This is costly and not done without good reason. The display of the printed text is sometimes a compromise of several options. The editor may wish to display the text at more than one level—for example, at both a diplomatic level, close to the source, and a regularized level, where the orthography has been adjusted. This is especially helpful when dealing with vernacular texts in which a detailed rendering is needed for a linguistic analysis. Representing the text on more than one level in a printed edition is usually out of the question, and the editor has to either go for one level only or resort to an original, complex, and less generally accessible layout (e.g., the synoptic editions of the Greek New Testament). Moreover, when a text is available in more than one manuscript and the variation between the manuscripts has a bearing on the text, the editor usually uses a critical apparatus to represent and summarize this variation (see chapter 3 for an in-depth coverage of the critical apparatus).

A digital edition usually displays the text in a similar manner, as pointed out above. In fact, digital editors often invest much time in having the edition look "right." This is not necessarily a sign of conservatism or lack of inventiveness; it is, rather, to let the text come into the foreground and be displayed in a manner that does not draw attention to the digital medium. Awkward fonts, wrong margins, and misplaced apparatuses are all examples of a display that goes wrong and turns the attention away from the text. Even if a good electronic display can be very unassuming, it all too often happens that the edition has a nonintuitive interface. The digital scholarly editor might be drawn between the need to preserve and reproduce the original textual look of the work or corpus published online and the need to exploit as much as possible the navigational dynamics of a web-based environment and the various tools and viewing mechanisms available.

If the typical display of a digital edition strives to become a look-alike of a traditional printed edition, it may underexploit the capacity of the digital medium to offer its users alternative views of the same material. There are therefore a great number of digital editions that offer more than one view of the text. In the present volume, two editions of this type are discussed. The Bergen Electronic Edition of Wittgenstein's *Nachlass* displays the text on two levels, a diplomatic level and a normalized level, while the Medieval Nordic Text Archive offers three levels, adding a facsimile or record-type level to the diplomatic and normalized level (see chapter 5).

### *Searchability: A Constantly Evolving Opportunity*

The alphabetic index is the printed edition's strong technology. A good index can be most helpful, especially when words and names in the text have various and sometimes unpredictable spellings (which usually is the case in older texts). A good subject index is produced as the result of a thorough analysis of the book's contents.

Simple free text searching may serve as the digital edition's poor man's index. It can sometimes elicit more information from the text than a standard index. However, to equal the quality of a good index, the digital edition must be marked up with information about its document structure and contents. There are no technical problems with carrying out a thorough markup of a text. The guidelines of the Text Encoding Initiative (TEI) offer a plethora of elements to be used, and any new elements can be added thanks to the flexibility of XML (Extensible Markup Language) and similar markup schemes. While a printed edition without a good index looks naked (and there is no way of hiding this embarrassing state), the quality and amount of markup in a digital edition is much less visible. Questionable markup may hide many erroneous

preconceptions or plain typographical, conceptual, or factual mistakes and still deliver a list of search results to users who are unaware of the shaky foundations of the product. The amount of work involved in producing a high-quality markup may be considerably underestimated by the project promoters. As a consequence, indexing and cross-references can easily be left to a later stage and never completed.

The idea of a concordance is usually traced back to work being done on Hebrew Masoretic texts around the tenth century, but the first full concordance did not appear until 1230. That was the concordance of the Latin Vulgate Bible by Hugo de Saint-Cher and a team of no less than five hundred other Dominicans (*Concordantiae Sacrorum Bibliorum*). Until recently, the production of concordances has been the exacting and manual work of going through a source text word by word and linking every running word (perhaps with the exception of the most frequent words, like "and" and "the") to a headword. The most spectacular example is the lifelong work of Gerhard Lisowsky, *Konkordanz zum hebraischen Alten Testament* (3rd ed., 1958). Getting the context for a particular word required leafing through the edition and inspecting visually every word. The Key Word in Context (KWIC) concordances were one of the first offers of digital text tools, and their effectiveness has rendered printed concordances obsolete, or if concordances still are printed, they can be produced from a digital text.

Until recently, digital search tools offered only simple lexical searches, enhanced by technologies such as regular expressions, allowing users to combine several searches in a single instruction. Recent advances in conceptual modeling, propelled by the vision of the Semantic Web,[10] have opened new avenues for conceptual search, as illustrated by computer ontologies, topic maps, and tools like WordNet.[11] However, no method can replace the fundamental contribution of the scholarly editor.

### *Analyzability: An Evolving Possibility*

In addition to search tools and concordances, digital editions may offer new tools that blur the frontier between pure presentation and viewing on the one hand and analysis and knowledge production on the other. Some online editions have evolved by gradually integrating more functions, tools, and views. The explorative editions of Chaucer's *Canterbury Tales* by Peter Robinson and his colleagues are a case in point. The CD-ROM edition of *The Wife of Bath's Prologue* initially contained diplomatic transcriptions of all manuscripts containing the prologue as well as digital images of them (Robinson 1996). However, at this stage of the project there was no critical text. Establishing the text was left to the academic readers. It was a kind of do-it-yourself edition, a text archive rather than a proper edition. In the subsequent edition of the text's *General Prologue*,

diplomatic transcriptions as well as digital images of the manuscripts were offered (Solopova 2000). Moreover, the edition contained tools for collation and phylogenetic analysis of the texts. Most important in this context, however, is the fact that there is also a critical text based on the whole textual tradition. While the editors of the *The Wife of Bath's Prologue* in a sense had abdicated, they made their presence known in the *General Prologue*. In the latter edition, readers can access the whole material and are still allowed to constitute their own text, but this time with the systematic advice of the editors and with the help of a number of tools.

### *Cumulativeness: For Experts and the Public Alike*

When a printed edition has been published, it is closed in the sense that additions and corrections have to be offered to the readers as additional publications. In the past the death of the editor or simply a lack of funds often made such maintenance work impossible. Digital texts are a different kind of beast. They will often grow over the years. In the case of editions, the editor may want to add new information, update references, and correct any mistakes in the text. New contributors may add additional layers, such as biographical information. In user-modifiable editions, informed readers may want to add markup for names, grammatical information, or the like as is done with Wikipedia. There is thus a sliding border between the mere act of copying and the creation of a new edition. There is also an increasingly blurred boundary between the editor and user contributions.

Even if the digital edition is made from scratch, directly from the primary sources without any existing edition intervening, the edition may not be final and may profile itself as being under perpetual construction. The success or failure of such an editorial policy may depend on the economical sustainability of the enterprise and on the commitment of a dedicated community of users. Someone else, such as the general public, might want to add information or analysis to the text. In a TEI-conformant file, such activity will be documented in the header. It is not unlikely that future digital editions will contain a long list of additional editors, contributors, and critics. One editor may have been responsible for the actual transcription, another for the markup of personal and place names, yet another for grammatical information, and so on.

### *User Participation: Possible, but Practicable?*

The printed edition is a final statement. It can be read, digested, and thrown away. There is no real feedback from the readers, save academic reviews, and no way of modifying the printed pages, save producing a new revised edition—but at what

price? Such limitations are technically removed in a digital edition. The digital edition can present more than one text on more than one level of representation. For a classical or medieval text it can present transcriptions and facsimiles of all manuscripts, and it can display each transcription on more than one level (e.g., on a diplomatic and a regularized level). For a modern text it can provide all drafts and versions by the author (to the extent that these are known) and all printed versions. The user can then piece together the text for him- or herself and add annotations, emendations, or even conjectures. One person's edition can thus become different from another person's edition. The Bergen Electronic Edition of Wittgenstein's *Nachlass* has already seen this happen. A digital edition has the potential of being an *editio continua*, no longer constrained by the editors, as argued by Alois Pichler and Odd Einar Haugen (2005). Some have commented positively on this; others have been more skeptical. What is not a matter of controversy is that digital texts are much more difficult to constrain than printed texts. It remains to be seen if the tension between experts (the analyst, the editor) and the users of the edition (experts and nonexperts) will generate higher-quality products. Although user annotation is fully realizable technologically and has been mainstreamed in social media, one may still ask whether the resources between experts and readers are still unevenly distributed. While many academics bash Wikipedia for its unreliability, the considerable success of the project across many languages and cultures should augur a new era for user-annotated digital editions.

## New Tools, Old Directions?

The view taken in this chapter is that the digital revolution essentially is the introduction of more efficient tools. It is not the introduction of new scientific methods or critical ideologies. It is not the introduction of new points of view. In fact, the first stage of the digital revolution, before the wide adoption of social media and the relative victory of the user-sharing ideology over the centralized content-production ideology, was very similar to the introduction of printing by movable type half a millennium earlier. That was a brand-new tool that suddenly made it possible to produce books in large quantities and thus spread knowledge to a much larger section of society. The contents of the book, however, were not new. The design was a true copy of the time-honored codex. The main agent of change today, allowing digital media to convey new modes of productions and possibly initiate a new kind of literacy, may turn out to be online collaborative media where the roles of producer, diffuser and consumer tends to merge (see, e.g., Bruns 2005).

Returning to the three perspectives outlined at the outset of this article, they all seem to be neutral with respect to digital technologies. Looking backward

reflects a historical interest, an interest in explaining synchronic variation as the result of diachronic development. There are new and more efficient tools for investigating the filiation of a text, but the rationale for doing so (to repeat our claim once more) lies beyond the technology. Looking outward is as important as ever, and the methods are sometimes identical to those used for diachronic studies. Advances in display will also be important for the actual dissemination of texts; the facsimile edition and the text edition can close ranks and become cheaper and more available. And those who prefer to look inward, toward the structure of the text itself, will find many digital tools helpful, such as concordance tools, markup schemes, and methods for pattern recognition.

The outcome of this discussion is a healthy skepticism toward messianic prophecies for the digital age. Textual scholarship has a long history, and it will not change overnight with advances in digital technology. However, new technology may lead to the development of new methods, and it will most likely lead to a change of priorities. One early example in the brief history of digital philology is the idea that the editor should present the whole material and then, almost in a positivist manner, take a long step backward, leaving the choice to the users. *I am not the keeper of the text. Make your own edition!*

However, such a position, as democratic as it may seem, may be a step in the wrong direction. The editor should not succumb to the temptation of the unlimited helpfulness of the digital medium. Presenting the material in its wealth is so temptingly easy. And it is the accessibility of this option that may lead the editor or expert to forget that editorial judgment is still what the editor has to offer, no matter what tools are available. The editor's voice should come over strongly. In the wealth of textual variants, which may appear to the user as huge informational noise, the editor's critical advice is as important as ever. The challenge is to evolve a new kind of digital accountability allowing the user to track these decisions and possibly reject them on ideological or factual grounds.

The digital age has redefined the practice of textual scholarship, but so far this redefinition has in no way led to any revolution in our fundamental understanding of texts. What it has revolutionized is our way of working with texts, because it has given us new and extremely versatile tools in organizing and analyzing texts and their history. Moreover, in many cases digital editions have become dynamic and interactive by moving the focus from the editor to the users, from the editor as a controller of the text to users as re-creators of texts. In short, digital editions have the potential of being truly dynamic in a way that a printed, paper-based edition never can be. Yet no revolution lies in the tools as such, but rather in the extent that these tools are being used in ways that lead to a new understanding of texts, to new questions being raised. Whether that will hap-

pen remains an open question. This view echoes, though distantly, some central themes in contemporary cognitive archaeology, which heavily emphasizes the links between evolving usages of materials and technologies, as witnessed by artifacts, and the shaping of human cognition. The purpose of this book is to try to sketch some answers to the question of whether new digital tools augur a new kind of textuality.

*Notes*

1. The term *Sitz im Leben* goes back to the theologian Hermann Gunkel (1967, 1998) but has since spread to other literary disciplines, among other contemporary text pragmatics (see Wagner 1996).

2. "Wir sollen und wollen aus einer hinreichenden Menge von guten Handschriften einen allen diesen zum Grunde liegenden Text darstellen, der entweder der ursprüngliche selbst seyn, oder ihm doch sehr nahe kommen muss" (Müllenhoff and Vahlen 1876, 82).

3. "Je ne connais ni erreurs, ni fautes communes, ni bonnes, ni mauvaises leçons, mais seulement des formes diverses du texte, sur lesquelles, par une méthode qui s'appuie sur des statistiques rigoureuses, je délimite d'abord les familles, puis je classe les manuscrits dans l'intérieur de chacune d'elles, et enfin les familles entre elles" (Quentin 1926, 37).

4. The use of various quantitative methods is discussed in somewhat more detail in chapter 8.

5. The term "Nouvelle Critique" should be kept distinct from the term "New Criticism." The first term describes a postwar literary movement in France initiated by Roland. The second term describes an American literary movement that stretched from the interwar period to the 1950s in the United States.

6. See, for example, Bolter (2001); Landow and Delany (1991), Landow (1992); Delany and Landow (1994); Aarseth (1996 and 1997); and Landow (2006).

7. Woolf Online (www.woolfonline.com) illustrates such reintegration of genealogical and genetic aspect in an outward perspective.

8. "La naissance du lecteur doit se payer de la mort de l'auteur" (Barthes 1984, 69).

9. One example is the commercial policy of the digital edition of the complete works of Pierre Bayle (*Corpus des œuvres complètes de Pierre Bayle*), published in the Classiques Garnier Numérique collection.

10. "The Semantic Web is not a separate Web but an extension of the current one, in which information is given well-defined meaning, better enabling computers and people to work in cooperation" (Berners-Lee, Handler et al. 2001).

11. See http://wordnet.princeton.edu.

# 2. Ongoing Challenges for Digital Critical Editions

PHILIPPE RÉGNIER

As observed in this beginning of the twenty-first century, the reality of "digital critical edition" is still too embryonic and too unstable, even though it is developing, to be considered only in its present state and to be adopted without wondering about its future. It is indeed a strange situation where one has the impression of leaving the familiar and well-established world of printed books for the adventure and the risks of a medium commonly described as immaterial, in perpetual evolution, and without rules. Let us dare state up front that the issue at stake is neither external nor temporary: philology, this old lady born of the marriage of humanism and printing, is from now on definitely confronted with the question of its media mutation.

In facing this opportunity for modernization—which stands a good chance of increasingly often imposing itself as a necessity—philology finds itself at a crossroads of rather diverse choices, with the moral obligation, however, whatever the path chosen, to remain loyal to its fundamental values. Briefly said, philology must reassess its strategy to take into account digital technology. It can no longer remain apart if it does not want to be paralyzed or isolated. It can no longer remain a passive user if it does not want to find itself confined in inadequate frameworks. Philology needs to be endowed with a vision of its future.

But thinking about prospects of the future, as one knows, is similar to the utopian method invented by Thomas More, which consists of examining, criticizing, and especially interpreting what exists at the moment of writing in order to imagine what could or should exist tomorrow or the day after tomorrow. By definition, thinking prospectively involves taking risks that are justified by the hope of gains superior to those guaranteed by daily routine. Also by definition, it is a cause of dissent. That is why very divergent opinions coexist among phi-

logists, even within the same specialized fields, within the same groups, and often in the same heads. The enthusiasm of some philologists is equaled only by the grimness of others.

This is not astounding, considering, as recalled in the preceding chapter, that the theoretical advances of printed philology, its norms and presentation techniques result from two centuries of discussions that were much more strenuous than commonly imagined, without having ever reached a unique and definite model. The contrary would be surprising, one is tempted to say, considering the diversity of schools of thought and practices.

Focusing on digital edition, it would seem fit to assess the issues at stake, and, considering the precedent printing effects, to dismiss no hypothesis—neither the strongest ones nor the wildest—in trying to find the most stimulating one, the one that would have digital edition at the heart of a general process of change.

## Quantitative Change or Qualitative Mutation: Cultural Catastrophe or Progress?

A common opinion consists in denying the problem formulated as a question in the header above. Digital technology is considered neutral. The question retained is not the improvement of or change in editing but how to edit more, much more, and more rapidly, for the immense number of readers who now have overdeveloped reading capacities.

Let's take, for example, a thirty-year-old precedent: text processing and computer-aided publishing. These major inventions seem to have corresponded exclusively to increases in productivity and quickly fallen into oblivion and indifference as their use became generalized and their access available to most persons writing and publishing. In the same way, computer-assisted editing and reading tomorrow could result in nothing more than an increase of existing capacities. Has anyone seriously contended that the forms of the printed book would have directly provoked any type of scientific revolution?

On the other hand, however, would anyone contest the obvious fact that both inventions have completely reformatted our very way of thinking? And, more deeply still, that they have definitely brought about a new humanity? The passage from print to digital could eventually turn out to be as decisive as the passage from Stone Age to the Bronze Age or the one from manuscript to print.

For the time being, current daily experiences with digital texts often involves using websites where the site authors are sparingly identified, if at all, and there is usually no information concerning where the site is located or when it was set up: looking for a quick answer, users arrive through the guidance of a generalist and commercial web search engine. For example, one might wish to find the

*Cours de philosophie positive d'Auguste Comte*. Searching for the text through Google leads one directly to the picture, rather stimulating for bookworms, of the front panel of the old binding of the Stanford University Library copy of the original edition, published in 1838.[1] Besides this quasi simulation, capable of partly restoring for the reader a library atmosphere, the textual content is integrally accessible in image mode, with full text search functionalities. But volume 3 is only volume 3. It does not equate the totality of the volumes that make up the work, beginning with the first. As for the New York Public Library copy listed in the top search results, it corresponds only to volume 6.[2] One of the links presented points to the complete digitization of the work on the Gallica website of the Bibliothèque nationale de France (Comte 1830a). Here also it is possible to download the totality of the *Cours* in PDF, a format that is not very convenient for turning pages and that allows only very slow reading. While awaiting the promised possibility of full text search, navigation takes place by rowing, as it were, like in galley times—without sails, much less steam engines.

To come back to Google, probably one could accept as a "table of contents" a selection of "best extracts" (along criteria similar to those of the Science Citation Index), "references to other books," "references from web pages," "academic references," and the mention of "books on closely related subjects." This could be seen as the beginning of a new type of critical apparatus built by algorithms and robots. But it is an apparatus that is constituted according to criteria so quantitative, so scantily and badly organized, so foreign to the world on paper, so inadequate to the requirements of a philosophical and academic mind, that it is tempting to describe it, depending on one's mood, as a bazaar or as a curio cabinet, a terra incognita to be explored or an inextricable undergrowth to be avoided. It may be even more expedient to go to the closest library or bookstore to locate the desired text. Finally, the user in this thought experiment, to be spared further pain, would slip over the link to the Comte page of the French commercial cultural daily news website evene .fr, and also of the purely pedagogical formula of the University of Quebec in Chicoutimi website based on the small "Classiques Larousse," dated 1936 and supported by annexed documents.[3]

Such experiences, which are actually very frequent, give the impression of an overwhelming offer as well as the impression of regressing to a pre-philological era of incredible miscellanea that were handed out in antiquity and during the Middle Ages. In parallel to an extraordinary expansion of the sphere of well-read persons, there is something akin to a global deconstruction process of textual heritage by the third industrial revolution. And this process, the control of which is beyond the reach of the knowledge organization and conservation specialists who are librarians and document researchers, arrogantly ignores philology and philologists.

However, to circumscribe the problem, let us suppose that the reorganization of the incoming chaos falls within the competence of librarians and document specialists and not of philologists. A close examination of more elaborated digital publications nevertheless leads to similar thoughts at the basic level of textuality itself.

Let us begin, as an introduction, with the example of the 2001 online publication of a literary monument whose philosophical dictionary nature seemed predestined to a digital transposition—that is, the *Dictionnaire historique et critique de Bayle*. Useful whatever the case, the digital version provides easy access to a major text that previously was available only in libraries. It results from the work, among others, of a Franco-American project for a treasury of French language (*Trésor de la langue française*) known as the ARTFL Project (American and French Research on the Treasury of the French Language), conceived and carried out by a team from the Analyse et Traitement Informatique de la Langue française (ATILF) of the Centre National de la Recherche Scientifique (CNRS) on the French side and by the Division of the Humanities, the Division of the Social Sciences, and the Electronic Text Services (ETS) of the University of Chicago on the American side.[4] Due to its display in facsimile on the screen, Bayle's digitized dictionary has retained its very special page layout. The reader can read the text by scrolling page by page. The reader can also read the text by using a table of contents endowed with hyperlinks, navigating from article to article, from volume to volume, much more rapidly than would be possible with the heavy physical volumes laid on one's table, following the complex routes provided by Bayle and his collaborators, who needed to outsmart censors and in order to allow one to make out the coherence of the instigating ideas. But with the exception of a few succinct pages explaining the project and describing the text and its characteristics, there are no comments to guide the nonspecialist reader neither within articles nor in his course from article to article. In the light of philological norms, however, the greatest flaw is that the e-editors do not provide access to what would have been the main interest of a genuine edition: the large-scale reorganizations and enrichments from which stems the text they have chosen—that is, the last authorized edition (Amsterdam, 1740). Even more radical comments have been voiced against the two digitized versions of Diderot's *Encyclopédie*.[5] By being digitized, this sun of the Enlightenment era has become, according to Philippe Stewart, a "fragmented galaxy." The digital machine, he explains, is incapable of following the semantic road of correlations between articles that produces all the subversive quality of the textual system: it only knows discrete words, quantified in bytes (2002, 190). The general argument is completely obvious: these e-editions of philosophical dictionaries are not critical editions; they are databases.To sum up, it seems that two observations can be made: (1) that there exists a tension, perhaps already a rupture, between

the procedures and norms of modern critical edition and the digital critical edition trials carried out since the '90s, and (2) that the restructuring of texts into database forms is jeopardizing textuality itself by barbarously atomizing it.[6]

Proof that a point of no return had been reached is the fact that no one has imagined printing these digitized texts in a book form that could put them in the ordinary category of critical editions, a status they were not claiming anyway. What would be the purpose? In fact, there is little doubt that such digital editions did not answer specialists' refined needs. But by the very fact of their availability, and whatever the elementary character of the intellectual operations that they facilitate (lexical studies, checking a quotation, curiosity exploration, and so on), they have a utility and an efficiency that nonspecialist researchers are apt to appreciate. They probably open the way for digital critical editions of monuments whose size constitute an invincible challenge. This is even truer since commercial publishers of living dictionaries, such as the *Larousse*, the *Robert,* or the *Universalis Encyclopedia*, have committed themselves to the production of digital versions and, consequently, are now contributing to the development of more complex software and to formatting solutions in answer to users' demands.

Moreover, it is not entirely a coincidence if the majority of initiators and authors of the experiences referred to above do not come from the field of French literature, a discipline that, within established role sharing, should have presided over their conception and their elaboration, and where the above-mentioned objections come from. It is because of its technical incompetence, which is not without remedy, that this discipline has been confined to watching the evolution of linguistics and informatics, or more exactly, language engineering and computer engineering.

Such a phenomenal interdisciplinary takeover by sciences that are sometimes derogatorily qualified as "technosciences" is certainly not to be understood in terms of a decadence of traditional humanities. The history of science and techniques needs to point out more than one transition achieved through interdisciplinary transfers. It is commonplace for the importing discipline that such transfers result from temporary compromises on norms. If the discipline survives the ordeal, its redeployment in a second phase can lead it to respond by inventing theories, methods, and norms that will assure it a new life. Philosophy and literature benefited from such an experience during the '70s when they assimilated the concepts and methods of linguistics and semiology.

It must be pointed out also that, as opposed to first-generation digital editions that exhibit their database structure, the editions that followed and that we will be evoking here have chosen to be applied not to dictionaries but to continuous texts. These editions can thus present themselves as principally hypermedia systems with the ambition to reinvent and even to maximize the potential of the connotative and labyrinthic. In other words, they function in a reticular

mode that characterizes literary thinking and in which the Internet claims to have its roots.[7] This is all the more reason for estimating that interdisciplinary cross-breeding between the humanities and the sciences and techniques of information and communication has a great future ahead.

## The Meaning of a Lexical Renewal

Let us now move to technical issues and the associated lexicon. Is it really so difficult for philology to adapt to the words and forms that come from the Internet? The media changes between paper and screen, between ink and electrons, have well-known predecessors that have been properly analyzed by writing and book historians as genuine transfers, not from discipline to discipline this time, but specifically from one technical era to another technical era.

Simplified character fonts have replaced calligraphic writings. Labels and concepts of title, author, and editor have replaced the copyist's signature, amounting to, in short, a generalization of punctuation (period, comma, and their complex derivatives, beginning with the semicolon and the question mark). The numbered page has become the basic reading unit (without columns or, preferably, with only one column, which is the etymological meaning of the word "page"). Division occurs in "volumes," "parts," "chapters," and "paragraphs." Structural abstractions, such as the "table of contents" or "summary," function as reading guides. Marginal and bottom page "notes" (in replacement, notably, of interlinear notes or of "chains" encircling the text as a fruit encircles its stone) and so forth invite the reader to focus on specific portions the text. All of these small mechanisms of our textual functioning that seem natural and as old as writing itself, today are, as a matter of fact, rather recent and fundamental inventions.[8] Expressions and practices based on new information and communication technology that are ordinarily perceived as purely technical take on a quite different scientific and cultural dignity when referred to in the frame of long-term history.

Very few scholars have taken the risk of going beyond observing and of making such an acknowledgment.[9] But some time from now, maybe as soon as the end of the twenty-first century, some modern scholar will be able to stand back and write the history of how humanity went not from the volumen to the codex, and from the codex to the printed book, from the printed book to periodical press, and of their long cohabitation, but the passage from the printed world to the digital world—in other words, from the book to the "database," from the "web page" to the "website," from the "home page" or "web page" as such to a still unknown standardized reading unit (a "screen" defined in inch format and in a number of visible dots?). Likewise, this scholar will also have to explain how we have organized the migration of bottom page notes (and even still marginal ones) to a hypertextual note system. Because digital text notes are notes of a different nature, of different levels, and of different sizes,[10] they

must be distinguished by new display codes (e.g., underlining or color codes in replacement of the still unfixed code of traditional diacritical signs and of digital diacritical signs that perhaps will have been chosen among the "special signs" functionality of current word-processing software). In the end, in the same way that a Gutenberg-era reader succeeds in mastering, more or less, the book by excellence, which is in fact a collection of ill-assorted books, a small library in itself, a Bill Gates–, Larry Page–, and Sergey Brin–era reader who is confronted with the virtual library of all the libraries humanity has produced will be able to navigate the boundless and constantly renewed infinite course of the web.

But he will also need to learn to dive—to continue this now lexicalized metaphor—in stages, each stage corresponding to an additional mouse click. Many authors, beginning with Ted Nelson, the pioneer of hypertextuality, have drawn attention to the fact that computer writing, as it is developing now, is creating a new way of writing and reading that is radically different from the linearity and tabularity inherited from the use of papyrus (for writing) and from the use of parchment and from the book (for reading). Databases and hypertexts both obey a logic (in the etymological meaning of the word: an organization of the *logos*) that is not the dominantly sequential and horizontal one of reading and writing on paper, with texts disposed in lines and blocks, but the dominantly nonsequential, vertical digital organization, with fields or headings, by association and by strata arranged in levels of depth.[11] Hence we have the "pull-down menus," "tool bars," and "links" by which we gain access to these depths. He or she who has not been involved in the development of a database and a website, who has not had the opportunity to be confronted with the obligation to think in terms of fields and to organize an arborescence, cannot understand nor measure the problem. We must reconcile ourselves with this idea that we are dealing with something absolutely new—and the sooner the better. Are we not witnessing the emergence of expressions such as "research hypertexts" and "hypertextual editions"?[12] We can lament more simplistic technology as we trample the laboriously produced "sites" and "databases" that make up most of the existing projects and endeavors. Scientifically, they also have the inconvenience of shunting the references, which are still more or less explicit in works that include the "critical" dimension of a philologico-philosophical quest for authenticity and for the accuracy of an essential discourse. For it is this quest that is the strength of critical editions in their nineteenth-century acceptance. Perhaps it is to preserve such a dimension that a precious resource such as the complete digitization in full text of the first and last authorized edition of Balzac's *La Comédie humaine* is still labeled a "critical online edition." But this labeling turns out to be simply promotional. The digitization process is limited to reproducing a printed edition and in no way recalls the manuscripts nor

provides any annotation apparatus.[13] The digitized version is useful in that it allows full text search and comprises presentation notes, biographical elements, and different documents with information on the organization of the work.[14]

An enlightening example of the difficulty of finding proper labels is the Heinrich-Heine-Portal as described by that website's editor, Nathalie Groß (2005, 60–73). This publication, begun in 2002, is defined by Groß as a "digital edition" of the works and the correspondence of the writer. Practically, the main objective is to provide online access, while occasionally adding corrections, to the two printed critical editions of the complete works of Heinrich Heine that were already published conjointly in former East Germany and West Germany. But to this objective of scientific (without fusion) reunification of the two editions has been added an (immaterial) reunification objective between the philological productions and the original texts themselves, as the Heinrich-Heine-Portal offers access in image mode to manuscripts and editions, as well as press articles, published during the author's lifetime. In addition to these components, there are other *disjecta membra poetae*, engravings, and contemporary portraits, with a forthcoming general bibliography. There is also information on current research activities about Heine. Consequently, Groß (2005) describes the project as that of a "complete platform" for the study of this author. Incidentally, the German title of the article is worded in terms that effectively refer to something completely different from a critical edition and translates as "Digital Heine—An Internet portal offering an integrated information system." In taking up and continuing the masterly "critical editions" in order to transform them into something better and different, presented as a kind of digital reincarnation of the author, the Heine portal "surpasses" them all in reference to the subtle Hegelian meaning of the *Aufhebung,* implying simultaneously both abrogation and perservation, by its integration into a greater whole built on the more general information principle rather than on a principle of edition.

Forging new words turns out to be all the more difficult when the words are not imposed by the universal newspeak of computers, because the subsumed products are themselves quite diverse, they are composites, and they correspond to a variety of quite diverse scholarly projects. It is nevertheless a first step toward the consecration of newness as such.

## Hybridizing Old and New: Toward Novel Kinds of Editions

A phenomenon such as this conflict between old and new, "Antiques against Moderns," is obviously far from being original. Still, it is necessary to appraise it each time and learn to distinguish what is the newness coming out of the old limbo.

It would, however, be counterproductive to pretend being able to identify within the philologist community a line of fracture between two kinds of editors: on one side, traditional editors, who would be lingering behind with the traditional critical-book editing, and, on the other side, editors who, having opted for the digital solution and gone ahead, have won the right to not be accountable to their colleagues for the specifically philological quality of their work. This would result in not only freezing each one in positions that are bound to evolve but also situating the debate at the superficial level of tendencies, if not fads, and not in the field of the science of texts. The decisive question is this: Are there specifically scientific effects to be expected from the use of digital technology? And if so, which ones?

If one wants to risk a forecast, then it must begin with a brief analysis of the state of the domain. Depending on the era (antiquity, Middle Ages and classicism, or modern and contemporary periods) of the texts they are presenting, depending on the cultural region they belong to (Anglo-Saxon world, German and Scandinavian worlds, francophone and French world, etc.), depending upon the original material they are dealing with (manuscripts, books, correspondence, newspapers or journals), and depending on their aims (historical, philosophical, aesthetic, etc.), academic editors are mainly interested in the following:

- The reconstruction of a lost archetype
- The establishing and commenting on a text that was initially poorly edited and/or is now unobtainable
- The genetic process of intellectual and artistic creation
- The historical, political, social, ideological, and aesthetic context
- The evolutions apparent through the successive illustrated, popular, scholarly, bibliophilic, etc. rewritings and editions, whether authorized or not
- The generic and media transfers of protean text narrations (from serialized novels to book novels, from theatrical plays to films, from poems to songs, from separately published articles to a posthumous authorized anthology, etc.)

In parallel, the observer cannot escape noticing that the various focuses of interest listed aboved are linked with many external factors: the market and the uses envisioned, the expected free or paying outlets, the decisions made by the various actors implied (researchers, engineers, research teams, etc.) and by the institutions they are addressing to go for either the printed or the digital version or both in a complementary, concomitant, or successive manner (with a widely variable and rarely announced "moving wall"). To complicate matters, these actors may choose a CD-ROM solution at times and an Internet one at others;[15] they may also prefer sometimes websites, sometimes databases, and sometimes websites with databases, sometimes portals; they may either stick to black and white or use color. As a result, some editions may be solely textual while others may be multimedia, or even hypermedia. Some editions

may leave the visitor/user totally free to explore as he or she wishes, or they may either impose a specific path or offer a choice between paths or a range of choices that are adapted to the type of interest or professional identity the user communicates to the system. They may choose fixed formats or dynamic ones. Finally, some editions may use use proprietary software while others use open software. The combination of all these scientific and technical variables results in an indescribable diversity, much more wide-ranging than the small selection of formulas developed in the printed world.

The ultimate question that comes up is the much more extensive one of whether the fate of the digital world is to completely absorb the printed one like it has itself absorbed the manuscript culture, or whether both will coexist in a competitive, complementary, and interpenetrating relationship along the lines of the coexistence in the nineteenth century of books and periodical press. Without delving into pointless speculation and science fiction, it is worth meditating on the unprecedented fact of the multiplication of possible outcomes: it opens the door to an extraordinary flexible adaptation to contents.

Coming back to the Auguste Comte case, the works of Comte would surely deserve a HyperComte system conceived along the ambitious model promoted by Paolo D'Iorio of the website HyperNietzsche.[16] However, for lack of such a solution, would it not be wise for the community of positivism specialists to provide, at least to begin with, a concurrent use of the volumes of the complete works, annotated with the creation of a website where the raw texts digitized in full text could be visualized or downloaded?[17] The access and search facilities provided by such an option, even though still basic, would represent a considerable achievement. Of course, in this type of option, printing remains the norm and reference. And the passage to digital technology equates here, at least provisionally, to putting into brackets the critical edition ideal.

A more complex evolutionary stage, to use the language of natural science, is one where the critical edition ideal, unchanged as elaborated for the printing world, is fully renewed by a digital reproduction with eventually a few supplementary functionalities. This second option is best illustrated by the series of editions developed under Arcane, a multifunction software conceived and developed by an engineer, Éric-Olivier Lochard, to answer the needs of a network of eighteenth-century literary scholars.[18] The order received was for a "computer-assisted critical edition" software that would also be a collaborative tool for a geographically dispersed community. Arcane retrieves all the presentation forms that correspond to philological norms and effectively allows the edition work to reach the ready-for-printing stage with important gains in time devoted by the researchers to their discussions and to compiling and writing. This good computer genie, less unpredictable than Aladdin's, continues to evolve and is a general-purpose editorial tool capable of also meeting the needs of a complete editorial chain. During

the production phase, like in a database, it stores and manages the files sent by the collaborators, beginning with the established texts up to the notes, comments, and presentations. Once the production is over, the software attends to the page layout, as desktop publishing software would, taking into consideration the constraints of the publishing house that will bring out the critical edition. Parallel to the published work there exists a database that offers specific functionalities for helping researchers (lexical statistics, locating co-occurrences, searching for quotations, thematic indexing, graph statistics, network mapping) that can be constantly enriched and can be available online depending on further developments (and the authorization by the commercial publisher).

A third option, which diverges fundamentally with the norms and uses of printed critical edition, is that of the William Blake Archive.[19] Its architecture, specific yet exemplary in allowing many other possible developments, can be explained partly by the remarkable characteristics of this British creator's work. Blake's twofold literary and graphic production actually transgresses so much the limits between poetry and literature and extends so far beyond the current cultural and material frameworks that in order to function as the multimedia system that it is, it seems to have been awaiting the creation of the hypermedia database. The site was created in 1994 and has been accessible for some years at the highly symbolic website of the Library of Congress.[20] The originality allowed by digital technology here is precisely not the perfection of a critical edition (in Blake's case the printed book has attained that), but the bringing together of texts and images. The inclusion of a biography, a glossary, and a chronology, as well as critical articles and a kind of discussion forum, and putting specific tools at the disposal of visitors, make this "archive" at once a scholarly edition, a special library collection, a museum, and a research center. The term "knowledge site," coined by Peter Shillingsburg (2006), is probably too extensive and generic an expression, but it is beginning to catch on to signal this new type of computer production, distinguishing it both from critical edition *stricto sensu* and the mass of commercial sites and others. Be that as it may, the William Blake Archive has been validated by the Modern Language Association of America (in 2003) and even distinguished by a prize awarded by this same society (in 2005), under the canonical category of "scholarly edition."

New formulas, sometimes qualified as hybrid, are emerging between the classical formula of copying from one support to the other and the romantic or utopian formula for the invention of a new genre of scholarly edition. Frequently seen solutions are books whose bindings have been arranged so as to allow the insertion of discs containing the digital version or complementary elements and, more rarely, books that direct their readers to a companion site.[21] Inversely, an online publication of textual data can rely on the publication of a printed critical volume.[22]

It is true that the cultural and scientific hierarchy among the objects to be edited themselves partly prescribes the choice of the means to be committed. But the more or less polymorph nature of these texts and the specificity of their intended uses are in all likelihood expected to be more and more decisive. In comparing the accomplishments and the prototypes, and in outlining their specific differences along with their common evolution and tendencies, one is inclined to imagine that in the future there could be not just one model of scholarly edition but a whole constellation of models according to the types of objects to be edited.

The far horizon, as outlined in many projects, however, is the post-Gutenberg option, where digital technology replaces and evacuates printing, similar to how the book is said to have killed the popular and religious art of architecture as expressed by one of Victor Hugo's characters in *Notre-Dame-de-Paris*.[23] To a certain extent, this is the age that the University of Bergen announced with the electronic edition of Wittgenstein's posthumous *Nachlass* manuscripts on CD-ROM,[24] as well as Rouen University's online publication of Flaubert's manuscripts of *Madame Bovary*:[25] the digitization of the originals in image mode accompanied by their transcription in full text and search functions. Digital technology takes over from printing because in this latter medium it would be impossible to present materially and economically, and to provide reading and managing facilities, for such huge masses of such multiformed documents. But this post-Gutenberg stage is even closer to the one that HyperNietzsche had prophesized and had begun to configure by the end of the '90s. What we have begun to see with the Heinrich-Heine-Portal is what NietzscheSource, last avatar of the successive HyperNietzsche versions, extends with the production of a consolidated version:[26] an integrated, open platform that brings together a great quantity of textual and non-textual data, indexed and organized in a hypertextual system, based on a preceding solid-paper critical edition that it transforms, and that tends to exploit as much as possible the evolutionary and interactive nature of the Internet. Only the multi- and hypermedia dimensions are still missing. But tomorrow is another day.

Between today and tomorrow, let's bet that the diversity of electronic scholarly editions will remain significant and bewildering. But let us also ask ourselves if this last model of an integrated platform has not set, by its paramount ambition, the new critical frontier to be reached.

## The Future of a Few Antinomies

Even advanced technology cannot be a substitute for theory. It is therefore necessary to look at the scientific principles. How do these experimentations connect with the main philological doctrines? What effect are they likely to have on the renewal of the existing positions?

The Lachmannian method, which for a long time has had the monopoly of the reference model role, is an approach based on purification and decontamination, conceived to correct the corrupt texts handed down by the antique and medieval worlds. In modern philology this is also the case, particularly in France, with the dogma of the last authorized version, based on the same half-scientific, half-religious cult of the creative origins, or, if one prefers, with a belief in the authentic spirit and the exact letter. In both cases it is a question of going back to the original text or restoring it by removing all the errors, additions, and interpolations that have been agglomerated to the original text. However, the opposite tendency exists, resulting from the digital offer itself, but extends, revives, and accelerates a fundamental tendency of printing. It is this propensity to include more and more elements, be they diverse, massive, more or less prior, or external or foreign to the considered text. This tendency confirms the legitimacy of these elements based on the fact that they exist. It proposes to take them into account and to interpret them inasmuch as they are the indisputable remnants of the semantic investment of copyists, exegetes, and editors standing on the shoulders of original authors.

Without even evoking the expansion of the canons of philology and the inclination toward their abolition that represents the scholarly republication of so-called illegitimate texts (because they are popular, anonymous, outside of the established categories, etc.), we observe that printed critical editions of modern texts have not ceased since their beginnings and are constantly revising their doctrinal basis in continuously pushing back the sacrosanct notions of author and authority:

- From edition of works published by authors during their lifetime up to the posthumous editions of the fragmentary and disordered drafts, even those never meant for publication
- From the edition by an author of his own letters addressed to a specific person up to the exhaustive posthumous edition of his active correspondence, even his general correspondence
- From the edition of unpublished and/or unfinished works to the publication of unprocessed manuscripts (through facsimiles and diplomatic editions), personal diaries, notebooks, rough copies, genetic files, reception files

The widely practiced whistleblowing on the interest allegedly manifested for Baudelaire's and Nietzsche's laundry bills summarizes the problem and the misunderstandings. The publication of such textual snippets, considered sacred because they are linked in some way to the creator's body of works, is actually only a servile imitation of an evolution determined by a sort of economic and intellectual tug-of-war. This bid to outdo others has pushed and continues to push scholarly editors to quasi-exhaustiveness, motivated by a fetishism con-

fining idolatry.[27] It is necessary to emphasize that successive editorial theories have not anticipated this evolution, nor thought it out, not as a denial of their specific logic but in order to put into perspective the role it plays in the etiology of the actual evolution. The truth is that theories have more often followed this evolution and accompanied it, even if it meant having to come up with justifications after the fact. One finds here, along with scientific paradigm changes, radical taste and aesthetic changes. Writers themselves—beginning with Victor Hugo (in France) or Louis Aragon in the twentieth century, with the subtly expressed will to go further than his illustrious predecessor—have opened the way by conserving and making it a point of bequeathing all (or almost all) of their manuscripts and other papers, the first to the national library, the second to the Centre National de la Recherche Scientifique (CNRS). Explicitly made responsible by the donator of the mission of producing a research on Aragon's texts and avant-textes, promoters of textual genetics and the research unit that are considered the main carriers of this mission have never made a mystery of the correlation between their theory and the refined reading pleasure they wish to procure nor of their intention to participate in the promotion of an aesthetic revolution.[28]

Thus the digital world, maximizing its power since it has integrated audio-visual technology to become "multimedia" and manifested its Semantic Web ambition, opens a perspective of more than complete and definitive editions: almost unlimited and in permanent progression; perfectly heterogeneous (texts, still images, animated images, and sound); virtually capable of being interconnected by an infinity of links intentionally created by editors or automatically generated by machines. This raises the question of limits or absence of limits. Within the sole (fluctuating) limits of economic constraints and legal conditions, it is now conceivable to assemble and manage together the following:

- The image (preferably in color) of all of an author's papers and known manuscripts, all of his work manuscripts up to the copy given to the publisher, and the image of all the published editions during his lifetime from the original edition to the last authorized edition, including the illustrated editions and the stored proofs
- The image, also in color, of all posthumous editions, including all the critical editions
- All the presentations, annotations, and, even more unthinkable, all the commentaries of all the specialists concerned by all the specialties
- The sources, the intertexts, and other co-texts
- Work tools such as the primary and secondary bibliography, the author's dictionaries or dictionaries of his work, his biography, or a fine chronology of the era
- The intellectual, visual, and musical universe of the creator—that is, his

"personal library as a writer," his "imaginary museum," the musical works, the monuments, the sceneries, the interior decorations having constituted his audiovisual environment
- Reception files comprising impressions, reactions, discussions, and other traces of reading by all the contemporary critics and all the readers, renowned or obscure or nobodies, who have left traces in essays, articles, correspondences, or discussion forums
- Public readings or recitations recorded by the author or by actors
- Theater plays inspired by the text, including their stage productions as they have been or could be recorded
- Pictorial and graphic transpositions in general, including digitized plastic art ones
- Television or cinematographic adaptations
- Depending on the case (poem, novel, historical narration, etc.), music adaptations or transpositions in musical shows (operas, operettas, musical comedies, etc.)
- Counterfeits, pastiches, imitations, continuations
- Translations in all languages
- Published monographic researches
- Past and ongoing activities and publications by specialized scholarly society or societies
- Tapings of expositions and conferences
- Ongoing research and discussions (collaborative dimension of website)
- Copied extracts and personal comments when reading with a pen in hand, as in olden times
- Pedagogical tools (textbooks, course outlines, lecture notes, exercise models)
- Impressions, reactions, and information requests from readers and visitors

All of this should be considered while putting in the foreground, last but not least, the textual data, indexed, structured, classified and organized, presented and annotated, from the basic level of the word up to the level not only of the "complete works" but also of the entire production, for which there does not currently exist a specific word. The concerned production could even include, as might be the case for Alexandre Dumas and for Victor Hugo, among others, the writer's house and its interior decoration.

Digital presentations have a tendency to accumulate, amalgamate, and continuously grow, and this seems to be inscribed in the very principle of their conception. Probably such a list will appear as a utopia or a monstrosity capable of exploding not only the quantitative limits but also and above all theoretical frameworks and the norms in use. Here again, history can help us remain confident.

From antiquity to the sixteenth century, cultural habits were to conserve only the works and to destroy all drafts, manuscripts, and correspondences. The fact

that the manuscript era did not produce handwritten critical editions of the manuscripts it was (re)producing is not entirely fortuitous. It is also not entirely fortuitous that printing, to succeed in producing critical editions of modern texts, books of books, in a way, experienced the need to base such editions on . . . manuscripts. The multiplicity of material supports, their hierarchy, their newness or outdatedness, their succession or their cohabitation are the cause and the matter of philological activity: beyond the very quest itself for the inaccessible original text, this is precisely what philology is in charge of managing. Why wouldn't the digital era have to invent its own manner of recovering and managing texts, text derivatives, and the textual environments of the printing era? It is this immense construction endeavor that the Google, Amazon, and Europeana projects are launching. It's a shame that there is no awareness of the urgency of thinking it out and of conducting it not only at the macro level of libraries but also at the micro level of the works.

For antiquity specialists or medievalists, the formerly unthinkable, and consequently, self-censored, liberty of displaying, besides the text reconstructed in its most ancient and reliable conjectured state, the multiple variations that have deformed or enriched and transformed it can only increase tension between, or bring closer together—in the same confrontation logic (productive and dispassionate, one may hope)—Lachmannian philology, dedicated to its quest for archetypes, and the "new philology," more interested by the proliferation and the creative infidelity of copies than by the authenticity and the purity of originals.[29] Since the material and technical possibilities exist, how could it be possible to provide the restored state that is estimated to be the most probable without also offering the different states that have value by their very existence and, vice versa, to exhibit and legitimize the evolutional states without also proposing the hypothetical generative state to which they refer? His scientific community and society expect the philologist to send a clear-cut opinion on the text and its states as much as they would less and less understand—since, again, he is no longer limited to a book or a series of books—that he imposed a unilateral vision and denies them a direct and integral access to all the textual materials and all the debate arguments. To bring medieval manuscript literature into the era of indefinite and universal reproducibility is not a utopia. Thus, while awaiting translations, stemmas, variant studies, annotations, and so on (a critical edition is not produced in a day, not even in a few small years), an example of what is offered can be found on the Internet with the prestigious manuscript located in Lyon of *La Quête du Graal* text and illuminations, while disposing, on the same screen of a new transcription, folio by folio (*Edition "en ligne" de la Queste del saint Graal*).[30]

As far as they are concerned, modernists and contemporaneists are divided by a similar opposition between partisans of the author's supreme authority

(and often of the last published edition during his lifetime) and partisans of the work's autonomy, as it develops intrinsically (from the draft to the first original edition, even disavowed, up to the same last authorized edition, but taking into account all the intermediary steps). Specialists of the eighteenth, nineteenth, and twentieth centuries also have to deal with the ambient rejection of their monopolistic power, if not their scientific censure. It is also hard to imagine that they could take the liberty of not delivering everything.

Their other great quarrel is the one that has the holders of the text closure and immanent criticism battling against the supporters of the historical inscription and its contextualization. To say it in grossly simplified words, the first orientation brings together structuralism and formalism in general, among which are the École de Genève (Geneva School),[31] gender poetics, and textual genetics. The second orientation encompasses Marxism and sociologisms in general, including sociocriticism and literary history.[32] Without being fully applicable to philological problems, this line of division notably applies in the cleavage between German historical criticism (*die historische-kritische Ausgabe*) and French genetic criticism. The first one tends to put texts in communication with an unlimited historical material, while the second, less removed from the École de Genève than it will acknowledge, adopts the Saussurian principle of the epistemological break. In other words, unlike historical criticism, genetics does not content itself with tending toward putting history between brackets. It traces insuperable frontiers between literature and non-literature, between texts, their successive states, their preparatory files, the writer's immediate bookish environment (what we know or have kept of his library), on one hand, and, on the other, all the external textuality. One might ask how these theoretical controversies concern the theory of digital critical editions. The most important way is that each of these two orientations can benefit from digital technology to develop their fundamental intention.

There is no doubt that digital technlogy is useful for historicism, where scholars' erudition and need of exhaustiveness now have at their disposal an unlimited intertextual space in which to deploy.[33] As far as textual genetics is concerned, its early interest in hypertextuality and its eagerness to exploit the multi-window system, in the manner of synoptic editions, and to display simultaneous manuscripts and their transcriptions demonstrates its early and clear awareness of the rich future offered by machines and computer screens.[34] But other critical schools, still, are likely to join the movement. Thus, critics who have not been particularly interested until now by editorial practices, and who have been inspired by the Geneva School, could themselves find it to their advantage to use hyperlinks to propose thematic paths that are more or less guided, such as in-depth reading paths for vertical reading, speleological reading, and reading according to the paradigmatic axis of the Ariadne threads that they are talented enough to develop in their essays. In any case, some linguists who are special-

ized in discourse analysis do not hesitate in predicting the rapid expansion of "digital philology" with applications up to the intratextual research domain.[35]

But independently of the centrifugal stimulations that each one already finds in digital editing to reinforce his differentiation, there is a centripetal evolution that these scholars will have problems eluding. In fact, the book form and the corresponding academic uses seem to oblige a scholarly editor to follow only one method, inasmuch as the book (or the series of volumes) is what identifies him and gives existence to his work, whereas the Internet forms seem to invite grouping, inasmuch as the extent of the surface occupied is the best guarantee for success in the competition for visibility. The previously recalled evolution of HyperNietzsche is significant in this respect: the project, formed within textual genetics, has developed and become a European project only at the expense of an attention expanded way beyond this discipline's ordinary objects. As a general rule, an equilibrium will need to be established between the exhaustiveness norm of the material presented on a philological site or portal and the necessary pluralism of proposed methods and paths that will condition visitors' consulting of diverse horizons and interests.

Let us resist vertigo. For, besides the cumulative effect of the conflict between specialists and schools to be exposed in a unique and single place, the sometimes enormous growth of the total number of researches and annexes liable to be grafted directly onto a work's text will lead even more to a general and growing disproportion, perhaps unbearable eventually, in the ratio of critical apparatus to work. This is the last antinomy we would like to draw attention to, but it is not the least.

As old as criticism itself, a reproach that is usually addressed to editors and exegetes is that they often overburden the text with their commentaries and interpretations, substitute their representation of the text to that of the author, and intervene between the author and reader. Such a reproach applies even more to digital critical edition: one only has to look at the monstrous list of possible components outlined above. Consequently, readers/visitors of critical platforms (let's risk a neologism) should be allowed to go directly to a bare and practically reliable text.

It is impossible at this point not to reaffirm that the philologist's work is to show that this is a naive ideal. The edition of a work, even printed, is never the work itself, even if only by the fact of the typographical recomposition, changes in the material medium (cover, paper, binding, etc.), the particular symbolic status involved in a "scholarly" edition, and the temporal distance between the original work and its scholarly edition. It is obviously a quite different situation to read the *Roman du Graal* on a parchment manuscript and with illuminations in the Middle Ages and to read it today in a paperback format, or to discover *Madame Bovary* in 1857 as a serial in the *Revue de Paris* and to take it up in the twentieth century in the Pléiade collection. The change is at least as noticeable

with digitized text, where presentation and graphical choices—one cannot overly insist on this aesthetic issue—have to be recreated. Let's leave aside the austere, minimalist settings of the presentation of *Madame Bovary* on Wikisource: even if this digitization in full text can offer other functionalities and may be more laden with historicity than the image-mode digitization of the Charpentier edition on the site of the Bibliothèque nationale de France, its reading display lacks any attractiveness.[36] How, then, can we not bemoan the chilling austerity, the deterrent complexity, and the technical absurdities (the site being incomprehensible without instructions for use and without a practical initiation) of most of the interfaces of the digital prototypes already referred to? It is true that the printed literature formats, like those of the "series" that have become familiar in the different countries, were not invented in a single day. The major issue at stake with the ongoing experiences is in creating and stabilizing the standards of digitization to provide users with a stable environment so that, when going from one platform to the other, they will not be obliged to have to learn again each time how to use the platform.

Under these conditions is it not philologists' honor to clearly claim their scientific and cultural mission if they do not want to find themselves cloistered and retreated in a paper world? This is a threefold mission. It is still philologists' responsibility to take sides—that is, to provide a coherent version of the text from the standpoint of their knowledge and their criteria.[37] There are no material limits forbidding them to propose several solutions, presented, for example, as entries and distinct paths included in or indicated on a unique portal: each one must be based on an explicit argument, and this should be sufficient. Unless they intend to abuse their scientific authority, twenty-first-century philologists must also explain how they have worked, how the text has been written and edited in its original context—in other words, how it developed and then how it was reedited, altered, or reestablished—and, in the end, and independently of any value judgment, how it has been enhanced by its transmission. Finally, philologists can also be held responsible for the functional and aesthetic quality of the digital framework to which they entrust their work and that results in a new text avatar. To put it plainly, they have to collaborate on the invention of digitized text standards in the same way that their remote ancestors progressively created standards for pagination, tables of contents, and all the display referred to above, for the printed text. It is at the cost of all these tasks that they participate in a kind of continuous creation.

Let us put forth a suggestion to loop the loop: would it not be appropriate to throw a bridge over these thoughts concerning the co- and post-authorial role of the scholarly editor and the various theories that praise the legitimacy and the creativity of copies and variants, even those that are unauthorized, but that leave the last editor, himself often the theorist personified, in a sort of

non-reflective blind zone? It is well known that these theories are dominant in the Anglo-Saxon world under the influence of the specific problems of the Shakespearian philology (which has to deal with texts that lack the author's manuscripts but have been staged even during the lifetime of the author, based on more or less re-elaborated copies).[38] They have been intensified in Germanic countries, in particular by Hans Zeller, who considers a text to be the totality of its manifestations and its attested intentions,[39] and by Hans Walter Gabler, who has aroused passionate controversies in reconstructing Joyce's *Ulysses* from his unpublished manuscript rewritings up to making a completely new version, said to be closer to Joyce's intentions than even the one published by Joyce.[40] This most recent modernity is reminiscent of the practice of copyists in antiquity, who allowed themselves interpolations (without feeling the need to point them out) with the commendable aim of providing a better and more complete text. We are only too well aware of that. Will we ever try to rediscover the contemporary meaning of their interpolations after having denounced them for so long as a falsification practice? Taking into account such practices and the provoking pretension to be more Joycian than Joyce at least has the virtue of drawing attention to a certain textual plasticity and to the dynamics of their growth. Would it not be better to try to accompany and guide this process, comparable to that of a snowball that grows as it rolls down the hill, rather than try in vain to stop it? In the general tendency to accumulate and amalgamate the greatest number of illegitimate elements around the original textual kernel, just as in the methodological proliferation generated by the diversity of textual realities, there is plenty to render obsolete the current segregation between critical edition, historical-critical edition, and genetic edition.[41]

Because its material base and technologies legitimize a will to go to the end of an evolution that has been ongoing since the '70s, tomorrow's digital scholarly edition will probably make of this ambition its rule: aim at both a maximum of completeness and a plurality of approaches. We will thus establish a relation of continuity and excellence concerning as much critical editions as complete works such as we know them—each one, finally, very organically tied to printing.[42] In fact, scholarly "platforms" or "infrastructures" already offer a storage capacity and data structuring and management techniques that are so superior to those of books that editors will not indefinitely restrain themselves from imitating books and maintaining themselves in such a framework in order to present and communicate their works. This acknowledgment strongly encourages predicting a philology as hypercritical as it will be hypertextual, respectful, indeed, of history and of the evolution of texts, but up to this ideal stage of not wanting to choose and impose a unique "configuration": a non-dogmatic philology for a boundless textuality.

## *Notes*

1. The experience began in April 2008. On May 26 of the same year, the link remained unobtainable after a ten-minute search, and the first link (http://books.google.fr/books?id=HisCAAAAQAAJ) given by the search engine was now the first volume, a digitization of the copy from the Bodleian Library in Oxford (Comte 1864). On May 28 the Google search engine, having updated its ranking hierarchy, or responding differently to a more specifically formulated query ("Cours de philosophie positive Stanford"), again gave the top ranking to a link pointing to the Stanford copy of the first volume (see Comte 1830b). This time the third volume, identified not by the volume number but only by the publishing date, was ranked in the third position, after volumes 4 and 6. Repeated in 2013, the same experiment yielded different and equally unsatisfactory results: the same seemingly random confusion of volumes and editions made worse by the insertion of opportunistic mentions of reprints. This last expression characterizes the production and diffusion of on-demand digitized reproductions offered by some publishers who think they are smart enough to quickly seize the opportunity to exploit abundant and free-of-charge raw material and, until further notice, benefit via Google from free advertisement. This is but one small example of the current instability and "disorder" in accessing online books as compared nostalgically with the permanence of medieval books, chained to their classification shelves, to the catalogs (even digitized), and to the card files of "real" libraries.

2. Google points to volume 4 (see Comte 1839, link accessed last January 28, 2013).

3. See http://www.evene.fr/livres/livre/auguste-comte-cours-de-philosophie-positive-1893.php. Electronic edition of Auguste Comte, *Cours de philosophie positive* (1re et 2e leçon). Paris: Librairie Larousse, janvier 1936. 108 pages. Collection Classiques Larousse. 12e tirage. Cours de philosophie positive 1re et 2e leçon (1830–1842), downloadable at http://classiques.uqac.ca/classiques/Comte_auguste/cours_philo_positive/cours_philo_positive.html.

4. Special thanks to Catherine Volpilhac for having drawn our attention to this electronic version of the ARTFL Project: *Dictionnaire de Bayle* and for having communicated the analysis from which we freely borrowed here. See [Bayle] and ARTFL in bibliography.

5. The Éditions Redon CD-ROM and the online database, but with reserved access, of Institut National de la Langue Française (INALF) and ARTFL. See full reference to the ARTFL Encyclopédie Project in the bibliography with URL history.

6. The claim that texts are being denatured by their digital segmentation has a familiar ring in significantly calling to mind the passionate and reactionary hostility expressed in 1911 by the so-called Agathon against the German method of index cards practiced by a famous French literature historian, Gustave Lanson, and at odds, argued his opponent, with the continuity characteristic of the reasoning in French-style essays. (Agathon 1911, 38, qtd. in Espagne 1990, 153).

7. See, for example, Gérard Genette's well-known introductory considerations on "transtextuality" (including what he himself names "hypertext") in *Palimpsestes* (1982).

8. See, for example, the excellent work of Adalbert-Gautier Hamman (1985) that ends precisely with the invention of critical edition norms.

9. Even in France, Roger Chartier, a recognized book and reading historian, is about the only one. This was precisely the central focus of his inaugural conference held at

the Collège de France in 2007, "Écouter les morts avec les yeux" (Listening to the dead with our eyes; see Chartier 2008). This recognition approach, analogously inspired by the historical precedents, is more common outside of France. We have been confirmed in this approach by Christian Vandendorpe (1999) and Peter Shillingsburg (2006).

10. Let us try to specify its typology: other versions or variants, author's notes, those of the first editors, translator's notes, those of the scholarly editor. Among these latter are notes concerning the text, intellectual commentary notes, and historical commentary notes. Without neglecting the references within the notes, limited to their bibliographic description or containing an extract of the referred text (or a link to the complete text if it is available online). And in all cases there is the need to inform the reader of how long he will be distracted from his central object, the reading of the main text. The note accessed can have the dimension of a regular book annotation, or it can be a comment on the size of an article, or it can itself be a text of the same type, if not a complete corpus that invites the reader to make a substantial detour before returning to the main text.

11. See Vandendorpe 1999, 10.

12. The first tryouts and scholarly explorations in France on this subject came from L'Institut des Textes et Manuscrits Modernes (ITEM), pioneered by Jean-Louis Lebrave (see the historical account he provides in Lebrave 1997, 143, in part. n1). See also Lavagnino 1995 about the notion of "hypertext editions." These terms are now superseded by the terms "electronic editions" or "digital editions."

13. In this case, the first and last editions authorized, as published by Furne.

14. See Mozet, undated. In her introduction, Nicole Mozet, the scholarly editor of this "critical online publication," seems to limit her ambitions, using the expression "electronic edition."

15. Because of publishers' reluctance and ongoing unsolved technological problems, e-books do not seem to have yet reached a sufficient maturity to be promising products.

16. See D'Iorio 2000a, 2000b, 2002a, and 2002b.

17. Such projects exist with copyrights.

18. See Lochard and Taurisson 2001. Arcane's leading paper production is the *Correspondance de Pierre Bayle* (see Labrousse and McKenna 1999–2005). For a presentation of the database behind it, see McKenna and Leroux 2003.

19. The endeavor follows directly that of the *The Complete Writings and Pictures of Dante Gabriel Rossetti: A Hypermedia Archive* (McGann 1992). Stauffer 1998 describes how the Rossetti Archive was tagged.

20. The production conditions, the innovations, and the contents of the online William Blake Archive are analyzed by Aurélia Chossegros (2007).

21. See, for example, Berne 2005. This book accompanied by a DVD was published for the "Sartre" exhibition, presented by the Bibliothèque nationale de France (BnF), Paris, from March 9 to August 21, 2005. It was also, at the same time, published online as part of a *Sartre* virtual exposition accessible at the BnF (see full reference in the bibliography under the title *Sartre*). We do not know of any other instance of the use of the three media.

22. This is what is about to be finalized in support of the online publication of *L'Écho de la Fabrique* and *Les Journaux d'Alexandre Dumas* (see references in the bibliography),

the Lyon teams directed by Ludovic Frobert and by Sarah Mombert, respectively. See more treatment of these online editions in chapter 8.

23. More about the symptoms of this fear can be found in, among others, Le Men 2002.

24. This edition is referred to later in this book.

25. For a description of this project, visit the website of its initiators: http://flaubert.univ-rouen.fr/bovary/atelier/atelier.php (see [Flaubert] Girard et al. 2004–2008).

26. Maybe this version will be available online when this book comes out.

27. For a historical anthropology of philology, see Espagne 1998.

28. L'Institut des Textes et Manuscrits Modernes (ITEM), http://www.item.ens.fr. See Grésillon 1994, 205ff.

29. See Cerquiglini 1983 [English translation 1989a] and Nichols 1990b.

30. The novelty of this online edition is not absolute and follows the facsimile published by Albert Pauphilet in 1923.

31. Regarding this school of literary criticism inaugurated and named by Georges Poulet, and that cannot be reduced, of course, to the "formalist immanentism" that his friend Marcel Raymond himself criticized, see Jeanneret 1995 (part. 59).

32. Peter Shillingsburg (2006, 60), wiser from his experience as editor of Thackeray, comes to the same conclusion regarding Anglo-American criticism.

33. See Ricklefs 1999, 1ff.

34. See Lebrave 1997, 143n.38, and Grésillon 1994, 199n.53.

35. See Viprey 2005.

36. See full links to the online Wikisource and Gallica editions in the bibliography.

37. On this point, as for many others, we share Peter Shillingsburg's views, for whom it would be inconceivable that a digital edition would be limited to giving access to the different editions of a text and refrains from being a critical edition in the proper meaning (2006, 156).

38. The last and most meaningful theorization in the United States, since the '60s, is the concept of eclectic text developed by Fredson Bowers and those following him. For a basic view of the evolutions and tendencies of Anglo-American philology, see the article "Textual Criticism" updated on May 15, 2008, in Wikipedia, and the skeptical souvenirs of Peter Shillingsburg (2006, 152f).

39. See Zeller 1975.

40. See Gabler 1993 and 1995.

41. Antoine Compagnon expressed this idea as early as the '90s: "everywhere, the role of the computer is perhaps rendering obsolete the distinction between critical edition and genetic edition" (Introduction to the colloquium on genetic criticism organized by Almuth Grésillon at Columbia University, New York in 1994 [see Compagnon 1995, 400]). See also Grésillon 1995.

42. See Sgard and Volpilhac-Auger 1999.

# 3. The Digital Fate of the Critical Apparatus

DANIEL APOLLON AND CLAIRE BÉLISLE

The adoption of digital technologies has upset our relationship to texts and confronts us with the long history of critical edition underlying this relationship. The advent of the printing press had already put an end to the erratic fluctuation of texts that were subject to the hazards of physical or mechanical hand-copying. Many medieval manuscripts are assorted with maledictions issued by the author or the scribe against future counterfeiters, threatening them with leprosy or burning in hell. These curses illustrate well how the old scribal culture based its conception of the intrinsic uniqueness of the text on prescriptions and prohibitions inherited from religious, popular, and legal traditions. Text was to acquire its reproducible identity with manufacturing, although this is a later phenomenon. With the development of printing technology and the improvement of the organization techniques of distribution, new horizons were opened up.

Printing, making mechanical reproduction possible, offered the prospect of a more durable, even permanent transmission of works and, eventually, a greater stability of texts. The increased mechanical reproducibility of works contributed to reinforce, industrialize, and modify a much older conception of the uniqueness of texts. Within a few centuries, a new form of "textual positivism" emerged and brought together traditional philology, scientific positivism, and historicism, thus consolidating representations of the uniqueness of texts based on rights of ownership and privileges in order to exploit works. Gradually, privileges—sometimes revocable, sometimes irrevocable—were granted to printers, publishers, or authors and acquired a specific legal dimension. The ruling power guaranteed the uniqueness of the work, imposing various restrictions on how the text could be reproduced. The printer and, gradually, the author would obtain a letter of privilege, provided they enjoyed some higher

protection. Later on, accepting that the authenticity of the text builds upon a faithful reproduction of the author's intentions became a common belief. Despite the progressive installation of the author in his or her work (limpidly described by Cerquiglini 1989a, 25, quoting Michel Foucault; see also Cerquiglini 1989a, 57ff), this form of textual positivism, equating textual identity with the inertia and fixedness of the inscription as a token of the ownership of the author, hid a more complex empirical reality characterized by a greater fluctuation and instability of texts and their transmission. The distinction made by the critical editor between scribal and authorial variants (Cerquiglini 1989a, 119) became all the more important.

The fact that digital tools propel us into a state of greater editorial fluctuation should be no surprise. This age-old fluctuation, being an inherent characteristic of the transmission of ancient texts antedating print technology, imposes itself today as the norm of digital writing. Such a generalized textual variability in the digital era is neither accident nor fate. It reflects both how easily modifications and updates can be produced in a digital environment and how knowledge increasingly can be shared by various means of collaboration. It is within this new context that when migrating to digital medium, critical editions of texts and documents have been forced to redefine their ambitions about textual truth, scholarship, and sharing. This chapter outlines the contours of the scholarly project and the ambitions of such critical editions as they begin to take shape in contemporary digital media.

Although textual variation is an interesting phenomenon by itself, it also reflects a human dimension within culture.[1] This is why each scholar who establishes a critical edition operates with a set of presuppositions or assumptions that are bundled with the work they have interpreted. Hence, one can speak of the epistemic program of a scholarly community being implemented by the author of a critical edition. Such a program reveals itself through the scholar's intention to apply it knowingly to a documentary mass. While texts undoubtedly still function as social organizers, especially in legal and commercial matters, visions about the transparency of the text are no longer a matter of scholarly interest. By denying traditional philology any significance for critical and cultural studies, various postwar academic and cultural currents have given this shift needed legitimacy. Accordingly, the above-mentioned textual positivism, which is rather naive in many respects but also quite useful as a social bond in other respects (see Lucien Febvre's remarks as quoted in the opening pages of Cerquiglini 1983), is being ever more relegated to a few increasingly marginalized disciplines (classical studies, romance philology, biblical exegesis, and textual criticism). Scholarly edition today is characterized by a diversity of hardly matching textual visions that link the production of meaning in a work, sometimes to the author's intentions, sometimes to a functional relationship be-

tween the text and its sociocultural environment, and sometimes to the tension between the work and the expectation of the readers. Not only does variability affect texts and their transmission, but it also affects textual epistemologies.

From the perspective of traditional philology, synchronic and diachronic textual variation may occasionally be considered as an enriching factor. More frequently it is considered a shameful decadence, a degradation of the text subject to losses, scribal errors, mixtures of variants, and contamination. The result is the dramaturgy of the reconstruction of the work's uniqueness corrupted by time or by unlucky scribes. Time, the scribe's hand, counterfeiting, shameful compressions, and expansions of a much-sought-for original text act as antagonists the critical editor needs to oppose using a toolbox of methods, or, if necessary, calling upon his "taste." Driven by the perspective of loss and regeneration, critical editing aims to restore the initial state of the text. The genealogic approach dominates philology in the nineteenth century and the first half of the twentieth century and is applied to diverse antique, religious, and medieval works (see Roques 1995). However, all of these often gigantesque efforts require an almost inhuman minuteness, resulting frequently in failures, according to Birger Munk-Olsen:

> The edition of a text is double-sided. On one side, there is an exciting task which involves studying manuscripts, penetrating the language and thought of the author, establishing the text by means of ingenious conjectures or by selecting wisely between the variant readings offered by the different text witnesses. On the other side, when the text is long and the manuscripts numerous, there is a fastidious task made of pure routine be carried out, collating textual versions and untangling among a myriad of variants the genealogical links between manuscripts. Sometimes, the scholar has to devote an entire life to this task. Hence, the results are often disappointing: editions with a text and critical apparatus full of mistakes and imprecision's, uncompleted editions due to the death or exhaustion of the editor, announced editions never published because some philologists, initially enthusiastic, underestimated the extent and the difficulty of the undertaking. (1969, 94)

It is understandable that from a utilitarian and instrumental perspective, automatic processing of philological material may offer fresh opportunities to delegate demanding and human-resource-intensive tasks to computers (e.g., collating variant readings, aligning parallel text witnesses). It should be emphasized, however, that such expectations about computerizing textual criticism do not actually challenge the epistemological status of critical edition, which may be conceived of as a pure genealogical reconstruction (or, later, under the auspices of the French school of textual genetics, as retracing the authorial process through the avant-texte, see Biasi 1996; Deppman, Ferrer, et al. 2004). Likewise, the early efforts of Dom Jacques Froger are steered by the logics of genealogical reconstruction and show parallels with the introduction of computational

methods in reconstruction of biological evolution (e.g., using cladistics to infer phylogenies; see Felsenstein 2004). Strong expectations were encouraged by the prospects of ever-increasing computing power during this pioneering period of computer-assisted textual criticism shortly before the emergence of the personal desktop computer and, about a decade later, the Internet. These expectations, displaying affinities sometimes with Karl Lachmann, sometimes with Joseph Bédier, are still central in contemporary projects (e.g., the Canterbury Tales Project, directed by Peter Robinson since 1998).

Yet every philological project, in addition to having empirical interests, implicitly or explicitly includes a hermeneutical, even philosophical or cosmological dimension. This profoundly affects the status of the text that is considered as the object of critical edition. After the Second World War, the conjugated effect of several literary and academic currents, mutually opposing and ignoring one another but agreeing to reject genealogical philology, succeeded in relegating traditional philology to niche disciplines such as classical, biblical, and medieval studies. The French Nouvelle Critique; the Anglo-Saxon New Criticism; and the combined impact of the works of critics such as Michel Foucault, Jacques Derrida, Roland Barthes ("any text is eternally written here and now. [ . . . ] The birth of the reader must be paid by the death of the Author" [1984; our translation]), to name only a few emblematic figures of these currents, contributed to throw suspicion on every attempt to link the work and its texts to a unique prototype. Bernard Cerquiglini (2000) stresses the opposition between the new and the old philology: "Thus, despite the magnificence of its positive knowledge, and its occasional refinement, old philology appears to be linked with an outdated episteme, being anachronistic in its approach [to medieval concepts], and has probably little relevance as a method for editing" (note the diverse criticism of this position in Busby 1993a, 1993b, and Dembowski 1996).

One may observe nowadays that both the general public and departments of literary studies in universities have abandoned demands for original textual truth. Scholars and publishers have forsaken "authoritative text" in favor of variations, derivations, detours, and the wealth of unforeseeable connotations. As a consequence, the context of interpretation and the intentions and expectations of readers have received increased attention. This shift reflects the opposing paradigms of old and new philology (we reproduce quite freely below the comparative table from Cerquiglini 2000):

Textual authority (traditional, authorial etc.) vs. textual sharing
Printing technology (books) vs. Internet (hypertext)
Textual genesis seen as a hierarchical tree vs. textual genesis seen as a network or rhizome of various elements
The author vs. the disseminator or the reader

Uniqueness, authority vs. variation, expansion
Contempt for copies and praise of the original vs. positive reception
Verbal essence vs. materiality and usage
Decontextualization vs. contextualization and recontextualization
Reconstruction and conjecture vs. deconstruction, simulation and derivation
Autarchy, uniqueness vs. comparison, family resemblance
Writing seen as oral residue and trace vs. synergy between oral and written
Unique signification vs. overflow of sense
Entireness and closure vs. fragmentation, disintegration and reintegration of the text

Whichever theoretical approach is chosen by a scholarly publisher or critic—traditional, contextual, or oriented toward reception—any philological project possesses an instrumental and material dimension, being conditioned by practical constraints. In the same way as the textual production tools partly determine the shape of the work, the modes of organization and of technical reproduction, adopted or imposed, define the contours of a critical edition. Since any literacy can be considered as a particular intellectual technology (see Goody n.d., 1986; Goody and Watt 1963; Olson 1994; Olson and Cole 2006; and Ong 1986, 1997, 2002), then, any critical apparatus can be conceived of as the material and technological expression of a given philological project. As such it may reveal the positions taken by scholars and publishers relative to the various dimensions described above.

Finally, it is generally admitted these days that reading and understanding a text is partly a result of how the reader himself represents this text and how he thinks signification emerges. As a consequence, even a critical edition that builds upon the norms of old philology should take into account the intended or, at least, expected reader. As a matter of fact, critical edition on print could easily identify a scholar's potential readership as being his peers, limited numerically to a few researchers in the same domain with the addition of his students. This is no longer possible when dealing with online digital critical editions. In this case, not only does the potential readership escape any assignment to disciplinary boundaries, but, in addition, the diversity of possible presentations available to scholars induce them to target a readership composed of individuals possessing very diversified competencies and exhibiting various levels of proficiency.

This chapter, after addressing some conceptual landmarks, raises questions about three key aspects of critical editions:

1. Questions pertaining to the targeted public: for whom are critical editions produced nowadays?
2. Questions pertaining to the critical apparatus: how much of an editor's reflection and criticism does he or she share with the readers?

3. Questions pertaining to the digital medium: how does the digital medium influence the implementation of a critical edition?

## Conceptual Landmarks

A walk through the different sections of a university library usually suffices for discovering a diversity of scholarly editions. While paging through these works, the reader may experience an impressive editorial landscape of techniques and layouts, being able to distinguish at first glance if she is holding a "critical," "scholarly," or "learned" edition.

### *"Critical," "Scholarly," or "Learned" Editions*

Although these three terms are not completely synonymous, in order to simplify terminology in these pages, we intend to use the term "critical edition" to refer to a whole spectrum of editions of texts, documents, and collections that offer well-defined and structured information relating to a clearly identified content. Thus such a definition accepts both those editions that concentrate on producing commentaries and notes as well as computer-based resources that exploit databases and complex text markup. The term "critical edition" is preferred to the term "philology," which belongs more to linguistics and textual stemmatics. "Critical edition," then, refers to the specific study of texts with the intention to secure their transmission as faithfully, authentically, and completely as possible, including information about the processes that have made it possible to establish the selected and published text. By extension, "critical edition" can refer to efforts to establish (or restore) the possibility of interpreting a work as closely as possible to the intentions of the author (traditional version), to its immediate context (historicizing version), or to its uses during transmission through time and space. More recently "genetic critical editions" have taken their distance from the "final" text (e.g., the *editio princeps*) in order to document the diverse phases, items, traces, and residues left by the authorial process (this process is summarized by the term "avant-texte"; see Lebrave 1997, 2006).

Using different presentation methods, these various editorial products express a shared effort to provide readers with tools that may be used not only to help them to refine their judgment on the authenticity and the genesis of texts, document, and contents but also, quite simply, to help them to evolve a broader and deeper understanding of the roots and environment of the text, thereby opening reading to new horizons. More prosaically, a critical edition is traditionally thought to comply with an editorial standard that adds to the established text information on significant variants and provides a critical apparatus that may also include explanatory notes. To continue simplifying terminology, the term

"text" here refers to the primary object of critical editions. The reader of these pages should feel free to use as a substitute to this term others such as "documents," "items," "images," or any other convention that may be more relevant in a given context. The secondary object of critical editions covers all kinds of formal or discursive metadescriptions that point to the text.

The problem that critical editions need to solve are various, depending on whether the original documents are papyrus rolls, codices, paper books, or inscriptions on diverse materials, facsimiles, photographic pictures, or more recent digital texts. When a document can exist only as a single item or as a few copies with important or minimal variants, the challenge resides in producing the most authentic edition that communicates the initial meaning of the text or document. As one may guess, each of the following elements—the established text, the significant variants, and the initial meaning—reflects editorial and even epistemological choices, pointing to what is a text, what is the meaning of a text, and what is reading a text.

Accordingly, the term "critical edition" may refer as well to learned editions targeting a general public of informed readers (e.g., *La Pléiade* in France). It can also refer to a comprehensive scholarly edition intended to provide a community of scholars with a state-of-the-art text-critical platform (e.g., the Stuttgartiensa edition of the Hebrew Bible). The distinction is between *minimalist products,* which provide the reader with very few but supposedly crucial clues on the history, interpretation, or historical context of the published text, and *maximalist products*, in which the amount and complexity of information coded and stored about the text exceeds by far the text's own magnitude (see Brossaud and Reber 2006).

## Éditions, Éditeurs, *and* Publication

Each language, through its vocabulary, operates with a particular semantic mapping, which may sometimes generate areas of confusion for translators. Possible confusion may arise about which roles are being referred to when using the French terms *éditions*, *éditeur*, and *publication*. For example, the distinction introduced in English when using two different words—"editor," referring to the expert establishing the text to be published as authoritative, and "publisher," designating the person or commercial company responsible for producing and distributing the work of the editor—has no counterpart in the French term *éditeur*. In French *éditeur* is a term that needs to be completed in order to remove all ambiguity and make it possible to make a distinction between the specific editorial work that aims to establish the text and the production of material artifacts (see Catach 1988a, 22ff; see also 1988b). Similar precautions are needed to understand the distinction made in various languages between, for example,

in French, *éditeur* (e.g., scholarly editor) and *rédacteur* (technical editor); in Norwegian, *redaktør* (scientific or technical editor) and *utgiver* (publisher); and in German, *Herausgeber* (scientific editor), *Redaktor* (usually some copyist in the early history of the text), and *Verleger* (publisher).

A wise solution is to focus on the roles and functions underlying the various uses of the terms *éditeur* and *édition*. Moreover, the French term *publication* may be defined as being both "the action consisting in making public, letting everybody know" and "the result of this action" (ATILF, laboratoire CNRS Analyse et Traitement Informatique de la Langue Française). One finds in this double definition the overlapping of the two functions and the two roles identified by Christine Ducourtieux (2004) as a key characteristic of electronic edition: "The work of the scholarly editor and the follow-up of the commercial publisher with the aim of formatting the product are both at the core of the definition of edition: author, composer, printer, etc. the editorial chain is taking shape" (our translation).

Digital environments upset this editorial chain: the scholarly editor has the possibility to become also the online publisher, making his editorial work public. Therefore, in this chapter we apply the words "to edit," "editor," and "edition" to all the processes that are implemented, stretching from the establishment of the text to online publishing. Moreover, the term "editor" can be interpreted literally, as a flesh-and-blood person, or sociologically, as an organization or institution, such as a particular academic school of thought or community of practice that actually produces and possibly documents the set of decisions, which contribute to the establishment of the text.

We use the term "edition" here to describe all kinds of distributable materializations of a work on any medium acknowledged by the reader, whether it is a codex, a printed book, or a computer file. Editions can even point beyond these well-known mediums and refer to less easily recognizable collections of online artifacts—for example, a unique dynamic presentation of a special perspective on the text produced for me here and now.

Critical editors establish the texts they edit by adding different types of information. These editors use critical apparatus to display this mass of information with various purposes, according to different traditions, presuppositions, and targeted readership. One may identify four characteristics shared by such editors:

- Critical editors are operating within an articulated or reasonably consistent epistemological horizon.
- Critical editors exploit know-how or techniques based on restricted or shared knowledge that justifies the decisions applied to texts.
- Critical editors implement a set of procedures that produce and document these decisions.

- Finally, critical editors exploit a toolbox of conventions, symbols, and spatial arrangements that offer the possibility to mark, independently of the texts, the traces of editorial decisions, thus allowing their readers to assess and exploit for their own objectives the editorial process that has been applied to the texts.

Because the field of electronic edition is in its very beginning, and is witnessing frequent and important innovations, the characteristics listed above may prove to be useful indicators.

### *Readers and Readership*

The reader of a critical edition constitutes also a little researched evolutionary phenomenon. We will use the terms "reader" and "readership" to describe the public targeted by the editor, knowing well that for the time being the primary public of online critical editions is mostly composed of students and peers. However, an editor may have discovered that online publishing actually may open his or her work to a new and previously unknown readership with different requirements not only for presentation and complementary information but also for the type of content offered. Accordingly, it is not unthinkable that these new readers may have new demands for gaining access to the collation process, emendations, and even updates of the texts. Just as textual genetics has made an alternative and interesting exploration of the writing process, gaining access to editorial processes could allow readers to rediscover the social factors that condition the shape of texts, their historical evolution, and their epistemological function.

Analogous to the previous definition of the term "editor," it is possible to think of the reader as being either a real person with a targeted competence, a hypothetical reader who has not yet materialized, or part of a general readership—that is, any user of the text. Moreover, "reader" may have a more metaphorical reference, such as to search engines or any algorithm exploring texts. In this twilight zone, the editor, the reader, and the "processing agent" may merge into a unique role.

### *Textual Variation as an Ongoing Challenge*

Variation is the basis of the need for all types of critical editing. How the variations are considered and processed depends on the objectives aimed at by each critical editor. The very notion of critical edition is irrevocably bound to the need to map, codify, and assess the potentially unbounded variations of such elements that are deemed to constitute a text, collection, or hypothetical "family" of documents.

Fundamentally, from the perspectives of the editor, the publisher, and the analyst, a text may be viewed as a collection of items, which may vary considerably or modestly in time and place. The variational perspective applies to all kinds of text, documents, and heterogeneous collections. It applies equally to ancient texts, such as the *Odyssey*, the *Gilgamesh Epos*, biblical accounts, or Nordic Sagas, and recent texts, such as novels, electronic literature, blogs, or press material. To complicate matters, variation applies to the genesis of reasonably homogeneous products such as modern novels as it does to short-lived collections of heterogeneous items, as is increasingly the case in cyberspace these days.

The awareness that texts, documents, works, or collections, like any other human artifacts, do vary in time, space, and memories constitutes a fundamental insight from which one may derive a rich set of theoretical perspectives, editorial practices, and techniques. The use of varying concepts like "the *text* of Plato," "the *works* of Ibsen," or even the "Song *of Roland,*" or any related expression, can lead to various degrees of imprecision. Most readers and users may not perceive such imprecision to be a pressing matter, except when fundamental doubts arise as to the authenticity of, say, a document or a novel. Public debates on the authenticity of a document—for instance, the debate on the false diaries of Adolph Hitler or controversies on the Essenian origin of the Dead Sea Scrolls—may catch the attention of many readers, while other types of content may evade such scrutiny. Meanwhile, specialized and systematic interest in textual variation as a primary object of study (e.g., for establishing an authoritative text of Montesquieu) or as a means to highlight more general issues (e.g., to gain access to the authorial activity of Flaubert or Ibsen) remains predominantly the academic focus of a small group of experts and the concern of a minority of publishers and editors, nowadays as ever before.

It may be convenient at this point to stress that the awareness of textual variation does not remain confined to a particular school of textual critics or scholarly editors. Assumptions about variation seem to underlie nearly all flavors of textual criticism. Variation as a research theme and editorial challenge does indeed cover the whole spectrum of schools from classical text criticism as we know it from the nineteenth century to more recent attempts to break partially or totally loose from the straitjacket of philology. The decisive turn away from philology happened with the rebuttal of author-bound interpretation as witnessed, for example, since the interwar period by the Anglo-Saxon New Criticism and, after the war, the French Nouvelle Critique. Thus, the huge postwar effort to shift focus from the material text, to the authorial activity, to various intertextualities (Kristeva 1969) or dimensions of transtextuality (Genette 1982) does not do away with textual variation, but expands it, reappraises it, and recontextualizes it. The differences, say, between classical genealogical text

criticism (Lachmann, Paris, Maas, Bédier, and others), more recent brands of textual genetics (Ferrer, Lebrave, Pichler, Gabler,[2] and others) and textual ecology (e.g., collections situated in their contemporary historical or cultural environment) do not reside in the acceptance or rejection of variation itself but compete on variational aspects that are thought to be productive. Even the most sociological approaches, such as Gustave Lanson's notion of close reading (French: *explication de texte*) and, more recently, even socio-criticism (French: *la sociocritique*) (Angenot and Robin 1985; Markaryk 1993a, 1993b), are not throwing variation overboard but concentrate on reintegrating the "work" into a wider social discourse. It is therefore no surprise that most if not all postwar approaches to textual and literary criticism happen to nourish a fundamental disinterest for, say, reconstructing text from ancient manuscripts and actively endeavor to replace what they think is retrograde intellectual fixation with fresh analyses of literature as products of social or other interaction. As a consequence of the new intellectual climate in literary studies, the gap between "critical studies" and "critical edition" is wider than ever.

## *Textual States*

Any kind of textual analysis or critical editorial activity refers explicitly or implicitly to one or more states of the text. However, opposing views of textual states compete to express the theoretical tensions described above. The first approach, as defended by textual genetics, privileges the various states of the avant-texte and the emerging text as witnessed during the writing process, while the states of the text created after the first published editions are not taken into account (see Lebrave 1997; Lebrave and Grésillon 2009). The second approach, being rigorously genealogical, privileges the concern of the textual critic and scholarly editor who possess nothing but "after-texts" to identify and authenticate a hypothetical prototypical "text" by exploiting and filtering, where it is deemed feasible, the various witnesses attesting this text. The third approach regroups critical schools, occasionally defending incompatible positions, for which the state of the text refers to a functional relationship linking the diverse linguistic, graphical, discursive, and other components of a text with the socio-historical, economical, or psychological environment that conditions it. Hence, text is bound by its inseparable coupling with its environment. There exists no text without its environment, and no genuinely critical activity may occur without taking into account diverse dimensions of trans-textuality (Genette 1982). It is the environment that produces successive textual states. Thus the term "textual states" tends to cover the diverse shapes, modes of expression, and evolution of trans-textualities.

*Textual Criticism and "Critical Editions"*

The three approaches outlined very briefly in the last section allow us to apply the notion of textual criticism and critical edition not only to supposedly homogeneous texts (for example, Balzac's novels, Ibsen's *Peer Gynt*, the *Song of Roland*) but also to collections of texts, pictures, sounds, and diverse items that may express the heterogeneous nature of the documents that constitute the work. The online archives of the double work of Dante Gabriel Rossetti aggregate texts, drawings, and paintings, juxtaposing several layers of collations and interpretation, an operation that would have been difficult to carry out on paper. In the online Rossetti Archive, priority is given to the intertextual and trans-textual dimensions. It is precisely in this domain that digital tools make it possible to innovate more radically, not only allowing one to escape from the material constraints of print technology and from the boundaries of the book page but also opening new horizons for more eclectic projects that offer the possibility to "tag texts in several dimensions" (McGann 2004). Woolf Online, a pioneer of its kind, publishes a multilayer online edition that associates a genetic edition of Virginia Woolf's novel *Time Passes* with a comprehensive virtual contextual space. The major avant-texte of Woolf, the "Initial Holograph Draft," is presented using various aligned and synchronized synoptic layouts, allowing the reader to follow the evolution of Virginia Woolf's writing process step-by-step. This avant-texte, being linked structurally to the "text" of the first printed editions of the novel, is associated item by item with a vast contextual space that covers the sociohistorical dimension (newspaper pages, film news, radio programs, testimonies from friends and public figures, history of the strikes mentioned in the novel), geography, and biography (private journals, letters, and photographs).

These two instances of an online critical edition illustrate briefly how digital tools make it possible to bring textual criticism and critical editions out of their strong isolation. Paradoxically, digital tools already enable one to combine diverse visions, treatments of the states of the text, and methodologies that were difficult to bring together in the age of printed editions. It is perfectly possible today, as already demonstrated by Woolf Online, to associate a clearly philological edition, in all accepted meanings of the term, with other layers that map contextual, intertextual, and hermeneutical dimensions. Already in 1984, well before the appearance of the first online critical editions, Nina Catach exploited the findings of a survey to provide an inventory of the multivalent use of the terminology of critical editions (e.g., "variant," "text edition," "editor"), exploring their underlying presuppositions and disparate treatment in order to defend the hypothesis of the multiplicity of critical edition. Digital tools nowadays enable one to make explicit such multiplicity that remained

hidden in hard-to-document former practices. We may be back in a situation that resembles diverse forms of learned commentaries that were in vogue long before historical positivism, mentioned in the beginning of this chapter, appeared on the scene.

## For Whom Are Critical Editions Made Today?

The important amount of work required to produce a critical edition suggests that its public should be of equal importance. As a matter of fact, the readership of a critical edition depends on the editor's ambition for his or her work. Since the nineteenth century, critical editions have been produced primarily for the peers of the editor, such as philological experts or experts in a particular domain. This is probably the reason why critical editions of today that conform to traditional standards still rely on a system of competencies with a rather restricted vision of their public, considering any critical reader as a being a quasi clone of the editor. However, in addition to this rigorous conception of the editor's work, other less positivistic and more ecological types of critical editions appear that demonstrate a greater concern for describing the text in its phases of production, reproduction, or reception.

Critical editions are traditionally written and presented using an allusive and hermetic style. Reading such works with ease requires much practice of this form of writing and reading. Such a selective academic approach could be justified in the past when one considers that texts printed on paper used to enter a long life cycle and became reference materials, which publishers used to produce editions stripped of their notes. Such editions were relatively easy to access for a larger public of readers, for whom the proposed text appeared as a unique text that was handed down from the identified author. Only learned people and scholars reading these texts were likely to realize that certain parts of the texts were the result of conjectures, philological investigations, and, sometimes, tough discussions between experts.

The problem that today's online critical editors have to solve is to find the means to undertake a more complex research enterprise while producing modular presentations adapted to various publics. As a matter of fact, thanks to the fact that computer-based research tools for collection, analysis, and comparison are much more powerful and rapid than the handwork of research in book libraries, a researcher today can quickly acquire knowledge on the content of texts, their organization, and chronology, having constant access to a wealth of contextual geographical, historical, linguistic, and cultural information. Not only can the researcher produce richer and more exhaustive results, but she can also exploit a whole toolbox in order to communicate these results to various audiences. Being freed from the limits imposed by the area of the printed page,

the researcher can now give wings to her imagination, inventing new reading paths adapted to the types of readers who are targeted.

However, one must admit that researchers who produce critical editions today still primarily target their own peers. This implies that critical editors preferably take into account very specific practices and expectations. Hence, a survey carried out as part of the Public Knowledge Project and presented at the 2008 International Digital Humanities Conference by Caroline Leitch, Ray Siemens, and their colleagues (Leitch and Siemens 2008, 145–46) produced evidence of a diversity of sophisticated reading strategies among learned readers.[3] The results of this study showed that learned readers tended to valorize online tools, which complemented and augmented reading strategies that were already practiced by these readers (see the detailed report of the initial study by Siemens, Willinsky, et al. 2006, followed by Siemens, Leitch, et al. 2009, and more recently Siemens, Timney, et al. 2012a and 2012b). The predominance of peers in the targeted readership can be explained in part by academic challenges and by the institutional setting that conditions this kind of work. In order to establish a text, to produce an edition containing a varied and well-justified critical apparatus, one needs to invest much time and expertise.

Hence, it is normal that a scholar seeks to draw personal benefit by drawing on the impact of the publication on the same public that evaluates and allows him to advance professionally. In other words, for a whole generation of university scholars who had been gaining access to knowledge primarily by means of printed books, what most greatly signifies the scientific and academic value of a peer is being the author of such a visible monument of science as a paperbound critical edition. A number of critical editions are available online, but the editor who addresses mainly his peers keeps a presentation very close to print. Such is the case of, for example, critical text editions like the *Piers Plowman* Electronic Archive and SEENET (Society for Early English and Norse Electronic Texts),[4] whose editors already in 1995 wanted to react against the invasion of electronic editions of low quality and to "combine exploitation of the full capacities of computer technology with preservation of the highest standards of traditional scholarly editing. We want not only to publish reliable machine-readable texts but we want them accompanied with highly competent introductory materials, glossaries, annotations, and apparatus. We want our texts to bear all of the virtues of traditional print editions and at the same time to begin to create the new kinds of text enabled by computer technology" (Duggan 1994).

Another example is the Canterbury Tales Project, presented at length by Elisabeth Lalou (2004). According to her, the authors of the project want to produce "a truly scholarly edition which uses all the advantages offered by electronic edition" using the renowned text of Geoffrey Chaucer "preserved in not less than 82 manuscripts and four editions from the fifteenth century." This

CD-ROM edition is produced by seven different authors using different sources. Such critical editions comply with strict standards for academic excellence that are enumerated as part of the short presentation of the criteria for a scholarly edition on the site of the Centre for Textual Studies at De Montfort University. More detailed recommendations, emphasizing the practice of text markup, have been formulated by Dino Buzzetti and Jerome McGann (2006).

At first glance, even if one partly drops the requirements that were mentioned in the recommendations cited above, it may be difficult to imagine how this type of publication could possibly correspond to the practices and expectations of any public—that is, any person who is interested in documents that belong to a literary or cultural heritage. Yet it is this last hypothesis that underlies the establishment of electronic libraries and the vast human efforts deployed since the beginning of the 1990s. The aim is to gradually give any Internet user access to the whole literary and cultural production of the humanities, adding, when possible, information allowing non-scholars to reconstitute texts and to gain access to information needed in order to analyze the meaning of a text or document.

Some online editions do not define themselves as being "critical editions" or "scholarly editions" and are presented as targeting the largest possible public. That is the case of the Tout Molière site, where it is written: "This site, conceived in a spirit of scientific rigor, targets a large public: students in universities or high schools who are looking for information relative to Molière; curious readers, theatre enthusiasts who are interested in our playwright, and scholars who will find here a number of useful tools for their work" (Tout Molière; our translation).

Generally, one can think that the presentation of a critical edition overestimates the time that the reader needs to understand and follow a line of thought. The critical editor, mastering a lot of information, usually wishes to enlighten the reader by helping him to get into the complexities of the interpretation of the text. Therefore it will be difficult for the editor to accept that the reader derives a meaning using the sole words that are present in front of his eyes. As a consequence, the specialist will find it necessary to provide the reader with contextual, historical, and academic pieces of information that will help him to go into the "deep," real, and exhaustive meaning of the text. This attitude mirrors the suspicion against letting "profane" interpreters, "non-scholars," use texts that a scholar has spent weeks, even years, to decrypt and establish. Still, it is difficult to decide whether such assistance is indispensable when many items of information are linked with a text, or if it is simply a strategy designed to distinguish oneself, thus allowing the specialist's erudition and the excellence of his work acknowledged among his peers.

The generalized distribution of an increasing amount of information, an activity that in earlier days was believed to require special training, is taking place today, more democratically, as "web publishing." This situation forces

one to think of critical editions not only as monuments that are accessible to a few insiders but also as cultural challenges to be shared. Several authors have begun to take on this challenge, as evident in the nonexhaustive list that follows: Woolf Online; the Rossetti Archive; the integral printed and electronic edition of Henrik Ibsen's Writings; African-American Women Writers of the 19th Century; Decameron Web; Le Cartulaire Blanc of the Abbey of Saint-Denis; eMunch, an electronic archive of Edvard Munch's written material; Biblioteca Virtual Miguel Cervantes; the Perseus Project; the Sternberg Project; and the World of Dante.

## The Critical Apparatus

The critical apparatus can be identified as the typical visible characteristic of a critical edition. It is therefore important to try to define what is meant by this term, not necessarily with the intention of establishing some canonical standards, but rather in order to map its multiple meanings and uses, while searching to identify some core aspect of the critical work around which the critical apparatus of the scholar is defined and built. The critical apparatus, having the double function of demonstrating the erudition and seriousness of the scholar and of helping the reader to understand and appreciate the text or the document that is presented, offers a codified system of layered competencies that link the competence of the editor to the competence of the reader. As such, the critical apparatus may be an unavoidable device if one wishes to place oneself within the framework of critical editions and a philological perspective.

So where does the authority of a text and the trust placed in it come from? Accessing all kinds of texts on the Internet has brought (again?) into the open the age-old problem of the trustworthiness of texts, of the criteria needed to assess the value, authenticity, and validity of any text presented on a medium. Already, Wikipedia, an ongoing collaborative encyclopedia, has clearly highlighted the problem of the relationship between disseminated knowledge and source knowledge. While, on one hand, critical editions pursuing a genealogical ambition require a knowledge process that involves backtracking information in order to restore truth, on the other hand, collaborative writing of information on the Internet envisions textual truth as a goal that needs to be reached by means of a number of contributions and shared emendations. For example, the freely readable "View history" tab version of Wikipedia articles can be thought of as a rather unique historical case of collaborative critical apparatus in that it allows the readers of Wikipedia to follow the traces left by a text in perpetual evolution. In addition, the same readers can contribute to the elaboration of the text. Is the trustworthiness of texts a product of the positivity of their content, of the controlled establishment of the text, of their interpretation as a produc-

tion of meaning, or as an emergence from the successive approximations of collaborative work? As a consequence, the role played by the critical apparatus in the production of textual meaning points to an epistemological position.

Before presenting the critical apparatus in depth, it may be important to identify the main visions of critical edition and philology that one may invoke.

## *The Critical Apparatus and the History of Scholarly Editing*

A critical apparatus is always the result of the concrete activity of text experts or specialists who also inherit the institutional, epistemological, and technological constraints and possibilities of their time. Consequently, a critical apparatus always somehow reflects the environment and the different influences and forces, material or immaterial, that interact and play on those who exercise the craft. The evolution of critical apparatus can be observed in a series of phases in the history of critical edition, which we conveniently might summarize into five successive periods.

The early phase, starting in late antiquity, coincided with the wide distribution of Christian and Jewish writings and involved the gathering, collation, and comparison of various manuscripts in order to authorize one particular version of an oral tradition through a few manuscripts that witnessed it. The scribes did not use critical apparatuses as such during this first phase, but relied on some basic sociocultural and political approaches to tradition, which made it interesting and important to scrutinize written accounts in order to assess their authenticity. This phase corresponds roughly to the situation characterized by Walter Ong as the state of residual and secondary orality, where both conservation and elimination of oral features, such as repetition and parallelism, occur. The phase ended roughly when graphical annotation techniques became standardized in manuscripts, particularly codices, exhibiting an increasing wealth of annotations—for example, colophons, early systems of links between parts of the text or words, remarks, and so forth—which may be considered as early versions of a critical apparatus. This phase also saw what may be called the emergence of systematic meta-annotation or information with exclusive reference to a given text or body of documents. One may study pre-medieval Christian and rabbinical texts as late examples of this first phase.

During the second technical phase, local or area-wide standards and collections of symbols emerged that increased the notational efficiency of the copyists. This early standardization can be seen in the textual tradition of the Church fathers and in the manuscripts of the elaborate commentaries of rabbinic literature, where such annotation and link systems (one could be tempted to use the term "hyperlink") were increasingly refined into consistent techniques and

where professional practices were taught and disseminated through schools or scriptoria. This second phase was almost exclusively associated with the work of theologians. It remained very much centered on efforts to produce authoritative revisions or recensions of texts, such as the Byzantine recension of the New Testament. There might be forerunners like the work of the translators who produced the *Septuagint* between the third and second century BC in Egypt. Such works of translation from Hebrew into Greek must necessarily have involved extensive critical comparison of Hebrew manuscripts. Earlier, the highly hypothetical Torah Redactor (R) of the Hebrew Pentateuch may be considered an early collator and critical editor of mixed written and oral sources.

Starting during the Carolingian period in Europe, a third phase, involving a renewed interest in antique literature, encouraged the transfer of the editorial practices developed for religious texts during the second phase to secular texts. This period reached its apex during the Renaissance with massive copying and distribution of the writings of Greco-Roman authors. Frequently, commentaries and annotations were added to pre-Christian Greco-Latin texts. The end of this third phase, coinciding with the late Enlightenment period and the early industrial revolution, saw the ideals of natural science increasingly pervading the ambitions of textual criticism.

The fourth phase emerges with the convergence of science and philology, as evidenced by the paramount importance of genealogical reconstruction of text prototypes from variants that spread in all European universities during the nineteenth century. The parallelism of conjectures about ancient species and the archaeological reconstruction of ancient cities is striking. This was the golden age of textual positivism and historicism (with the development of historical-critical analysis). The detailed critical apparatus function became vital for the whole reconstructionist undertaking, as a visually retrievable database legitimizing the reconstruction of textual prototypes.

The fifth and still ongoing phase is more atomized and witnesses a departure from the univocal, narrow ambitions outlined above. New literary and "critical" schools, such as textual genetics (see above), that are more interested in what happens before the publication of a text, around the text, and in the minds and environment of the authors (the auctorial process) reveal new ambitions that operate on a partial or total break with the past. The efforts deployed by new currents or schools of thought such as the new philology are typical of this eccentric dynamics. Diverse variants, which may be labeled ecological, emphasizing the relations of the text to a contemporary social cultural environment, contribute to open the notion of textual criticism or liberate the notion of textual criticism from its ties to reconstruction positivism.

Each of these five phases corresponds to typical producers and users of such textual products. Likewise, each of these periods has seen some processes of in-

stitutional embedding or disembedding of the practices described. It is therefore natural to expect fundamental changes in the way experts throughout history formalize their critical activity.

### *At the Roots of the Critical Apparatus: Philology*

The history of textual studies is marked by important shifts, inaugured by the development from the sixteenth century of the critical mind—of lucid, objective, and reasoned analysis of texts in opposition to dogmatisms and authority principles—and culminating during the nineteenth century in an alliance between textual scholarship and positivistic scientific methods. Moreover, philology, considered as "the scientific study of language through the critical analysis of texts" (following the French definition of the online version of *Dictionnaire Le Robert*), not only has numerous roots and traditions but also depends on the epistemological stance and presuppositions of scholars as to the nature of texts and the place (or absence of place) that interpretation and reception can occupy in the elaboration of meaning.

A critical apparatus that accompanies a text aims to highlight and complement the text by providing additional information to the reader. The aim of the editor who provides such information is to allow the reader to evaluate and possibly to verify the authenticity and the scientific quality of the text that he reads or studies. The editor always addresses her peers through the critical apparatus. The form and content taken by this apparatus is the result of the scholarly editor's philological approach or general vision of critical edition.

According to the TLF (Le Trésor de la Langue Française), a critical edition is an "edition that restores the contents of a text (and possibly its successive states) and is equipped with an explanatory commentary"; the "critical" dimension amounts to carrying out a reasonable examination of the sources. The term "learned edition" is used for an edition with notes and grammatical, historical, and literary comments. It is important that the notes do not draw away the attention of the reader but instead offer guidance during his or her journey through the text.

Critical examination of the text conceived as outlined above is the essential task of philology. The method used is an objective and reasoned examination using more or less systematic criteria in order to discriminate between different texts, different versions or variants of a same text, and to exercise a judgment that leads to the establishment of a text. The philological work allows one to restore a text and possibly its variants, depending on their importance and the targeted readership by the editor.

There are three main conceptions of the scholarship work underlying the publication of a critical edition:

1. "Purist" philology inspired by the exegesis of religious texts and applied later to secular texts. In this case the work of the philologist amounts to proposing a reconstruction of an original that may be deemed reliable and authentic (from the hand of the author), or to establish a reference text, building upon a large number of textual witnesses when they exist. Establishing the authenticity of an original textual state builds upon the hypothesis of a first text (or of a formative state mixing oral and written tradition) that supposedly has been perverted by various copies, glosses, and printings, and that needs to be reconstructed by comparing the variants. This philology produces diplomatic editions as faithfully as possible to the original and brings modifications to punctuation and orthography in only limited cases, preferring to let the reader experience problems with understanding the text rather than distorting the intention of the author. Another scientific approach to purist philology ("scientific" meaning rigorous and demanding) is stemmatic analysis, which flourished during the nineteenth century thanks to the work of Karl Lachmann, Joseph Bédier, and later Paul Maas and Jacques Froger, among others. The study of variants collected while comparing different witnesses encouraged these and other scholars to look for the "good text," meaning a unique original text, by exploiting close and remote family ties to ultimately propose a stemma, a genealogical tree of a text, using, if necessary, mathematical tools. However, often one has to admit that an ancient text has reached us only through multiple text families, none of which can pretend to represent the prototype of the other.
2. The second approach to philology is commentary, exposition, inventory, and learned periphrastic expansion with possible encyclopedic aspects. This type of philology, drawing heavily on various rhetoric traditions, is already present in Patristic and Talmudic literature and is further evolving and still attested today in legal texts. The hermeneutical function aims to provide an exploration and an interpretation of the textual space, which, depending on a larger context, cannot be obtained by limiting oneself solely to the linguistic dimension of the text. Thus, exposition of the textual truth will evolve toward a critical commentary dealing with the relation between the text and its environment, exploring its boundaries. This kind of philology culminates in Lanson's methods (French: *explication de texte*, an expression related to later developments of the notion of close reading), biblical redaction criticism, and other forms of critical exegesis. Various conflicts regarding limits to the interpretation of the text impinge on the choices made by editors who choose this second approach.
3. It is possible to identify, using the term "transgressive philology," the new approach to textual criticism that has developed in the wake of the French Nouvelle Critique; of the New Criticism; and, paradoxically, in the wake of the French school of textual genetics, although some still consider it a step backward. Announcing the demise of the text as an ultimate foundation

> of truth and questioning the status of the author, a new critical dimension evolved during the 1960s under the joint influence not only of scholars and writers such as Roland Barthes, Michel Foucault, Jacques Derrida, and Julia Kristeva but also of surrealism, psychoanalysis, Marxism, and semiotics. The text is viewed more as an instance of the world, a snapshot or confluence that becomes interesting by situating it within the flux that surrounds it. A text functions simultaneously on several literary, cultural, social, and other levels that critical editions need to take into account. Such is the case of poststructuralist perspectives that stress the multiplicity of methods, deconstruction, decentering of the literary work, and the many modes of function of a work. Hence, any digital edition may be viewed as a medium that amplifies already existing practices and allows one to include various perspectives on text analysis. The result is that historical positivism can be transgressed in various ways. The first transgression is obviously linked with the impact of the Nouvelle Critique on philology. The second type of transgression, which is more difficult to identify, draws on "material philology" inspired by Cerquiglini (1983), who dreams of restoring the materiality of the text in all of its splendor (indirectly, this theoretical stance opens interesting future perspectives to understand "dematerialized" online texts).

Matthew Driscoll (2010) undertakes to explain how this "material philology" constitutes a new deal for critical edition:

> The principal innovation in the area of editorial theory in recent years has been the so-called "new" or "material" philology, the call to arms for which was the publication in 1990 of a special issue of *Speculum,* edited by the romance philologist Stephen Nichols of Johns Hopkins University in Baltimore. The immediate inspiration for this new philology came from Bernard Cerquiglini's polemical essay *Éloge de la variante* from 1989 [originally published in 1983], which marked a clear turning point in the history of medieval textual studies by arguing that instability ("variance") is a fundamental feature of chirographically transmitted literature: variation is what the medieval text is "about." [ . . . ] Literary works do not exist independently of their material embodiments, and the physical form of the text is an integral part of its meaning; one needs therefore to look at "the whole book," and the relationships between the text and such features as form and layout, illumination, rubrics and other paratextual features, and, not least, the surrounding texts. These physical objects come into being through a series of processes in which a (potentially large) number of people are involved; and they come into being at particular times, in particular places and for particular purposes, all of which are socially, commercially and intellectually determined; these factors influence the form the text takes and are thus also part of its meaning. These physical objects continue to exist through time, and are disseminated and consumed in ways which are also socially, commercially and intellectually determined, and of which they bear traces. (90–91)

Thus, "philology," a "word loaded with a disturbing reputation of fallacious transparency," points at diversified theoretical positions, which need to be made explicit by the critical apparatus.

### *The Production of a Critical Apparatus*

The critical apparatus, being defined by tradition exclusively within the framework of specialized scholarly practice (e.g., within domains such as classical antiquity, Latin texts, biblical exegesis, medieval texts, eighteenth-century literature, etc.), functions as a tool that legitimizes the authority of the editor and provides the learned reader with a concrete opportunity to acknowledge the quality of the work of the editor. The critical apparatus prevails from the sixteenth century in scholarly editions with the rigorous work of Jean Bolland (*Acta Sanctorum*), Daniel van Papenbroeck (or Daniel Papebroch, the precursor of historical criticism), and, especially, Jean Mabillon, who in his treatise *De re diplomatica* described a strict method for distinguishing the textual source of bad quality from authentic sources. These genuine scholars force the publishers of ancient documents to take into account the production history of the different manuscripts and the criticism of variants in order to allow one to distinguish what is genuine from what is legendary, incorrect, wrong, or false. The term "critical apparatus" is applied to all learned annotations that an editor adds to an original text. Critical edition, originating in ecclesiastical environments, develops further among secular scholars, plays a major role within philological science, and imposes itself in academic traditions and in editorial practices in ancient classical literature.

In Hubert de Phalèse's online *Dictionnaire de l'édition* (Phalèse, undated) one finds the two French terms *apparat critique* and *appareil critique* (the two terms are synonymous, but the last one is generally considered as being out of fashion). Understood strictly, a critical apparatus is a technique that involves a system of annotation and a method for tracking variants and editorial decisions. The critical apparatus provides the information that is needed to establish the text. Also, if we follow another definition (found in the TLF), a critical apparatus is a "collation of textual variants and conjectures placed in general at the bottom of a page in a critical edition." The critical apparatus provides the reader with information that allows him or her to control the trustworthiness of the text. These definitions assume a meticulous and manual approach. Taken in a wider meaning, however, the term "critical apparatus" may be part of an approach that is less preoccupied with detailed textual variants than with redactional aspects in a historical and cultural perspective or with the close contextual environment.

Thus, it appears that the inclusion of notes and editorial comments in the critical apparatus is not subject to consensus and that it is bound to vary rela-

tive to the philological stance of the editor. The choice to include these items (or not) betrays the epistemological project of the editor. According to some, these items are not part of the critical apparatus but belong to a more general discourse about the world. A shift occurs, then, to a form of textual criticism that amounts to a conscious production of discourse that from the point of view of these critics moves away from the primary knowledge object of critical edition: the original state of the text. In offering new possibilities for presentation, digital tools have the potential to change analytical practices by allowing, organizing, and presenting different procedures pertaining to production, interaction, and transactions between the various actors involved.

The three main components that constitute a critical apparatus (we limit the description, as an example, to the case of traditional critical edition) are the following: The first component is the *selection of sources*, including the textual witnesses and the explanation for and justification of editorial decisions. Usually any critical edition needs to provide a register of all the source symbols and scribal abbreviations that will be displayed in the critical apparatus (such symbols are usually termed in the plural form "sigla"). Depending on the magnitude of the edited textual tradition, the editor can either establish his own nomenclature (e.g., in the case of an isolated work) or borrow from well-established conventions (e.g., in biblical textual criticism). Depending on whether the manuscript text witnesses are few or many, the editor will have to decide to carry out either an exhaustive or a selective collation of representative variants. In the last case, he will have to justify the selection criteria that have been applied (for example, in the critical editions of the New Testament, few if any of the readings of minuscule manuscripts are quoted, much less selected, while most if not all variants in the papyri are quoted). In a digital environment the choices are more open: the critical editor can avoid making such decisions, first, by carrying out an exhaustive collection of textual data (digitizing texts using text encoding) and then, in a second phase, by developing a set of rules, which the editor or user may use in order to select more relevant sub-views. By adding mechanisms that exploit various search, parsing, and classification algorithms, it will be possible to make automatic and reversible selections, a situation unthought of just a few decades ago.

The *collation of variants* exploiting the selection of sources can be either exhaustive, at the risk of registering graphical and orthographical variants without relevance for the ongoing project, or more or less selective, giving priority to "readings" that are deemed important. These variants, now registered and linked to their source, allow diverse decisions and conjectures that may ultimately allow a reconstruction of the text that, hopefully for the editor, is close to the hypothetical original. Additionally, the textual critic can exploit these variants in order to reconstruct the transmission history of the text to modern times.

Within a digital environment, exploiting the data resulting from the collated variants can be partially automated.

The *notes and comments* considered as a supplement of information allows documenting the genesis, context, and historical kinship of a text. The critical apparatus can be very scant, either because the textual tradition that is studied attests to few significant variants (as is the case in several works of Ibsen), or because the editor or publisher wishes to spare his or her readers the cognitive overload that a sigla-rich textual apparatus may cause. Diverse layout strategies allow the editor to facilitate the access to critical notes: the most common method involves splitting the critical apparatus into several layers in order to distinguish, for instance, purely orthographic variants from so-called significant variants. Likewise, commentaries that cover factual or material information can be allocated a specific form and a distinct layer within the critical edition. It is obvious in a digital environment that a strategy that aims to reproduce the book world as faithfully as possible may grossly fail to tap the available hypertextual dynamics. Hence it is perfectly imaginable that an online critical edition does not offer its users any system of layered notes under the text, but offers diverse perspectives and "views" (e.g., synoptic layout of various sources, parallel reading displaying synchronized facsimile, diplomatic and normalized views, or local interaction using pop-up windows).

The *identity of the project* is revealed through the choices of the types of commentaries or remarks that are included in a given critical edition. The topic area of these commentaries and annotations depends on the epistemic horizon of the critical edition. These commentaries thus can address different parts of the work:

- The avant-texte, in order to understand the early state of the text, its genesis, its formative dynamics, and perhaps to better grasp the intention of the author or the nature of the forces that have influenced the early stages of the text
- The *infratext*, in order to understand and reconstruct, using material witnesses, the first stage of the meaning of the text conceived as the succession of words that may have formed the early state of the text. The goal here is not to get behind this prototype but to establish it. Lachmann's approach and Bédier's "best text," together with the "new philologists'" renewed interest for variants, operate essentially at this level of analysis. This does not, however, hinder profound disagreements between these approaches. Therefore, in spite of their visual resemblance, critical apparatuses as they have been used by Lachmann and Bédier may serve diverging ambitions (aiming in Lachmann at reconstructing a lost prototype by means of conjecture; aiming in Bédier at choosing the best text).
- The *intratext*, in order to identify or analyze the internal structure of the text treated as a (closed) world, such as in a classical structuralist approach (e.g.,

structural semantics) or, less strictly, in the perspective of "material philology" (Driscoll 2010).

- The *intertext*, in order to document the ties between the text and other external texts. The goal here is to explicate all references made by one or several witnesses of a text to known or unknown external texts or artifacts (known if one has access to at least one physical instance). If the work is a collection of texts—a corpus—the goal of the annotations will be to highlight the already existing cross-references between various items of this collection. The value of this undertaking depends, of course, on the relevance of such a collection. Yet another perspective, more influenced by the Nouvelle Critique, can include a systematic coverage of allusions, the term "allusion" taken here in a very broad sense, to non-explicit textual phenomena (expressing the intertextual dimension inherent to all texts). Nothing hinders one from extending these intertextualities to pictorial references or any other non-manuscript witnesses that belong to a wider, unexplored context.
- The *metatext*, in order to highlight the text as a point of access to the world, as a source, as a witness to the world (of particular relevance is Marc Angenot's notion of "grand stories" [*grands récits*]; see Angenot 1985, Angenot and Robin 1985).
- The *aftertext*, in order to highlight the transmission and possibly the reception of the work. By relating explicitly information available within the text with information within the world, the critical editor takes part in an operation aiming to reveal the world to the readers.

Any critical editor will have to distinguish, within the intellectual constraints of his academic and sociocultural environment, between hardly objectionable comments, such as remarks that soberly paraphrase the author's usage or explicit thought, and comments that point toward salient features of the text, such as synthetic remarks on the state of the text or linguistic and semantic information linked to other parts of the text exploited to prove some pattern. The boundary between "objective" and "subjective" annotations is always fluid and depends strongly on the theoretical stance taken by a critical observer.

## *New Horizons for Critical Editions?*

The new digital opportunities to establish and structure critical editions and to flexibly present critical apparatuses open new horizons. Hence, digital critical editions have been credited with the possibility of stimulating a more fruitful approach to textual work, representing a new species of "editio sapiens" (Cazalé and Mordenti 1997; see also Meschini 2007), "hypertext savant" (scholarly hypertext, D'Iorio 2000b), or "Electronic Knowledge Sites" (Shillingsburg 2006).[5] Another scholar who since the 1980s has integrated computer tools in his editorial work is Peter Robinson, who in 2004 dared to point at a more

important challenge for future editions—namely, the need to produce what may be called fluid, cooperative, and distributed editions that are elaborated not under the auspices of a single person ("the editor"), but under the auspices of a community of scholars and of readers working together. Because they are the result of the work of many, such online critical editions will be the property of everybody.

On one hand, editorial work is changing. Electronic critical edition encourages one to take into account and present more material, to offer more tools and versions, thus facilitating the work of reading peers who want to follow hypotheses that may diverge from the stance taken by the editor/publisher of the site. Moreover, by taking into account new objects of study, such as blogs, wikis, or visual animations in electronic literature, the scholar may be forced to go beyond the immediate context of plain texts and books as part of his or her editorial undertaking. As Shillingsburg writes, beyond all the focus on the permanent evolution of software and hardware, "we need more people thinking deeply about ways in which texts translated into new mediums lose old functions as they acquire new functions and how interactions with texts in the electronic world differ from interactions with print editions" (2006, 145).

On the other hand, critical edition tends to impose itself as a cultural norm. A new intercultural epistemic vision allowing a wider distribution of critical information emerges from online work. Hence, it is not unthinkable that the notion of edition, conceived as the production of a stable, established, and legitimate version of a text, indeed can explode under the pressure exerted by the digital environment. A negative consequence is that textual stability may disappear. A positive consequence is that online editions may allow a greater diversity of commentaries. Another possible consequence in continuity with the traditional philological vision is that, contrary to the disruptive trend mentioned above, the development of online critical editions can lead to the following:

- More editorial reverence toward the text than has been seen in the past, because computers allow more exact and more exhaustive collations and the editor can be caught by the game
- More trustworthy representation of sources, because the software tools increase accuracy at various levels and encourage automatic verification
- Exhaustive collection of information, because the intrinsic logic of data collection encourages the editor to collect everything within reach
- The systematic inclusion of apparently less crucial textual witnesses, for the same reason as above
- A transfer of the ultimate power from the editor to the user with regard to the choices of presentation
- An increasing mixture of critical apparatuses freeing themselves from the constraints of the layout of the printed page

- An increasing mixture of critical apparatuses existing side by side but mirroring hardly comparable epistemic projects
- An increasing hybridization of the critical approaches such as are currently seen in a still primitive form in the "critical apparatus" of Wikipedia. The three Wikipedia tabs "discussion," "edit this page," and "history," with the addition of possible footnotes and cross-reference in the article, offer one of the first historical cases of participative hybridization of production and consumption in a critical edition process. In Wikipedia the "true text" is always somewhere ahead of the critical process.

To what extent can the new forms and dynamics outlined above influence editorial practice and force a new technological vision on critical edition? Three possible scholarly approaches may be envisaged:

- A fundamentally utilitarian and pragmatic approach that strives to avoid as long as possible the full transition to collaborative digital environments, or, as a solution of last resort, seeks to reproduce as faithfully as possible the book mode within a digital environment. Such an approach can blend, paradoxically, technophobia (hiding behind book fetishism) with technophilia (strong belief in the power of algorithms). It seems to operate, consciously or unconsciously, according to a mechanistic conception of information technology (following the argument that "ultimately information technology is a dead but quite useful tool").
- A more visionary, utopian approach that welcomes the replacement of the Gutenberg civilization and the book by a global digital-sharing culture and acknowledges the benefit brought by these new technologies as being the decisive solution to the chronic problems of critical edition.
- An approach that is firmly rooted in a vision of technological determinism, where digital environments are to various degrees autonomous agents that enforce a new politics that requires systematic quality control, operationalization of former informal practices, and the replacement of an institutional value-driven academic bureaucracy owning canonical knowledge into a goal-driven productivist technological bureaucracy.

These three approaches can be illustrated to various degrees by three examples, respectively:

- The first approach is illustrated by the electronic edition of the Canterbury Tales Project directed by Peter Robinson. The computer-based techniques used in this project (started in 1989–1990) knew little of collaborative distributed digital environments, but serve primarily as powerful amplifiers of traditional textual criticism and offer efficiency, exhaustiveness, constant quality improvement, the possibility of accessing all textual data, and other benefits. This pioneering project has tested and produced new analytical tools and implemented diverse innovative work methods that are now

adopted by other projects. In its present form, this product still ignores the social and cultural dynamics of Internet-based collaborative criticism. It remains essentially a pre-Internet project stressing production more than communication and reception.

- The second approach produces online critical editions that are usually distinctly multilayered and show a strong will to federate somewhat heterogeneous projects by allowing them to converge toward a common content. Nontextual contents are added in order to highlight contextual issues. The already mentioned projects Woolf Online and the Rossetti Archive reflect this second approach.
- With the third and last approach, one can spot innovative efforts to transgress the presuppositions, ambitions, objects, and canonical methods and prescribed contents of traditional critical edition. Several disparate texts may be linked together in a hypertext structure, occasionally with timelines added to facilitate a global understanding of the material. The project PhiloSource not only houses texts from diverse European philosophers but also adds a large number of secondary audiovisual sources, thereby creating an encyclopedic dimension.

## Digital Environments and Critical Editions

The implementation of the editor's critical activity in a digital environment has consequences at different levels. The creation of a critical apparatus always depends on the transformation of observations (human or automatic) into processable constitutive elements (data) that exist in various states depending on the technologies used:

- A *system of linkage* (usually variants of entity-relationship models) that allows one to establish a link (hyperlink) between an item of meta-information referring to a portion of a text or contents and a location or region within this text or content. The human and machine costs of the activity depend on the type and variation of information that refers to various text locations.
- A *lexicon*, in the wide sense of the term, that is a list of symbols that refer to a classification deemed important, such as the use of conventional sigla for designating manuscripts and the use of fixed Latin expressions to express a technical function—for instance, the term *conjectio* for a conjecture, or *emendatio* for emendation, or *lectio difficilior* for "most difficult reading to prefer." More generally, a particular mental classification can be transformed into a lexicon with entries that may be linked to the text.
- A *partitioning* between various lexica that point at different systems of classification. For example, some symbols and links may serve as material descriptions of manuscripts attesting to particular variants, while other lexica and classifications refer to redactional, historical, or linguistic aspects. Online environments allow any degree of separation or, conversely, merging between

lexica. Computer ontologies and topic maps allow one to integrate all classifications that underlie any editorial activity.

- A *material technology* that allows one to operationalize classification and dynamic linking procedures on real contents (accessible as "data") and to produce an accessible memory (online publication) with an optimal life expectancy. The printed page and the hypertext structure constitute such material technologies.

Strictly speaking, both print/handwriting technology and digital environment share all but the last item in the list above. The main difference between the two is that the latter technology skips the materialization step and replaces it with an informational architecture that can be manipulated and reconfigured at will.[6]

## *The New Frontiers of Digital Critical Edition*

Because of practical constraints, philologists and critical editors in the pre-digital age concentrated their work on a restricted number of texts and witnesses. These specialists had to operate with rather closed worlds and were tempted to dig into minute details at the expense of wide coverage of large and unmanageable text collections. Nowadays one may just refer to the astronomical quantities of texts involved within the Wikipedia environment, the steadily increasing size and ambitions of electronic corpuses, and the number of reference bases and analytical tools available.

Quantity itself becomes a kind of new frontier for textual science. Scholars and publishers are now facing the opportunity to carry out analytical and dissemination work addressing not only hundreds or thousands of pages but also literally billions of pages in many languages. One may even imagine the possibility of digitally harvesting all the texts produced in a society throughout a generation and making the ultimate result the object of textual science and of a new kind of critical edition. This new perspective precludes dealing with too many details, such as the meticulous case-by-case observation of glyphs and punctuation in medieval manuscripts. It encourages new kinds of global, sweeping approaches that are more related to the way geneticists and bioinformaticians now work with human genome decoding, or how archaeologists handle massive amounts of artifacts collected during excavations, or with what is commonly labeled in computer science as data mining.

The second frontier is also related to quantity but addresses more qualitative issues or the possibility of addressing significantly more complex relationships in any content that has been digitized. Many functional relations between variants or text items that were impossible to map by normal human standards can now be gathered, checked, represented, and analyzed by means of systematic algorithms that may reveal new patterns of interest. This will affect not only

the practical aspects of editorial work but also the nature of the decisions to be made by the editors and ultimately what critical edition is about.

The third frontier is related to the cross-fertilization of information structuring and emerging modes of distributed communication. It is best exemplified by referring to the possibility of merging the process of critical edition and informed reading by calling upon readers to contribute to or even modify an edition. This implies a new acknowledgment of the potential of these readers and users to contribute, individually or collectively, in order not only to improve and complement a critical edition but also to add original contributions using textual data made available online.

The fourth frontier is multiplicity: no longer is the choice limited, for example, to producing either strict genealogical editions or more ecological editions, such as highlighting external information. Widely different epistemological projects, formerly incompatible, can now cohabit and interact by means of layered markup within a common digital environment. One example is Woolf Online, where extracts from films, pictures, newspaper excerpts, and a wealth of biographical documents are linked to the published novel and its avant-texte, although without putting up obstacles to the establishment of a text that adheres to traditional critical standards. Such products may well herald the advent of a new text epistemology, bridging over old controversies and, as one might expect, generating new ones.

### *The Choice of the Presentation: Recent Solutions and New Challenges*

The various choices of presentation, in print or online, are not only motivated by aesthetics and ergonomics. Any kind of online and on-paper presentation also actualizes the epistemological project that is inherent to a given critical edition. The spatial and dynamic layout accessible on a computer screen expresses in diverse ways some knowledge to be shared.

We have argued in the preceding pages that it is possible to implement online critical edition projects that express widely different ambitions and visions simultaneously. Hence, such online projects can vary between two opposites. At the first extremity one finds general-purpose projects that may be synthetic, multilayered, ecological, and so on, offering to resituate texts in their historical, cultural, and literary environments. In these projects the editor and, if possible, the readers are not searching for the "true" text (although this question may not be rejected as such) but are more interested in using the text regardless of its state in order to open a window on a world to discover. At the other extremity one finds online critical edition projects that operate within the strict perspective of traditional philology. Such projects have a declared ambition to give as

faithfully as possible an account of the author's intention, as is the case when the editor believes he possesses the first textual state of the work, or when the same editor chooses to engage in a potentially infinite comparison between, say, the "final" manuscript of the author (if it exists) and later editions. This last position matches well the established, elitist historical positivism described earlier in this chapter.

Hence, the choices made for presenting the critical apparatus actualize the epistemological stance and communication strategy of the editor. The diverse possibilities offered by information technologies will concretize these choices.

Critical editions on paper, since they do not allow variable layout, make the text fixed in its mold and freeze it in its new state. The paper-and-book tool imposes the absolute boundary of the frame of the page and thus puts severe restrictions on the presentation of the critical apparatus. It could materialize as occasional short notes or, inversely, as a critical apparatus/text ratio that is clearly in the favor of the critical apparatus (as illustrated by Moshe Goshen-Gottstein's monumental and prematurely interrupted critical edition of *The Hebrew University Bible Project*). The paper culture implicates a hierarchy that gives prominence to text over image, the notion of critical edition being applied in practice mostly to texts and very seldom to images (although all principles inherited from critical philology may apply to, say, cinematic work). From the nineteenth century, for industrial and ergonomic uses, publishers prefer increasing the number of pages rather than increasing the size of the page. The appearance of the photographic facsimile allows more details to be displayed—for instance, in spite of the size restriction of the book page, one could read facsimiles of uncials and minuscules. During the twentieth century, while an airy layout makes its appearance in editions targeting the general public, allowing more blank areas and making the text easier to read, critical editions stick to pages crammed with text and sigla and deliver critical apparatuses at the limit of readability.

Online digital presentation offers new possibilities for concretizing the relationship between the critical apparatus and the work. A number of constraints imposed by the surface of the printed page disappear. The page area will have to be reconfigured within the frame of the display and satisfy new readability requirements. However, whatever size it may have and whatever visual comfort it may offer, a display is far from being a universal panacea for all woes caused by printing technology. Organizing and presenting information architectures with an increasing underlying complexity poses serious challenges to online critical edition. In the wake of interactive possibilities that are proposed to the users, new cognitive problems appear. For example, the disappearance of the traditional critical apparatus in favor of user-selected visualizations encourages a continuous switching between various points of views on the texts. However,

while the perfectly aligned and synchronized synoptic visualization of three normalized versions of an Ibsen text may be reasonably readable for an expert reader, any comparison of, say, more than four sources adds to the risk of bringing the user into a state of a visual and, as a consequence, cognitive chaos. One needs to realize that the cultural acquisition of symbols, conventions, and dynamic access mechanisms within digital environments is only in its infancy and that the former functional coupling of critical editor–academic reader remains to be reinvented for online scholarly editions. Sooner or later the critical editor will need to add to her purely academic role the additional roles of redactor, mediator, and online publisher in order to facilitate wider public use and to contribute to the product in a rewarding manner.

## Conclusion

It would be tempting to see in the contributions of the Nouvelle Critique and of the new philology an ideology offering durable solutions excellently matching the potentialities already present in the new digital environments. Hence, the possibilities to encode texts and corpora ad infinitum, to shape new critical editions using multilayer architectures and semantic techniques, encourage an approach that combines precision (e.g., exhaustive collection of variants) with contextualization of the work within its world. Even if admittedly overlapping and synergies occur, one should avoid operating a simplistic and opportunistic confusion allowing an epistemological project to be directly derived from readily exploitable functionalities in a digital environment. Such an approach would reflect a simplistic techno-determinism treating the "digital" as a compact, unique phenomenon behaving as an autonomous actor who acts on editorial practices. As Alvin Kernan (1987, 181) underlines, "Knowledge of the leading principles of print logic, such as fixity, multiplicity, and systematization, makes it possible to predict the tendencies but not the exact ways in which they were to manifest themselves in the history of writing and in the world of letters."

*Notes*

1. The cultural value of source and witness criticism was admirably exposed by Marc Bloch (1995).

2. See particularly Gabler 2003 and 2010.

3. Digital Humanities 2008, University of Oulu, Finland, June 24–29, 2008, was the twentieth joint international conference for the Association for Literary and Linguistic Computing and the Association for Computers and the Humanities as well as the first joint conference of those two organizations with the Society for Digital Humanities. See Digital Humanities 2008, http://www.ekl.oulu.fi/dh2008.

4. "The long-range goal of the *Piers Plowman* Electronic Archive is the creation of a multi-level, hyper-textually linked electronic archive of the textual tradition of all three versions of the fourteenth-century allegorical dream vision *Piers Plowman*." [Plowman].

5. We reproduce here the list given by Meschini 2007.

6. See exploration of the transition from classical to digital thinking in editing by Rehbein 2010.

# 4. What Digital Remediation Does to Critical Editions and Reading Practices

TERJE HILLESUND AND CLAIRE BÉLISLE

In migrating their editorial work on literary resources from print to digital technology, researchers have heeded new challenges and ambitions for scholarly editions. This chapter addresses these objectives by looking at designs, aims, and uses of existing scholarly editions as they migrate from one media to another. The first part deals with issues and questions raised by the digital trend in scholarly text studies and with the shift in how historical texts are recorded, presented, and studied. Confronting the optimistic promises of added value that digital editions will bring to scholarly works, we explain through the concept of remediation how traits and configurations of editions that are present in print technology live on in digital technology even though text creation and dissemination have profoundly changed. Underscoring both the fragility of digital information, as compared to the long-lasting paper document, and the extreme versatility of its representation, which makes it capable of answering a wide variety of scholarly reading expectations, we conclude that changes expected in scientific aims and methods are still to come. Digital remediation of text is taking place within a digital context that is impelling new reading habits. Exploring these new emerging reading practices, coupled with a probing of readers' expectations, forms the object of the second part of the chapter. Having observed how reading evolves with digital technology, we explore the enduring uses and the disruptive changes that organize the new ways readers relate to texts and documents mediated by digital technology. Finally, a brief overview presents the challenges that textual scholars will face if they choose to attend to the new expectations of readers as the digital medium becomes the main work area for reading and working with critical editions.

## Digital Remediation of Critical Editions

The terms "digital libraries" and "digital scholarly text editions" indicate a shift in how historical texts are recorded, presented, and studied. Without trying to provide definite answers, this chapter presents issues and questions raised by the digital trend in scholarly text studies, using the British Library's online gallery as an example of digital libraries and the Canterbury Tales Project as an example of digital scholarly editions. Is digital technology simply a new means of gaining access to materials existing in another medium, or does it bring radical changes in the representation of texts and documents? Jay David Bolter and Richard Grusin addressed this issue in their groundbreaking study of the differences between media by coining the concept of "remediation." Remediation refers to the refashioning that each new technology introduces in its presentation when a medium tries to represent another medium. "Like their precursors, digital media [ . . . ] will function in a constant dialectic with earlier media, precisely as each earlier medium functioned when it was introduced" (Bolter and Grusin 2000, 50). As remediation involves a claim of improvement, it can be understood as a process of cultural competition between consecutive technologies that present scholarly editions. But does digital technology entail more, as the "endless crescendo of enthusiasm and expectations with which Western culture is greeting digital media" (267) would let one believe? The chapter examines some of the scholarly implications of the ongoing digital remediation of text. As a starting point, it looks briefly at an earlier shift in the history of text: the transition from manuscripts to printed books.

### *From Manuscripts to Print to Digital Media*

*Recuyell of the Histories of Troye* was the first book ever to be printed in English. The story was translated from French and printed by William Caxton in 1473 in Bruges. Caxton was the first English printer, and in a concluding letter in the book, after a description of the laborious work on the translation, Caxton praises the new invention of print:

> And for as much as in the writing of the same my pen is worn, my hand weary and not steadfast, my eyes dimmed with overmuch looking on the white paper [ . . . ] and also because I have promised to diverse gentlemen and to my friends to address to them as hastily as I might the said book, therefore I have practiced and earned at my great charge and dispense to ordain this said book in print after the manner and form as you may here see, and is not written with pen and ink as other books been, to the end that every man may have them at once.[1]

William Caxton learned the print trade during stays in Cologne and Bruges. In London, he set up a print shop in Westminster, and his first major enterprise was to produce Geoffrey Chaucer's *The Canterbury Tales*, which was printed in 1476 (Caxton ca. 1476).

In the late Middle Ages, Latin was the language used by the clergy and scholars throughout Europe and, accordingly, most printed books (which were still luxury items) were in Latin, sold on a European market. Buyers of printed books in English were unlikely to be found outside the domestic establishment of nobilities, clergymen, and rich merchants. The expression "every man" in the above citation from 1473, reinterpreted as the totality of English-reading book buyers, would not have comprised very many people. Nevertheless, Caxton found a market for books printed in the vernacular, and the shrewd choice of *The Canterbury Tales* as his first book printed in England was probably based on carefully calculated sale assessments: the many surviving medieval manuscripts suggest that Chaucer's tales, written in the 1390s, were already established as popular classic readings at the time of Caxton. As soon as in 1482, Caxton printed a second edition of the tales, this time with woodcut illustrations. In a preface to this edition, Caxton tells how he had received complaints about the accuracy of the text in the first printed edition. According to Caxton, the first edition was printed from a manuscript containing a corrupt version of Chaucer's text, but corrections had been made in the second edition based on a borrowed manuscript containing a text that was truer to Chaucer's own writings. Being the first book trader to transfer manuscript versions of Chaucer to print, and in the process correcting and editing the text, arguably Caxton was the first critical editor of *The Canterbury Tales*; at least he was the first to remediate the text to a new technological platform. The original manuscripts Caxton refers to are both lost, but his printed editions have survived, and today every page of the two editions can be seen and read in image reproductions at the British Library website, along with historical and biographical information on Caxton and Chaucer. In addition to photographs, *The Canterbury Tales* are made accessible by critically edited transcripts of the text. Thus, the presentations on British Library's website represent yet another remediation—this time from early print to screen—in a seemingly endless succession of Chaucer presentations.

Geoffrey Chaucer lived most of his life in London, but he traveled abroad and knew the ideas evolving on the Continent; Boccaccio's *The Decameron* was probably a model for Chaucer's writing of the (unfinished) collection of tales. Manuscript copies and early printed versions of *The Canterbury Tales* have stimulated enduring interest not only because of their literary qualities and colorful—and often bawdy—descriptions of life in Middle Age England, but also because the texts are considered to be important witnesses of historical developments of the English language. Over the centuries a multiplicity

of editions have been printed, both in Middle English and in modernized versions. Despite this interest, Geoffrey Chaucer's own manuscript, the presumed archetype (if it indeed existed as more than gatherings of autographed quires), has never been found. Still, many early manuscripts and incunabula did survive, and in England an ambitious effort has been made to digitize all extant manuscripts and printed versions of *The Canterbury Tales* produced before AD 1500. The Canterbury Tales Project officially started in 1993 under the leadership of Norman Blake and later under the supervision and leadership of Peter Robinson. The project's aim has been not merely to document the manuscripts and books but, in addition, to digitally transcribe and analyze the entire collection of early texts. The transcripts of Caxton's editions currently presented on the British Library website are done so in collaboration with the Canterbury Tales Project.

The British Library's publication of Caxton's editions of *The Canterbury Tales* online definitely represents the beginning of a new chapter in the long history of Chaucer and exemplifies a new phase in the history of written text. Since the medieval days of Chaucer and Caxton, the number of English-reading people has grown remarkably, and even if Middle English texts are slightly unfamiliar to most readers, with the proliferation of computers and diffusion of the Internet, more people than ever before, interested in reading or peeping at the original Caxton editions of *The Canterbury Tales*, can do so by accessing the digital reproductions at the British Library website.

This new phase in the history of text, however, is not exclusively attributed to the potential scale of text dissemination. The long-term consequences of the convergence of computer and network technologies into a new text medium are not at all obvious, but they are far-reaching and penetrating in more than geographical terms and degrees of diffusion. The writing system itself, meaning the characters and numbers, is as yet not dissimilar from the systems used in manuscripts and print publications. However, there are significant differences in how digital texts are created and stored and how they are distributed and presented to the reader, and as Roger Chartier (1995) points out, new text features will inevitably change our conception of text, intellectual habits, and ways of reading, thus creating an entirely new framework for digital text editions. For critical philology, these changes pose particularly significant challenges. To interpret and explain text from one cultural paradigm—the world of written and printed text—by exploring, analyzing, and presenting it within a rather different cultural paradigm—the world of digital text—raises seemingly insoluble questions, and editors must ask how it can be done without doing "violence to the texts by separating them from the original physical forms in which they appeared and which helped to constitute their historical significance" (Chartier 1995, 22). The first step in trying to solve the challenge would be to examine

what biases a digital remediated text will insert on our understanding of the original written or printed text.

### *Remediation Reveals Differences*

When analyzed, remediation reveals differences between the new medium and its predecessor, shedding light on both and in a subtle way deepening our understanding of the precursor. Thus, digital technology has clarified certain aspects of writing. For instance, in handwriting and printing, as in all traditional text technologies, storing and representation of text are done by the same means in a combined process. In books and manuscripts, patterns applied to the surface of parchment or paper both record the text and make it legible in an enduring and fixed physical form (Hillesund 2005). The Ellesmere and Hengwrt manuscripts have preserved versions of *The Canterbury Tales* for more than half a millennium, as have the Caxton printed editions. In a digital environment, by contrast, storing and representation of texts are done in separate operations; in the internal computer system, texts are stored electronically (or externally in magnetically or optical forms) as encoded binary digits independently of any visual representation of the texts. From computer storage systems the encoded text can be fetched and represented onscreen in word processors, web editors, or desktop publishing programs, in which they can be edited, altered, and recomposed. Digital texts are thus malleable and flexible, globally distributable, and easily accessible: from one computer the text can instantly be sent to another computer by way of e-mail, or it can be put online and globally accessed (Hillesund 2005).

On the web, texts are readable in browsers that are characterized by highly interactive interfaces, window presentation, hyperlinks, and the use of multiple media and multimodal presentation (text combined with graphics, photos, videos, or sound). In the new medium of connected computers, lots of new text genres and written communication forms have evolved: e-mail, news groups, chat features, blogs, online newspapers and magazines, electronic books, search engines, digital learning materials, corporate websites, web stores, digital libraries, and social networking sites. On the British Library website exhibiting Caxton's printed books, all pages of both books are presented. The photographic reproductions can be enlarged, and the text, typography, and illustrations can be studied in detail; the two editions can be compared in parallel windows; the texts can be searched; and there are links to transcripts, which pop up in additional windows.

When utilized in this way, texts are incorporated and represented in a new medium; the texts are transformed and put into new uses in a remediation process in which features and possibilities of digital technology and network

connectivity are explored (Bolter and Grusin 2000; Bolter 2001; Bolter and Gromala 2003), inevitably resulting in new ways of reading and interpreting text (Chartier 1995). However, for text such remediation is not a new phenomenon. Ever since the Sumerians started to press a stylus into clay, forming their cuneiform characters in the first written languages, numerous technologies and physical means—or media—have been used in the production and dissemination of text, and a diversity of written communication forms have evolved, flourished, and diminished in a succession of remediation processes. At one time papyrus and parchment made written communication more portable, and, interestingly, the oldest-dated printed book yet found is a papyrus roll printed in China in AD 868 by the use of wooden blocks. A copy of this roll, the *Diamond Sutra*, is preserved at the British Library and presented on their website.

Among great media shifts in the history of written communication, prominent scholars have pointed to the importance of the transition from papyrus and parchment scrolls to codices (books in the form of bound pages) in the second and third centuries AD (Chartier 1995). Gradually replacing the scroll, which required both hands in reading, codices, with easily accessible pages, provided new and effective ways of organizing and navigating text. However, the early reading of densely written parchment pages with many abbreviations and no word spacing required the use of the voice, because the text had to be read aloud in order to be comprehensible. Then, during the Middle Ages, the introduction of smaller books and new text features, such as word spacing, punctuation, and paragraphs, gradually made books more portable and reading less demanding physically. According to Chartier (1995), these medieval developments in text materiality led to a consequential shift from oral reading, which had been indispensable for comprehension, to a process of reading that could be visual, silent, and fast—the modern way of fluent reading.

Nevertheless, it is the much later fifteenth-century transition from bound manuscripts to printed books in Europe that has attracted the widest interest, and most commentators call the invention of the printing press a revolution. However, without arguing its historical importance, one can reasonably question whether the invention of printing actually does inaugurate an entirely new and different medium. After all, printed books and manuscripts share some very basic similarities, most clearly manifested in the early stages of print. When Johan Gutenberg produced his famous Bible in 1455, he tried to imitate the beauty of contemporary handwritten and illuminated books and succeeded in doing so. During production, Gutenberg changed the printing method (from forty to forty-two lines) and the spelling of many words, and after the printing was done, initials, rubrics, decorations, and illustrations were written and painted by hand, making all the copies of the printed Bibles slightly different but still strikingly similar to preceding medieval manuscripts.

After Gutenberg the next generations of printers improved the printing techniques of text and illustrations and introduced both manuscript-like and new features to the overall printed text, gradually changing appearances of books. Over the centuries, new formats were developed, and the mechanization of print production made books, magazines, and newspaper the first mass media. Developments have continued, and new digital tools and printing technologies have made the physical appearances of books and magazines increasingly more sophisticated. Nevertheless, all printed publications still store and represent verbal text in a combined process, using ink on paper, creating a physical form in which texts of books, magazines, and newspapers are preserved, distributed, and read.

Compared to printed publications, the networked computer is a very different text medium. After almost twelve hundred years, the physical object conveying the *Diamond Sutra* text can still occasionally be seen by the public in the Sir John Ritblat Gallery at the British Library. The text is clearly legible and intelligible for readers of Chinese. Easily readable as well is the interactive version of the *Diamond Sutra* at the British Library's website. Whereas the exhibited physical paper roll displays a tiny section of this Buddhist text, the interactive virtual version lets the user scroll through the whole text of the roll using a mouse. However, although web browsers clearly present the text of the sutra, having lost its status as a physical object, it is hard to establish where the actual text is located. A machine-readable and humanly illegible binary representation is obviously stored at the British Library's web server or in a database, yet articulations of the text result from end users browsing the web. In order for the text to be visually presented, a lot of highly technical operations have to be initiated and performed. Commands must be processed by a computer; signals sent back and forth over the Internet; and digital representations and files fetched, packed, sent, unpacked, processed, and visually presented onscreen in such a complicated process that few people, if any, fully understand what is actually happening. In the *Diamond Sutra* case the text is visible and humanly readable only as long as the computer is online and every bit of software and hardware is functioning and the power is on. The readable text disappears the moment a user turns to another web page or turns off the computer. So where is the text? And more important, where will this particular text witness be in three or four decades, when computers and storage systems have changed and up-to-date operating systems run new applications over presently unknown network systems representing text on displays not yet invented? The original *Diamond Sutra* text, the one on the paper roll, will probably still be on display in the exhibition room at the British Library—at least on occasions.

*Crisis and New Questions*

The written and printed book has an extraordinary staying power, as Robert Darnton (1990) underscores, lasting for seventeen or eighteen centuries. The physical book is still dominant in many important areas of publishing and undeniably in the research field of critical editions. However, in the long history of writing, digital technologies have made a huge difference in a very short time. Whether Émile Baudot's development of a five-bit code system for the French telegraph service in 1874 is reckoned as the beginning of digital text (this code system later developed into ASCII and the current Unicode Standard), or the start of digital text is set to the 1960s and the utilizing of coded text in computers (first as an input/output method) can be a matter of taste. It is a fact that computers developed into a full-fledged media for text communication during the 1980s and beginning of the 1990s, with the spread of the Internet and introduction of the World Wide Web (Bolter 2001). In a very short time, historically speaking, the digitization and communication of text has played a crucial role in the development of the computer and Internet, and vice versa: the development of connected computers has profoundly changed text creation and dissemination. When these changes of text are analyzed using a model of a communication circuit (Darnton 1990) or a text cycle (Hillesund 2005), it becomes clear that all stages or phases of the circuit or cycle are changed. Digital texts are written and composed using computers in word processors and editing software; they are magnetically, electronically, or optically stored; they are transmitted (or rather accessed) over networks; they are represented in browsers (and other reading software); and they are eventually read on computer screens, either of stationary or handheld devices. The entire text cycle has been digitized, and the social, economic, and legal apparatus surrounding text circulation is correspondingly affected. Even the seemingly immutable Western writing system is changing, or at least the use of it, which is clearly seen in the communication forms of e-mail, chat, and text messages; in these a lot of new and creative ways of combining and using characters are established, especially among the young.

It is no exaggeration to state that, for traditional text cultures, digitization represents a crisis because it involves abrupt cultural changes, new rules of production and diffusion, a challenge to inherited expertise that is threatened to fall into obsolescence, and possibly a paradigm shift, which the second part of this chapter considers, as defined by Thomas Kuhn (1962). According to Jay David Bolter, "Digital technology is turning out to be one of the more traumatic remediations in the history of Western writing" (2001, 24). One reason, Bolter says, is that digital technology changes the physical "look and feel" of writing and reading, and he quotes Roger Chartier, who argues that the current shift

from print to digital technology entails a change greater than the one from manuscript to print:

> Our current revolution is obviously more extensive then Gutenberg's. It modifies not only the technology for reproduction of the text, but even the materiality of the object that communicates the text to the readers. Until now, the printed book has been heir to the manuscript in its organization of leaves and pages [ . . . ] and its aids to reading (concordances, indices, tables). The substitution of screen for codex is a far more radical transformation because it changes methods of organization, structure, consultation, even the appearance of the written word. (Chartier 1995, 15).

By using the term "remediation," Bolter is primarily preoccupied with the changes in form and function of texts when adopted in the medium of connected computers, characterized, as they are, by interactivity, multimedia, hypertext, and immaterial and highly dynamic (or fluctuating) ways of representing content. Chartier emphasizes the constraints that new media forms impose on the interpretation of text and the construction of meaning. For Chartier, the "same" text apprehended through very different mechanisms of representation is no longer the same. In his analysis Chartier examines how forms of transmission influence the styles of reading and how they define and construct new readership.

Digitization thus reformulates all questions regarding text. For scholars working with digital critical text editions, therefore, an awareness of transformation and remediation processes is of particular importance. Usually the objects of study in critical editions are written or printed text from earlier periods (such as the Chaucer manuscripts and Caxton's printed editions). These are transformed into digital formats for documentation, preservation, study, and research. Further research is conducted on the basis of remediated versions of texts, and questions inevitably arise regarding the status of the digitized texts and their relations to the original texts. Are the researchers studying the same texts? How does digitization affect the comprehension of the concept "text"? How does it affect habits of reading? In a new digital paradigm, researchers will have to reflect on how the transformation process—the digital encoding and transcription of text—entails methodological and theoretical considerations and contentions. Researchers are further required to ask if the remediation of text—its visual representation in new media—promotes new styles of reading and thus imposes constraints upon our understanding of texts of the past.

A digital critical text edition is itself a significant witness of the long remediation history of important texts, such as *The Canterbury Tales*. As a result of the work in the Canterbury Tales Project, six editions so far have been published on CD-ROM, comprising photographic reproductions and transcripts of ev-

ery early text witness, commentaries, and software for manipulation of text data. The ambition of such digital scholarly editions is to bring the past into the future. Unfortunately, many CD-ROM editions and Internet editions have already left the future behind. The storage media of CD-ROMs, along with software and equipment used to present their content, is doomed to be obsolete relatively soon. If the materials and programs of these systems—contrary to expectations—stand prolonged erosion, future researchers studying initial phases of digitization will probably have to endure rigid library application procedures to be allowed to use the delicate equipment needed to get a touch and feel of how early pioneers presented their attempts in the area of digital critical text editions. The situation is paralleled in other domains, such as music and film, in which content that has been stored as vinyl records and rolls of film necessarily has to be converted and remediated in order to be presented anew. In this respect, obviously, the advantages of manuscripts and printed books are evident: as long as the object is preserved and it doesn't severely deteriorate, the recorded content is represented in its original form. For libraries, preservation of digital content is a major issue, and for digital scholarly editions, this is a circumstance that researchers have to contemplate.

But "outdatedness" is not only a matter of obsolescent storage format. It may also be the result of obsolescent modes of production and control of these texts.

### *Digital Photographic Text*

In the Canterbury Tales Project the philologists have wisely made sure that their transcripts and documentations at a prepublication level are recorded in formats that are capable of uncomplicated conversions and continued remediations in future digital media, presumably taking advantage of network distribution. The editions so far published in the project are composed of three main elements: digital images or facsimiles showing the text of the original manuscripts or books, digital transcripts of the texts, and collation and phylogenetic software. Generally, digital photography has more or less superseded traditional film-based photography, and digital remediation of photography is in itself a very interesting process. Digital images are extremely manipulable and versatile, and digital photos are brought to new uses in print and in digital environments—that is, on the web and in multimedia presentations. Digital images are displayed on all kind of devices, from small mobile phones and computers to wide-screen televisions, posters, and cinema screens. In scholarly editions, digital photos of pages and objects are very useful, and some editions of *The Canterbury Tales* set a new standard for manuscript photography. Indeed, photographic shooting of delicate book materials is a skilled craft, and experts from Keio University in Japan photographed the Caxton editions in British Library.

As with all remediation, digital photography introduces biases. No photos can ever reproduce the smell, look, and feel of real books, and digital photography cannot replace the meticulous examination of paper, ink, and binding—the materiality—of manuscripts. However, digital images accurately represent the text, along with the layout and illustrations in codices and printed books, and for studies of details and character patterns, digital photos represent an enhancement; they allow for great enlargements and use of pattern collation software. For some digital text collections, optical character recognition (OCR) can even be a viable alternative as part of the transcription process. Further, as limitations on Internet bandwidth are no longer an issue, digital image formats render possible a wide distribution of pictorial text representations to researchers and students with no direct access to the fragile and rigorously protected original artifacts, which are often kept in the most sacred parts of libraries.

In the editions published from the Canterbury Tales Project, the photos used are of varied qualities. In *Geoffrey Chaucer: "The General Prologue" on CD-ROM* (Solopova 2000), the images are digitized versions of microfilm pictures. These images are rude black-and-white representations of characters and illuminations that are difficult to read or decipher, giving very little sense of the original manuscript. Totally different, then, are the manuscript photos in *The Hengwrt Chaucer Digital Facsimile* (Stubbs 2000; see fig. 4-1). In this edition the images

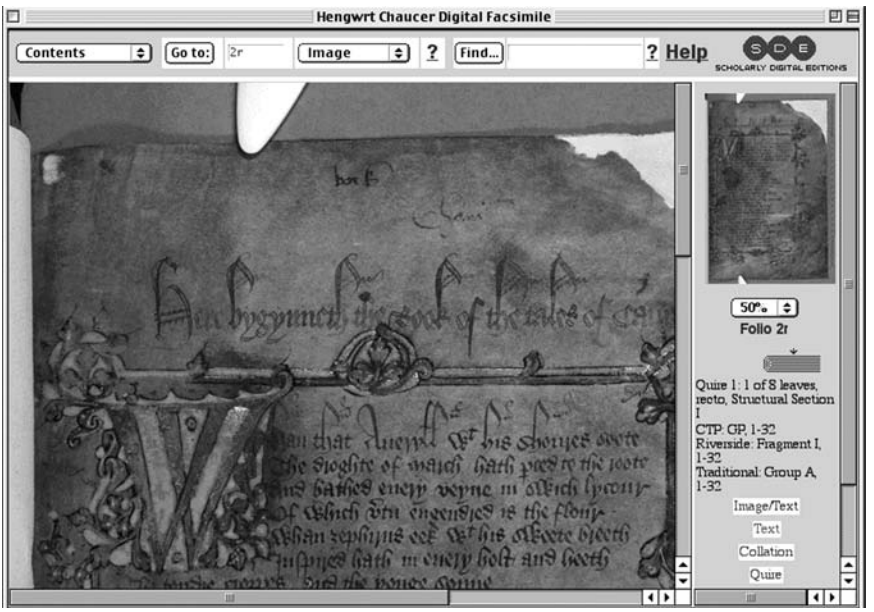


Figure 4-1: Screen dump of the Hengwrt Chaucer Digital facsimile (http://www.sd-editions.com/AnaServer?HengwrtEx+0+start.anv).

are high-quality color photos allowing detailed scrutiny of the manuscripts and illuminations. They also provide a touch of the visual beauty of medieval manuscripts (even if all the Chaucer manuscripts are rather straightforward compared to carefully made medieval manuscripts, many of which are beautifully illuminated and illustrated). Of similar high quality are the images in *Caxton's Canterbury Tales: The British Libraries Copies* (Bordalejo 2003), whereas other editions (such as those of *The Miller's Tale* and *The Nun's Priest's Tale*) have a combination of black-and-white, gray-scale, and color pictures. Digitally remediated onscreen, there is no doubt that high-quality photos add substantial value to critical editions of manuscripts, not least in that readers and researchers can control, question, and even rectify the accompanying transcripts.

### *Coping Digitally with the Protean Status of Texts*

In scholarly projects, in addition to serving as documentation and illustration, onscreen image reproductions are the virtual starting point of another comprehensive process: the transcription of the manuscript's text, which, of course, is done digitally. On the website of the Clerk's Tale Project at New York University, one of the collaborative partners in the Canterbury Tales Project, four stages of this editorial work are described. As the first step, each manuscript is transcribed and encoded. Transcription uses a character set designed to accommodate late-medieval English manuscripts, and encoding conforms to the guidelines of the TEI (Text Encoding Initiative, discussed elsewhere in this book), which is a widely accepted standard for markup of electronic texts in the humanities. In the next steps, the different transcriptions are compared using a collation software program, and the body of variants is analyzed using phylogenetic methods and software developed in evolutionary biology. Finally each tale is published on CD-ROM in a format allowing users to access images of every page of every manuscript and full-text electronic transcriptions of the tale, as well as making collocations and analyses based on stemmatic models, or so-called split-tree models. All elements of an edition are presented in an e-book reader, a software application in which multiple windows allow users to work in parallel modes, compare different versions of a tale, and simultaneously carry out collocations and analyses. Since the first CD-ROM from the project was published, both interface and software have improved, showing that digital remediation of text is a continuous process. In the latest editions, the e-book reader is loaded and integrated into the default web browser of actual users.

As with all digital remediations of text, the digital way of storing, representing, and manipulating text in scholarly editions challenges many deep-rooted representations of text. A text is usually regarded as a collection or weave of words of a certain length or extension. In linguistics the term "text" is used for

both written and spoken texts, but sometimes it refers to written text only. In semiotics the concept of text is extended to all kinds of representations: writing, speech, pictures, music, videos, and computer games, and any combination of these. Scholarly digital editions deal mostly with texts produced and represented in written forms, sometimes including illustrations and certainly comprising analysis of the form and materiality of the texts: most editions of *The Canterbury Tales* include witness descriptions in which the styles of the scribes or composers are described along with accounts of ink, parchment, or paper and the binding of the manuscripts and incunabula. A text is thus traditionally regarded to be a product rather than a process; the text is the product of a process of text production. In this sense, the text, as an artifact, has a physical existence of its own, independent of its sender and receiver. In addition to this concrete meaning, the word "text" is frequently used in an abstract sense, signifying the verbal structure, or wordings, or the narrative structure underlying the physical representations of the text. Taken in this abstract sense, the same text can be given different presentations, as when the text of an ancient manuscript is reproduced in modern print, on the web, or as an e-book. Though different in form, all articulations can be said to represent the same text. This two-sided concept of text is inherent in much research on the subject: in editorial philology, as in the case of *The Canterbury Tales*, when the original physical version of a text is missing, scholars carry out thorough stemmatic and genealogical analysis of the extant text copies in order to reconstruct the closest possible approximation to the original text, which exists only in an abstract and theoretical form. The double meaning of the concept of text is also present in bibliographical theory, and the dual meaning clearly underpins the FRBR (Functional Requirements for Bibliographic Records) model, published by the International Federation of Library Associations and Institutions in 1998. Conceptually, the model identifies entities on different levels representing different aspects of user interests in the products of intellectual endeavor and their bibliographic records (and it is not restricted to books) (see fig. 4-2).

The entity "work," as defined in the model, is a distinct intellectual creation and can usually be ascribed to one or more creator(s), as *The Canterbury Tales* is ascribed to Geoffrey Chaucer. "Work" is a completely abstract entity, and a work exists only in the commonality of content between and among the various expressions of the work. The entity "expression" is the realization of a work and encompasses, for example, the specific words and sentences of a text (in the abstract meaning of the term). When a work is realized, the resulting expression of the work may be physically embodied in a medium such as parchment, paper, or compact discs. That embodiment constitutes a "manifestation" of the work (such as in the form of a text in the physical sense). In some instances, only a single exemplar is produced of the manifestation of a work, such as an author's

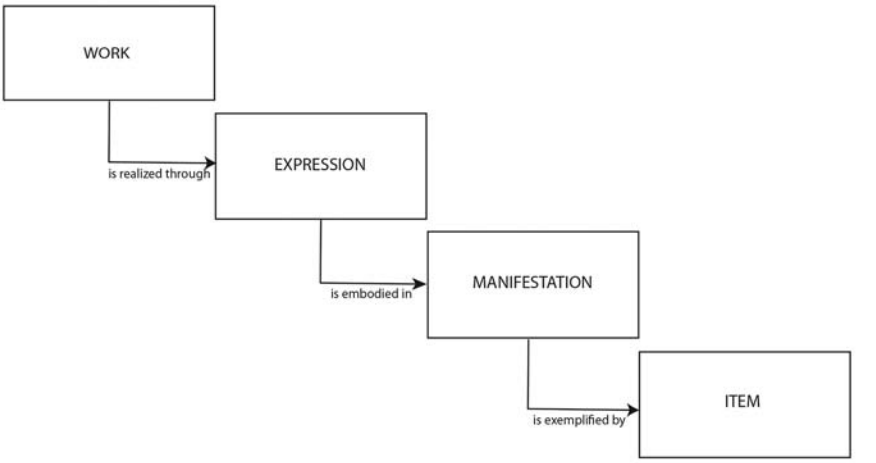


Figure 4-2: The FRBR (Functional Requirements for Bibliographic Records) model, published by the International Federation of Library Associations and Institutions in 1998 (freely drawn from the International Federation of Library Associations' [IFLA] *FRBR Report*, p. 13).

manuscript or medieval scribes' slightly differing copies making up disparate manifestations of the work, as in the example of Chaucer's *Tales*. In other cases, multiple copies of a manifestation are produced in order to facilitate public dissemination, as in Caxton's printings. When the production process involves modifications, additions, or deletions affecting the intellectual or artistic content, such as a new edition of a book, the result is a new manifestation embodying a new expression of the work. An "item," in the model, is a concrete entity defined as a single exemplar of a manifestation in the form of one or more physical objects, such as a manuscript, a printed book, or a two-volume monograph. In the FRBR model, the entities defined as "work" and "expression" reflect intellectual content, whereas "manifestation" and "item" reflect physical form.

The dual concept of text and the FRBR model may very well be suited to define and characterize text and to identify specific texts in a world of written and printed publications. However, both concept and model prove inadequate when applied to text in a digital environment, an intricacy the FRBR report seems to recognize when it recommends further analysis of the dynamic nature of entities recorded in digital formats.

Digital texts do not exist as distinct physical objects, and the unfeasible task of unambiguously locating such a text clearly illustrates the absence of easily identifiable and limitable items representing text in a digital environment. In the case of Caxton's texts on the British Library's website, the web pages are certainly pointed to by URLs (Universal Resource Locators) or links, but when realized

onscreen, the texts are compound bits of illustrations and text apportioned around servers at the British Library and Montfort University. For text encapsulated in a single document (as an e-book) or physically stored on a CD-ROM, the articulation of the text is dependent on highly sophisticated processes, including text representations on many levels, from the basic level of storage to the final—yet temporal—presentation onscreen. When realized onscreen, even encapsulated texts point to external text recourses, sometimes directly through created links and always indirectly by links from words and phrases to dictionaries and search engines or, for that matter, to automatic translation software or artificial reading applications. In online environments, which form a vast semantic web, it is almost impossible to clearly delimit a text the same way as in manuscripts and printed books. In these, of course, the covers of the book define the boundaries of the text. The flexibility of digital texts, such as in digital scholarly editions, also allows users to constantly rearrange text, use multiple windows and multiple media, bring in external resources, and manipulate the appearances of the text, such as the layout and font properties. In the FRBR model, these are changes that define new manifestations of the text, implying that digital users continuously create new momentary expressions of the original work.

As the above discussion indicates, neither the FRBR model nor the traditional definitions of "text" are very well suited to categorize or describe digital texts, a fact clearly illustrating that as far as important basic features are concerned, digital texts are very different from texts conveyed by physical items, such as manuscripts and printed books. Digital humanist researchers, for whom a digital version is said to represent the text of a physical source document, have to be extremely conscious of these differences, because the asserted representation is by no means built on a one-to-one relation. In this respect, the status of the transcription documents in TEI format, which is based on XML (Extensible Markup Language), is of particular interest for scholarly text editors. Being an important part of the editing process (see fig. 4-3), the TEI transcription documents are packed with information on the source documents, such as typography (titles, paragraphs, capital and small characters, punctuation, underscores), wording, spelling, abbreviations, and corrections. However, these TEI transcripts are merely intermediate documents. Before publication the TEI documents are converted by using special conversion tools, such as XSLT (Extensible Stylesheet Language Transformation), in order to attain a readable form. Such conversions are necessary in order to give proper presentations of the information that is marked up and encoded in TEI. Further, TEI documents are often so rich in information that several presentations have to be given—for instance, one facsimiled, one diplomatic, and one normalized transcript, all pointing to commentaries and descriptions. On the one hand, each of these versions simply presents parts of the information in the TEI document. On the

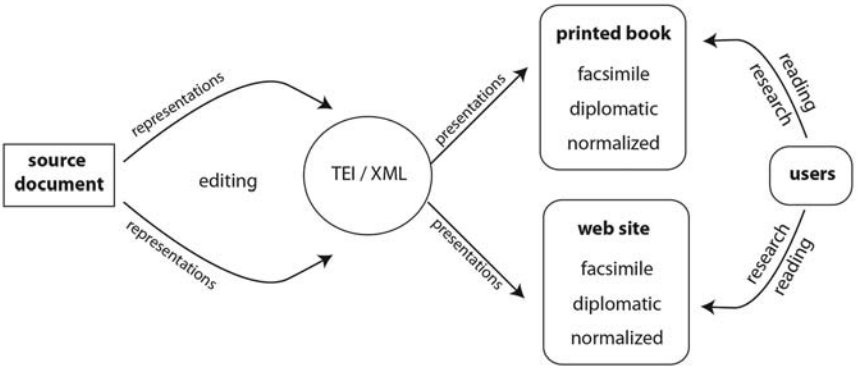


Figure 4-3: The digital text editing and publication process. The digital editing process, with intermediate TEI documents, produces several text versions, all representing the source document(s) in different ways.

other hand, these readable versions are provided with presentational information that makes them more applicable representations of the source documents than the TEI version. This clearly illustrates the ambiguous status of XML/TEI documents: in some respect, they contain the most thorough representation of the original documents, yet they depend on external style sheets and transformations in order for this information to be presented in legible form.

### *Challenging Opportunities for the Future of Editorial Philology*

However, having pondered on digital text features and the ambiguity of XML and TEI, it is important to recognize that the intermediate nature of TEI and the separation of verbal information from presentation bring huge advantages. From TEI documents, diplomatic and normalized transcripts of the source documents can be presented in several media, such as in printed books, on the web, on CD-ROMs, or in e-books. Whether the primary publication from a project is planned to be in print or on CD-ROM or DVD-ROM, new editions may be made from the XML files at later stages as web and e-book technologies mature. In any case, the XML format ensures future compatibility. Further, in digital editions the quantity of published matters may also be vast and much greater than in any printed edition. Digital editions may even be complete, including all the editorial material as well as the intermediate XML files. Free publication of the XML files is the ambition of the "open transcription policy," which is based on principles in the Open Source software movement and initiated by participants of the Canterbury Tales Project (2006). Advocates of the open transcription policy argue that all digital transcripts (XML or not) should

be published and made freely available to all researchers. This would encourage continued research and accumulation of knowledge, not least by allowing competing researchers to provide new perspectives and methods in the study of the transcribed historical texts.

In research the logical structure of XML and the editorial markup and encoding of all kinds of variants make the huge task of collation possible through the use of specialized software, a task that would be more or less impossible without properly encoded transcriptions and the processing powers of computers. In the Canterbury Tales Project, every word and every line of the many edited manuscripts are collated and the records made available for users of the editions. Peter Robinson and his colleagues also use phylogenetic software, adapted from evolutionary biology, to achieve comprehensive stemmatic analyses of the extant manuscripts. To a large degree these analyses confirm earlier researchers' gathering of the manuscripts in related ancestral groups, but the analyses also shed new light on the textual history of the tales, especially the process of early scribal compilation and copying. In the published editions of the tales, users can place variants of spellings and words in split-tree models generated by the phylogenetic tools. At least in the Chaucer studies, it seems that the digital transformation of the editing and publication process so far has reinforced and enhanced traditional methods of editorial philology, especially in the use of collation and stemmatic analysis tracing the process of copying in search for the original version of the text.

Thus, insofar as editorial philology is concerned, even if new analytics have been deployed, research aims and methods have not changed substantially as a result of the digitization and remediation of text, which, of course is notable because the digital transformation has created a new text paradigm with altered text characteristics and new text concepts. In the future, additional tools will be developed, gradually changing the focus and methods of textual research. When a phenomenon is studied using new tools, new and fruitful research questions may arise and a new scientific paradigm may evolve, often generating new insights and better understanding of the phenomenon in question. For the digital humanities, however, the current changes bring about a particular challenge. In textual editing the original texts are given new characteristics as a result of the remediation: when studied in a digital environment, the texts are no longer the objects they used to be. As we have seen, the separation of storage and representation in digital text makes it transformable, highly malleable and flexible, easily distributable, searchable, and globally accessible. Critically edited texts are stored in intermediary formats, and their onscreen presentation is technologically dependent. Presentation of a text is usually in a multimodal environment and as a node in a hypertext structure in which the text is evanescent and physically intangible. Thus, digital text does not have

the object status of written and printed text, it is not easily located, it lacks the unity of books, and it is very difficult to determine as an entity—digital text even allows for instant creation of new and temporary expressions of the original work. When historical texts are remediated and studied within this new text paradigm, researchers necessarily have to ask, with Roger Chartier, if the text they are studying is still the same.

As Odd Einar Haugen and Daniel Apollon explain in chapter 1, the emerging digital textual scholarship may be understood from the perspectives of textual editors looking backward, outward, or inward. "Looking backward" means to search for the origin of a text and to trace its development. In a classical setting it means to track the process of copying from the very original and then from one exemplar to the next, and in a post-Gutenberg setting, to trace the development from the first drafts made by the author until the printed end product. "Looking outward" means to view the text as a sociohistorically situated product, and "looking inward" implies reading and understanding the text as an individual expression of its own right, as a self-contained document. Evidently, many of the research questions related to these perspectives are intrinsically tied to basic characteristics of written or printed text, such as the physical materiality of the text, its object status, fixedness, durability, the authors' integrity, and the unity of the work. When the object of study—the text itself—changes as a result of remediation, taking on a range of new features, researchers also have to ask if the traditional research problems are still relevant. Contending that the research questions are still valid, as a minimum requirement, researchers have to clarify the relation between the object that is studied, the digital text, and the original historical text the study is supposed to illuminate. This is absolutely critical, because text is by no means a dead object but permeated with meaning and basically defined by its interpretation. Following the fact that texts are given new basic features, at a basic interpretative level, digital remediation of text encourages new ways of reading and new reading practices, inevitably raising questions of how these new practices influence the interpretation of historical texts when presented in digital environments.

## Remediation or Revolution in Reading Practices?

The word "revolution" can sound a bit far-fetched for talking about reading, but it is a fact that in the last fifteen years many researchers, such as Sven Birkerts (1994), Roger Chartier and his *Le Livre en révolutions* (1997), George Landow (2006), or Maryanne Wolf (2008), have drawn attention to the important transformations affecting not only texts, written works, but more specifically the writing and reading mind. As Umberto Eco puts it, it is not a question of "*Ceci tuera celà*" (which refers to the book's capacity to kill the cathedral), as the quote

from Victor Hugo's *Hunchback of Notre Dame* implies, for "in the history of culture it has never happened that something has simply killed something else. Something has profoundly changed something else" (1996, 304). Eco is referring here to successive inventions, such as photography or cinema, that have changed the process of artistic representation. These cultural changes do not happen overnight but take a long time to become pervasive and result in developments not necessarily foreseen or predicted. Because the effects of digital technology on reading have already become a hotly debated issue, it is not premature to consider if the new practices represent a real threat to humanistic values and the reading brain or if they herald a new era of novel thoughts, creative thinking, and a new democratic relation to reading and writing.

In the first part of this chapter, scholarly editions were revisited with a view of challenging the prophecy of newness that digital technology carries for the study of texts by reinterpreting as a process of remediation the changes duly experienced by editors in going from paper to digital technology. This has made evident that the contents of the new media are closely linked to their predecessors, as they pay tribute to the same intellectual, literary, and historical principles. It has also brought forth the fact that these contents were themselves often the result of earlier remediation from other media representation. Remediation can thus largely account for the value added to existing scholarly editions when they are transposed from one media to another, or also attributed to digitally native editions, which, although developed with digital tools, follow existing printed work requirements.

But it has also been shown that the original texts acquire new features because of remediation; it is not the same objects that the researchers interact with, nor the same tools, and this opens the domain to new and fruitful research questions and the possible emergence of a new scientific paradigm. In this second part of the chapter, reading practices are reviewed in the light of not only the remediation process but also of the new digital reading modalities and the new relationships to texts and knowledge that are dawning with the development of digital technologies. For as scholarly editions migrate to the digital world, it is important to appreciate whether scholarly reading practices can be remediated or if they will be radically transformed when dealing with digital texts on screens.

Alarms are being raised to avoid the death of the book; the end of reading; the dissolution of our beliefs, values, and cultural aspirations. It seems obvious that the ongoing changes in information technology are concomitant with cultural changes, and as the world becomes more and more digital, the enormity of the changes under way is raising concern, fears, and even rejection. It is important at this point to understand what changes are occurring, if the acquisitions of

"literacy" will be enduring, or if it will give way to new innovative and powerful ways of being, thinking, and understanding.

What is happening to reading practices in a digital world? Are we also witnessing a remediation process—that is, a crossover from one media to another of reading habits and expectations—or are we confronted today with an authentic revolution in reading and in the modalities of relating to documents and texts? It is argued here that if, generally speaking, reading practices are still referred to as reading on paper, the changes already observed in reading with digital media can be understood as the beginnings of a profound cultural evolution that scholarly reading and editions will not be able to elude. Our argument here is based on confronting what constitutes the digital practices of reading today with the enduring representations of reading developed in reference to reading on paper and by looking at how digital critical editions can meet the expectations and demands of readers and their multiform, multitasking, multimedia reading in a digital world.

Science fiction author and media theory professor Paul Levinson (1998) has defined remediation as the "anthropotropic" ("anthropo-" for "human" and "tropic" for "toward") process by which new media technologies improve upon or remedy prior technologies in their rendering of human performance. As readers go from paper to digital, the challenge in transposing the remediation concept is to assess if digital reading does offer improved conditions for reading and how new media develop their cultural acceptance and significance. According to Bolter (2000), as referred to in the first part of this chapter, remediation more specifically characterizes the way in which new media refashion earlier media forms. The two main strategies of remediation are immediacy or transparency (trying to make the viewer forget the presence of the medium) and hypermediacy or opacity (trying to multiply mediation so as to create a feeling of fullness, a satiety of experience, an excess of media). When considering reading, can such strategies help to understand what is at stake? Immediacy would be what qualifies uninterrupted reading, an immersive experience of being involved in a narrative such that both decoding and page turning become transparent. The opposite of this, hypermediacy, applies quite aptly to the reading of scholarly works, where the critical apparatus, the variants, and the annotated text constantly converge to inform and convince the reader that he is accessing the complete and authentic meaning or interpretation of the text of document through an augmented version of the original document.

However, if applying the remediation strategies to reading is to shed sufficient light on the changes in reading, much deeper transformations must be taken into account. Experienced print readers are very sensitive to the changes in their physical and pleasurable experience of reading when screens replace

paper, and most are convinced that their preference for paper is irrevocable. But the change from paper to screen is only the emerged tip of the iceberg. One needs to take into consideration the changes that the digital world brings to the social representations, the professional constraints, and the cultural criteria that organize one's reading experience. As reading practices become more complex and diversified, scholars need to ensure that the digitization of their texts, manuscripts, and diverse sources of contents are not only compatible with the new capabilities, expectations, research criteria, and competences of their intended readers but are also capable of bringing about authentic cultural experiences worthy of the works presented.

### *The End of Reading as an Experience of Interiority?*

For centuries, reading has been the core cultural activity of Western culture, and the book has been seen as "modernity's quintessential technology—'a means of transportation through the space of experience, at the speed of a turning page,'" as the poet Joseph Brodsky puts it (Rosen 2008). For university professor Nathalie Piégay-Gros (2002), "Reading is an activity comparable to interpreting a musical score" (15; our translation). Well-known testimonies put reading as the source of interiority, intellectual awakening, self-construction, and pure enjoyment of life. Reading can be the lifeline of the solitary child, as described by Alberto Manguel (1996): "Sitting at my desk, elbows on the page, chin on my hands, abstracted for a moment from the changing light outside and the sounds that rise from the street, I am seeing, listening to, following (but these words don't do justice to what is taking place within me) a story, a description, an argument. Nothing moves except my eyes and my hand occasionally turning a page, and yet something not exactly defined by the word "text" unfurls, progresses, grows and takes root as I read" (28). These lines stand in echo of Proust's (1971) well-known "praise of reading," in a text beginning with "There are perhaps no days of our childhood we lived so fully as those we believe we left without having lived them, those we spent with a favorite book." Describing his experiences of reading during his personal childhood, Proust has strong metaphors as he presents reading as both a "fiery and sedate bliss" (2000, 73), "this contract with other minds" (61), "this pure and calm friendship" (56), or "this divine pleasure" (7; our translations).

This dominant reference to printed books in the reading experience comes with a preferred reading object: literature. Reading fictional or poetic texts has long been the prototypical reading experience, as least in the Western world. Based on attention and concentration, intense and intentional reading, especially in the case of literary texts, is still largely the dominant representation of

what reading is. Literature is credited with feeding concentrated and refined emotions, desires, and knowledge that are aroused in a reading experience:

> For literature remains the unexcelled means of interior exploration and connection-making. The whole art—fiction, poetry, and drama—is fundamentally pledged to coherence, not just in terms of contents, but in forms as well. (Birkerts 1994, 197)

> Literature in particular, in all its forms (myths and legends, fairy tales, poems, novels, theatre, personal journals, comics, albums, essays—as long as it's "written"), offers a remarkable medium to awaken interiority, put thought in movement, stimulate symbolic activity, meaning construction, and foster seminal sharings. (Petit 2008, 224)

Hence there is an importance that is attributed to investing in texts, developing reading as a pleasurable experience and as an emotional and aesthetic encounter.

This vision of reading has recently been brought into perspective by ethnologists who underline that this understanding of reading, as an individual activity focused on an experience of interiority, is basically a Western approach within a specific historical time span. Brian Stock pleads for opening up the concept of reading: "The only way to move beyond the limits of our present understanding is to expand the archive of known reading practices; and this knowledge is perhaps the best guarantee that contemporary practices will not be made the standard for evaluating the different roles that reading plays elsewhere" (1993, 271). For, according to this ethnologist, "It is likewise recognized by historians and anthropologists that the notion of literature, as a type of discourse accessible through reading written texts for their nonvisible, allegorical, or spiritual significance, is largely a Western invention. The implied connection between writings and inner realities since Plato is one of the successful fictions that antiquity and the Middle Ages perpetrated on the modern world" (272).

A historian of intellectual practices such as Christian Jacob also relativizes the importance of individual reading: "Silent and solitary reading is only one modality amongst others, that has developed because of the emergence of intimate spaces and a personal relation to books and literature, and of the acknowledgement of individual subjectivity and sensitivity, fashioned by the evolution of society, customs and education" (2003, 18–19; our translation).

These historical perspectives are introduced here because they provide a distance that is necessary in order to understand the ongoing changes in reading practices with the development of digital means. For in our culture, reading is so deeply fashioned by the paper book that it is difficult to think otherwise of reading, or at least to think in terms of legitimate and worthy modalities that do not rest on the use of paper and whose implicit model is not literary reading.

### *Reading as an Acquired Competence*

Reading appears to be such a "natural experience" that we are easily led to forget that being capable of reading fluently is the result of three to five years of intensive study and practice, as schoolteachers and children will easily acknowledge. Well-read books by neuroscientists, such as Maryanne Wolf's *Proust and the Squid* (2008) or Stanislas Dehaene's *Les Neurones de la lecture* (2007), both on the "reading brain," have popularized the recently acknowledged discovery that "the act of reading" is not natural but instead results from adaptations in the circuitry of the human brain. Wolf begins by reminding us of this shaping of the brain's ability by our cultural experience: "We were never born to read" (3). Basically, from a neurologist's point of view, learning to read consists of connecting two cerebral systems that exist in every young child, even at an early age: the visual system, which is capable of recognizing forms, and the language system. In order to connect the two, or adapt itself to reading requirements, the brain exploits and expands "two of the most important features of the human brain—our capacity for specialization and our capacity for making new connections among association areas" (M. Wolf 2008, 29). For Dehaene, "At the interface between nature and culture, our reading capacity results from a fortunate combination of circumstances in which good teaching plays as fundamental a role as the presence of visual and phonological neuronal processors correctly interconnected" (2007, 319–20).

As historians have shown, our reading ability has undergone many important evolutions, often triggered by new technologies, but also spurred by cultural and intellectual changes in society (see Cavallo and Chartier 1997; Eisenstein 2005; Manguel 1996; Olson 1994; Vandendorpe 1999). These changes—because they usually involved faster reading and thinking rhythms, questioning of authorities, and less reverence coupled with more rationality in dealing with texts and documents—have repeatedly produced fear of losing the cultural gains achieved in earlier existing practices.

### *Reading: A Practice Shaped by Technologies*

Reading is a technology-based activity. Technology refers here to artifacts understood within an instrumental approach. As Pierre Rabardel sums it up, "The notion of artifact designates in anthropology anything having been transformed, even minimally, by a human being" and has "the advantage of not restraining the meaning to material things (of the physical world) as it easily comprises symbolic systems that can also be instruments" (1995, 59). Artifacts, which can be cognitive, social, or material, are produced by humans and incorporated into their activities and thus become instruments or tools. Technology refers

to those material artifacts whose integration in human activities improves the procedural or methodological efficacy of the activities. Volumens and codices yesterday, paper books today, as well as all digital reading devices, are part of the cultural technologies that help us relate to information, knowledge, and, more generally, to texts and documents.

What the advent of digital technology has brought about is not only a differentiation between texts and their material support but also a strong awareness of the collusion between print, text, and thinking processes. Because printing and books are technologies, and because "technology constitutes a crucial cultural force" (Landow 2006, 46), it is necessary to consider the development of digital technology not as an alien product intruding in a natural setting but as a continuing evolution and expansion of information technology. George Landow explains how each technology has a tendency to consistently affect its inner principles, which allow for a limited number of tendencies, even though it is not possible to determine the exact directions that this influence will take.

Transposing written texts from paper to digital forms has led to the awareness that many characteristics attributed to knowledge were in fact primarily characteristics of print, such as stable spelling; rigorous punctuation; and accurate, permanent, and structured texts. When one thinks of reading, it is usually an in-depth, solitary experience of interacting with text on paper. That's because the dominant representation of reading is intertwined with the representation of printed texts in books and most of our reading experiences have been with printed books.

Another awareness that the transfer brings about is the importance of form in grasping the meaning of texts. Don McKenzie (1991), Oxford bibliographer and text sociologist, conceived that the role of the bibliographer is to "show that the forms have an impact on meaning" (30). Christian Jacob, a historian of intellectual practices, addresses a similar issue when he writes: "The materiality of books and the constraints in their handling affect the modalities of text appropriation, the process of meaning construction, and this applies to all books, be they manuscripts, printed or displayed on a computer screen" (1996, 56). In other words, the reception of a text is conditioned by the form that has been given to it, because the material support, the graphical presentation, and the means of access will all affect the interpretative process, from connoting in certain ways the author, the text, the authority of the text, the importance of the text, the way of reading the text, and so on. The importance of the form for a text also stems from the strong emotional investments that most readers place in books as personal and valuable objects.

As historians have shown, because technology affects meaning construction, characteristics of texts came to be identified with the printed book. Not only did page layouts and composition reach a summit of readability with print settings,

but also the perpetuity and authority of texts came to be identified with printed books. Paper printing gradually imposed a stabilized text, a page setup facilitating eye movements across the text, silent reading, and editorial references that legitimized documents. The use of specific presentation features, such as chunking text into paragraphs, highlighting titles and subtitles, using italics and page display, and providing blanks and margins, affects content composition, which in turn induces cognitive processes.

### *Scholarly Reading: A Case on Its Own?*

Reading old texts and critical editions of heritage works corresponds to a particular modality of reading called scholarly or erudite reading. This reading mode comprises a certain number of features that correspond to ways of interacting with such texts and to the fact that this type of reading is usually associated with working on texts. Until recently, scholarly editions have been produced basically as printed books, and most of the researchers using digital tools for their work still produce paper editions as their final output. Consequently, scholarly or erudite reading refers to reading paper works. Is the reading of these works threatened, and will the heralded changes in reading practices apply to scholarly reading?

Jacob has pertinently analyzed this scholarly reading mode, distinguishing it clearly from ordinary reading: "Reading refers today to a kind of well-regulated solitary and silent relationship to writing, the dynamic encounter between two subjectivities, between two intentionalities, through the mediation of a written text that would have the identification and projection power of a mirror. This model is only one step in a long evolution, during which not only the nature and status of books, but also their uses and their handling have considerably varied" (Jacob 2003, 18). Unlike this reading mode, scholarly reading is defined as "the activity of those who handle books as deposits, knowledge, wisdom and meaning objects or instruments. This knowledge, this wisdom and this meaning itself, presumed inscribed within the text, are actualized as results of reading, as the fruits of work, as the production of watchful eyes, of attention and of intelligence" (20). Not only is scholarly reading closely associated with paper books, but it also favors a reading mode made possible through the existence of this type of books. "Reflexivity seems to us to be an essential dimension of this activity: the scholarly reader controls and modulates his practice, he orients and focuses his look, he exploits the text and his very reading" (21).

For scholarly reading is above all "slow and methodical, aiming at an in-depth understanding of the document itself" (Jacob 1987, 89). Often linked to writing and working on the texts, "learned reading is defined by specific protocols: the reader interposes between the text and himself grids or filters, in order to select data and impose a specific point of view on the text" (Jacob 2003, 21–22). The

researcher works with note sheets on which he records "key words, cardinal passages," "recurrences and articulations" (Jacob 1987, 90). Jacob foresees already what computer tools could bring to this type of reading: "Reading then is simulating possible texts. And one can imagine the contribution that computer processing would bring with visualizing of recurrences, underlying semantic networks, all that marks the text" (90; our translation). Finally, scholarly reading involves an implicit epistemology of the reader's community: "Scholarly reading presupposes a conception of texts as deposits and vectors of wisdom and knowledge, capable of being reactivated with the proper intellectual techniques" (93; our translation).

The scholarly reading mode organizes a permanent questioning of each text, of the way the text works and of what it signifies. Very demanding for the reader, scholarly reading has been developed with critical editions on paper, even though it is obvious that this paper presentation most often shows little concern for the reader's activity. In the same line of thinking, Roger Laufer, reflecting upon his scholarly edition of *Le Diable boiteux* (a text of 1707), wrote about his own difficulties in trying to read it: "Coming back to it a few years after having finished it, I found that it was unreadable even for myself. Why? Because such an edition is only the materialization of a patient work of jotting down extracts and notes made with strained eyes, and not a system for reading. I am convinced that no one has ever read critically more than one or two pages in a row, perhaps three at the most" (Laufer 1988, 118). Questioning the pertinence of computer solutions, such as multi-windowing, he sees there a real taking into account of the reader: "Thanks to it [electronic interaction] the reader can really take over the work of comparing raw data that had been previously recorded and memorized; that is, organize them according to one's own objectives" (118). Laufer is aware of "the scope of necessary intellectual changes and the stakes of possibilities that open up" for researchers as well as for readers. Still, as Nina Catach words it, will "the crucial contradiction between the scientific requirement of exhaustiveness and the no less imperative one of readability be better resolved?" (1988b, 25). Questioning the readability of critical editions, John Lavagnino (1995) distinguishes between presentations to facilitate the research work and presentations to facilitate the reading activity. He observed again that critical editions on paper are not made for reading: "The book has become transparent for most of us, but scholarly editions with their critical apparatus do not offer a transparent presentation of the different versions and variants, because one has to resort to the apparatus and the apparatus is opaque for most of us." Lavagnino therefore pleads for editions that will allow the reader to be able to read without being interrupted, and for reading of works as a truly immersive experience and not just a collection of data: "The complaints about editions that do not expand ampersands and abbreviations, and the exaggerated responses

of many people to errors in spelling and punctuation, testify to this desire for immediacy: these things do not render texts impossible to decode, but they trip us up, they make us work too much at the mere labour of routine decoding and so interrupt our experience." It follows from these comments that critical editions, as presented on paper, are far from enabling the activity of readers even if they allow researchers to work on the texts. Even if there is an awareness of the facilitating possibilities of digital means for readers, it appears that the digital editions are still conceived as very similar to literary reading on paper.

### *The Paper Paradigm Still Largely Organizes the Reading Experience*

Until recently, hardly anybody outside the concerned Western scholars was aware of how important printing and paper had become for reading and conception of text. By the "paper paradigm" of reading we are referring to the set of assumptions, representations, and practices that have coalesced with the development of printing on paper. Therefore, the term "paradigm" is to be understood within the perspective brought by Thomas Kuhn as "the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community" (1962, 175). With this concept, Kuhn introduced a rupture in the history of sciences, in conceiving it not as an accumulation of knowledge but as a series of revolutionary breaks, as a "succession of tradition-bound periods punctuated by non-cumulative breaks" (208). What the paper paradigm emphasizes is the quasi-irreversible connection between reading and paper books, which, because of their fixity, their recognized legitimacy, and their user friendliness, have become irreplaceable for sustaining the experience of comprehension, of concentration, of interiority, and of memorization that reading is believed to require. That is why, inasmuch as the paper page layout, the fractioning of texts, and their typography can be reproduced onscreen, the experience of digital reading can take place within a certain continuity and can be considered as a remediation of the practice and not a revolution.

Our dominant representation of reading is based on the printed book. When readers are asked what they want to read on, most will say they want it to be like paper. Sometimes readers do not even think they have read something unless they have read it on paper. When questioned after reading e-books, readers say that what they missed the most is "the feeling of paper." Not being able to feel and turn the pages deprived them of the feeling of progress in reading. Without page turning many people feel they no longer have a hold on their reading experience, because they don't have a sense of how far they've gone. High screen resolutions are appreciated inasmuch as they come close to the high quality of print norms. Readers are comforted in their thinking with the

paper-like aspect of many web texts, the dominance of PDF format presentation geared to printing, and the efforts of the e-book industry to imitate paper book presentations, layouts, and structure. Even though digital technology has been around for more than half a century, people who share this paradigmatic understanding of reading still talk or write about books, or journalism, without feeling the need to specify "paper books" or "paper journalism," as if there were still only one kind of books around or still only paper journalism. When one reads as the title of a conference "The Death of the Book," the speaker is probably referring only to the death of the paper book. It is urgent to develop awareness of this paper paradigm in order to better understand the cultural changes that are taking place today.

Adolescents today have not left aside the paper experience, as evidenced by the sales figures of different novels geared to teenagers: 11 million copies of *Harry Potter and the Deadly Hallows*, by J. K. Rowling, had been sold in July 2007 within the first twenty-four hours of sale, and the number of books sold in the Harry Potter series was already at 325 million even before the seventh, and final, novel came out (BBC World News, July 23, 2007). The *Twilight* series of four best-selling novels (with a combined page count of over two thousand) by Stephanie Meyer also had record sales of 42 million copies four years after the first book went on sale. Whether this is a passing flurry or a real discovery for teenagers and the younger adults who compose the readership, their reading experience as an exploration of fantasy, witchcraft, and imaginary characters is now intensively being attended to by a large number of authors. What this mass popularity of printed books confirms is the need to closely examine whether reading is changing or whether reading practices are becoming more diversified, different, and distinctive.

Sven Birkerts, back in 1994, made a strong case for the printed text-based interiority experience, which he then considered as being specifically tied to the reading of printed books. He observed with dismay the new experience of digital reading as surface oriented, faster, and less engaging in opposition to this Western printed book experience. The conflict he described was reminiscent of similar fears that were voiced in the sixteenth and eighteenth centuries, when people started reading faster, because, among other reasons, print is read faster than manuscripts. But such fears have often been expressed throughout the history of reading as practices moved from the meditative, prayer-like reading of texts in the Middle Ages to the skimming and diagonal reading of twenty-first-century readers.

Although Birkerts has now moved into the digital workplace, he stresses the fact that there are "profound discontinuities in what we optimistically call the evolution of culture," and he stresses the need today "to orient ourselves to the new, its possibilities as well as its liabilities."

> Change has not been overtly imposed so much as subtly and complexly distributed. Everything rearranges itself. What's more, much of the transfer has been in the direction of ease. To add exponentially increased processing power to a computer, new enabling software packages; to acquire a mobile phone or access to fifty new channels—these feel like expansions and augmentations, and we take them in our stride, one by one, mostly unaware that we embed ourselves ever more deeply in a mesh. And unaware, too, that at a certain point that embeddedness is comprehensive enough to mark a significant change in our way of living. It is necessary to grasp this fact of saturation if any headway is to be made in understanding the present situation. (Birkerts 2003)

In fact, the changes in reading practices are not so much a question of technology as a question of social practices. It is the users who decide if and when the new practices are preferable and if and for what reason the old ones should survive.

### *Changes in Reading as Symptoms*

Changes happening with digital information technologies today are being discussed either to raise concern or to stimulate adoption. Non-biased facts are difficult to come across, and therefore the issues can be raised mainly in terms of questions asked. Different media are relaying a general alert concerning explicit changes in reading. Reading on screens is held responsible for shortening our attention spans and for reducing reading to just-in-time skimming, to scanning material very quickly (Marshall 2004), to processing smaller and smaller snippets of text. Is reading on screens putting an end to reading in depth (Levy 2001), dissolving disciplinary boundaries, weakening our ability to think things through for ourselves (Sanger 2008), radically changing public and private space, and destroying the isolation of distance? Of course, these questions do not stem specifically from digital scholarly practices, because the presentations of most digital scholarly editions are very similar to their paper ancestors. But it can be assumed that if these changes in reading habits are established, they will gradually concern all readers and, consequently, digital scholarly editors will need to be aware of the kind of readers their works will be addressing.

In a seminal article with the provocative title "Is Google Making Us Stupid?" which resonated all across the Western hemisphere in the summer of 2008, journalist Nicholas Carr formulated the problem with digital technology as being related to the shaping of the mind by the tools used, Google being the most terrifying. This shaping had previously been described as becoming incapable of dense, in-depth reading and capable only of surfing across the web with only short spans of reading. Carr goes further in providing arguments that point to noticeable changes not only in reading activities but also in the way of thinking, in evolving mental habits, perhaps signaling a reprogramming of

the brain. What worries Carr is not so much the changes as such, but the fact that it is the Internet that is "reprogramming us" and the fact that "the Net's intellectual ethic remains obscure." Google's declared mission, "to organize the world's information and make it universally accessible and useful," as stated on their website, coupled with their interest in artificial intelligence, does not really reassure him.

Carr also refers to Maryanne Wolf's book on reading as a reorganization of neuronal circuits, in order to understand the ongoing changes in the brain due to digital activity. For Wolf there is cause for alarm: "We must be vigilant not to lose the profound generativity of the reading brain as we add new dimensions to our intellectual repertoire" (M. Wolf 2008, 23). The "partial attention" culture that is typical of Internet browsing and multitasking could foster information illiteracy.

Even though most people are aware of differences in their use of the Internet and of paper books, they are often unable to identify or explain these differences and often have a feeling that digital technology does not provide for reading activities that are as engaging and in-depth as reading paper books. Therefore, they are genuinely questioning whether digital uses are developing new cultural grounds, attitudes, and perspectives and doing away with strongly established and precious values.

What this brings home is that culture in a digital world is not primarily based on or referring to books. We are probably in the midst of a shockwave equivalent to the one the printing press initiated in the sixteenth century, as documented by historians such as Guglielmo Cavallo and Roger Chartier (1997) or Elisabeth Eisenstein (1983). For in addition to providing a new support for text, printing changed the hierarchy of information production and the communication circuits in fundamental ways. The sixteenth century saw not only the development of print but also the rise of the Renaissance, of the Reform, and of humanism. "Within decades, a new intellectual community was fashioning and feeding the Renaissance, that sudden and dynamic expansion of Western culture that dared to transgress the margins of medievalism" (Fischer 2003, 206). "Printing's emancipation of the written word defined that essential dynamic of our modern world, the accelerated accessing of information" (207). And as the French historian Henri-Jean Martin has reminded us, "The gradual shift from the world of orality to the society of writing . . . led, in the final analysis, to something quite new—the unleashing of mechanisms that prompted a new view of self and a spirit of abstraction . . . It encouraged a logic of the act as well as a logic of the word, and also an ability to reach reasoned decisions and a higher measure of self-control" (Martin 1996, 321, as quoted by Fischer 2003, 207). Are we facing an evolution that is similar in momentum to the one that was initiated during the sixteenth century in Europe, a diversification in intellectual approaches and in relating to knowledge through digital reading? The changes developing in

the digital environment could have such deep consequences as the rejection of ancestral knowledge deposits in favor of quests for updated information deemed more pertinent along with a receding of authority figures and mediating institutions. Even if the creativity of a new generation of writers producing on the web and their new interactive and multimedia presentation schemas take a long time in finding their readers, there is a building up of changes in reading modes that progressively compel recognition by all.

Scholarly editing is particularly concerned with the results of this evolution in reading practices. Because of commanding changes in the technological, organizational, and economic editing processes, scholarly editions will have to adapt more and more to constraints in decisions concerning contents that are edited and presented, the public that is being addressed, scientific exhaustiveness, and legibility policies. Will such evolutions be sufficient to ensure a privileged niche for these works in a developing digital world? Or will researchers who work with digital tools be called upon to completely rethink their aims and methods in order to face the digital challenges?

### *Emergence of the Digital Paradigm in Reading*

With the paper paradigm in reading being dominant, it can easily be described and delimited with varied examples. The digital paradigm, however, is only just emerging in new reading practices, and one cannot rely on representations and existing practices for an obvious recognition of these practices. "Digital paradigm" refers here to the set of beliefs, values, and practices shared by those for whom digital tools cannot be ignored, as much in their daily life as in the evolution of society. Our focus in this section is on the specific changes that digital reading tools bring about in our relationship to content and knowledge, for the ongoing changes in reading are not independent of a much wider digital environment.

The digital paradigm appears with computer technology, but it is rooted in the profound changes that media practices have brought about throughout the twentieth century. As the different media—photography, film, radio, comic strips, press, and television—have developed in the last century, cultural practices have experienced important changes and reading on paper has become seriously challenged as the main enriching pastime. While some sociologists keep stressing the general stupefying effect of media on masses, most users have not simply passively adapted to the different media but have learned to read ingenious magazine layouts; to zap commercials and uninteresting TV programs; and to find their own personal preferences and gems in the profusion of games, shows, and activities that media have made available.

What characterizes the digital reading paradigm can be drawn from the behaviors already considered as typical of a digital world. The digital world

is one of evolving powerful technology where all activities are mediated by technological interactive tools. These tools can be personalized and are geared mainly to communication. The user is not a viewer or a listener but an actor, intervening in the flow of data that relates him to the world through a digital device. Whether it's through a game, a commercial transaction, or a search for information, the Internet user is constantly picking up information, making decisions, and intervening in the unfolding of the action. This also applies to reading on screens, as computers were not designed for continuous reading but for reading and writing. This basically active approach is coupled with an unreserved and open approach to documents and information, with an authentic belief that mediators and intermediaries are superfluous. A good example of this belief is the use of encyclopedias like Wikipedia, where users are confident that they can understand the explanations and presentations, whatever the topic, which is not the case with the authoritative encyclopedias such as *Britannica* or *Universalis*. This is coupled with a renewed faith in democracy and sharing, as exemplified by the social networks that have been set up and the extreme confidence with which people share their lives, their aspirations, their feelings, and their daily activities with their friends, usually, but also with total strangers.

Digital tools allow readers to explore new reading modalities: fine textual investigation with analytical tools, and instant hypothesis testing with tools for translating, researching, clustering, classifying, synthesizing. These are important challenges for trailblazers. There is a need to deconstruct the reading concept and construct new reception schemas. Second-generation e-book users easily expressed in a survey (Bélisle et al. 2004a) their new requirements as they became familiar with the possibilities of the e-book devices they were using for reading. They wanted new features, such as more contextual information, dictionaries, and Internet access. Thus, because they were working with a digital tool that offered potentially numerous possibilities, they were modifying their reading habits, even for reading novels. It is obvious to foresee that evolving reading practices will rapidly impose new interfaces and new content concepts, such as "collections," which could have an important role in organizing access, while the distribution in book units seems less pertinent in a digital context. Those who are leading the way in reading technology will find stimulating challenges in mastering these tools.

The first generation of e-books, the handheld reading devices, which almost made it to popularity at the end of the twentieth century, gained their appeal through their printed-book-like presentation of text, answering readers' expectations of legibility in bringing printing norms into the digital world. Long texts with just a scroll button remain unacceptable. E-books brought to the screen the page format, the division of texts into pages, providing a reading rhythm one does not have when scrolling. But this first generation of e-books did not

survive, because it had too many drawbacks (weight, autonomy, availability of books, etc.). Having overcome the main initial obstacles, a new generation of e-books is trying to attract a reading public with a presentation that reproduces the paper book layout. This renewed offer in e-books has brought digital reading to a new level with the use of E Ink (a type of electronic paper) as well as different formats and digital stores where users can buy and upload books and other texts no matter what device they want to read on: PC, Mac, mobile phone, dedicated reading device with electronic paper display (E Ink) or tablets with LED-backlit IPS (in-plane switching) display. Most devices now have virtual keyboards, multi-touch screens, and Wi-Fi connections.

Other innovative technologies are already in use with dedicated readers (devices) that are being experimented with, mainly by the online daily newspapers. These viewers allow page turning, zooming in on any element, which a mouse click seamlessly presents in a high-definition window, or navigating by thumbnail images of each page presented in a column on the left. This allows the reader to have a rapid view of the newspaper content and to focus on specific articles. Other tools include saving text in a personalized folder, printing, or tagging, and, of course, connecting to the newspaper's main portal or simply navigating the web to obtain further information, check the contents with other sources, or use publishing tools to spread the information. Even if the text presentation, in the case of e-books, is still very dependent on the achievements of the paper page layout, it is easy to understand that using these new reading devices allows one to imagine other ways of reading and brings up the wish to experiment with them.

What these tools are implementing is a full use of new reading techniques, mixing skimming and focusing modalities, integrating comparing and classifying with discovering, and allowing concomitant multilevel presentations. If one also takes into consideration the new aggregators and portals that give access to a large selection of similar websites (for example, news or cultural videos), it is obvious that a new standard in reading technologies is emerging progressively. In some ways these technologies are converging with scholarly editing practices already established in philological work. It would be highly beneficial for digital critical editions not only to become available through these tools but also to have an influence on their development by making known the requirements of scholars who want to access the different text modalities of critical editions.

### *New Practices and Approaches to the Text: Digital Natives*

There is a significant gap between people over thirty and most young readers who have grown up with digital technology and have no firsthand experience

of a world not organized by digital devices, computers, and networks. These "digital natives" (Prensky 2001), as they have been labeled, are truly at ease with digital technology, even if their skills are often limited and superficial. But they do not hesitate to venture into the unknown, using "implicit trial-and-error" strategies and usually succeed in surfing easily on the web. For them, "knowing how" is more important than "knowing what," and knowing how comes with practice and with participation in a community of practice as well as sharing its ways of seeing, understanding, interpreting, and acting.

As Marc Prensky has stressed for the last decade, "Today's students think and process information fundamentally differently from their predecessors" as a result of their immersion in a digital technology environment and the "sheer volume of their interaction" (2001) within it. Surveys, for example, at the European University of Bretagne (Henriet, Malingre, and Serres 2008) or at the British Library (Williams and Rowlands 2007), show that there is a general low level of competence in working with documents. At the same time, the researchers were baffled by the gap between what they were expecting as far as routines and attitudes in coherence with the students' university training, and the actual behaviors of the users. For example, the "Google generation" (Google was created in 1998) prefers rapid information, already summarized, and is not interested in format nor in the original support that would have allowed users to contextualize the information found.

It is not that the "digital natives" are more or less competent in searching for information than previous students (this is what interests teachers); it is that they are not looking with the same criteria and not appreciating what they find with the same values. There is still very little information on this difference in processing information, but it does appear that digital natives have a more detached and functional relation to texts and meaning. Texts and documents are means to interact with the world and are not immediately the basic witnesses of civilization, to be revered and preserved. Among the different characteristics that are developing in the way one relates to knowledge, there is the personalized access to information, a growing individualization of requests and demands, and the development of services and dynamic editing. Finding one's way in the new semantic spaces is becoming more important than the in-depth construction of meaning.

As can be expected, "Any medium will facilitate, emphasize, amplify and enhance some kinds of use or experience whilst inhibiting, restricting or reducing other kinds" (Chandler 1995). The reading practices today take place while an important change is developing in the way society is relating to texts and documents. Can this be as important a shift as the one brought about in reading habits by the humanists, which was to open the way for modern

thought? "'Humanism' turned reading private, questioned received wisdom and creatively sought new alternatives" (Fischer 2003, 214). How can the work on critical editions take into account these evolutions in order to ensure that these publications are present in a world of digital knowledge?

### *More Information and Less Structure*

Two basic changes in the way readers relate to information are brought about by digital technology: (1) the access to vast quantities of information, which has led to the involvement of intermediary software in reading, and (2) the emergence of new and evolving information structures.The first change involves the well-known and researched explosive increase and facilitation in accessing information and the resulting information overload for the user. Digital devices such as computers (portable or desktop), cellular phones, or digital offers such as online libraries or websites provide more and more information and access to different types of resources: not only texts and images but also newspapers, journals, radio and television podcasts, raw data coming in from existing databases, or online recordings of remote sensors in real time (for example, those used by the European space station or the National Aeronautics and Space Administration). These offers also include access to rare and fragile materials—for example, medieval manuscripts—but also multilingual information software (e.g., translation of a Japanese text for Western readers—not the same as if you were really reading Japanese, but still something that breaks the barrier). Accessing digital resources also means changes in the way people learn; as can be observed over the last ten years, the thrust is not so much in memorizing sciences such as physics, history, or geography but in providing students with opportunities to engage in scientific inquiry, in comparative understanding, or in documented presentations. This situation has given rise to a new category of tools: search engines, now well known through the problematic success of Google. Searches are performed in an ocean of information, with results that can be staggering; millions of links may be signaled, but usually the first dozen references are sufficiently pertinent to satisfy the user.

The second basic change in how readers relate to technology is the dimension of information structuring. This fundamental change is much less spectacular but probably entails more crucial consequences for reading processes and practices. The disciplinary structured information is decreasing proportionately as more and more diversely structured information becomes accessible online, whether because of the formats such as databases or because of the content such as multimedia, multilingual, and multicultural documents and files.

Thus online reading gives access not only to large quantities of texts but also to texts that are generally not organized in a disciplinary approach. Disciplinary categories are usually situated within a culture and specific to that culture. They can transcend linguistic frontiers and be common to a sociocultural entity. While information research on paper sources is usually carried out within a disciplinary approach of knowledge, the use of digital support favors a more contextualized, thematic, and personalized approach based on dynamic searching, editing, and publishing. This unmoderated, adisciplinary information introduces a specific new challenge for readers: they must simultaneously understand what they are reading while trying to identify the kind of information they are interacting with. This implies an ongoing meta-cognitive attention to identifying information while the basic interaction between knowledge and construction is happening. Attending thus to categorizing activities while reading is not usually required in paper reading, because the different formats provide us with visual cues that reveal what kind of information one can expect to find.

This new way of reading could represent a real opportunity for scholarly editing with works that usually interact with several disciplinary fields. The real challenge, besides getting interesting, interactive, and authoritative material online, is for editors to be able to reach out to their intended public, taking into account the changes that will inevitably affect their relation to reading and to knowledge. In this sea of information, how will scholarly editions find their reading public? Will specific reading tools be proposed to facilitate and accelerate access to the works: textual and visual synthesis tools, semantic indexation tools, and different navigation tools such as dynamic menus, icons, semantic maps, and personalized paths? Which are the most adequate tools for scholarly reading, as digital editions would require?

As the evolving, dynamic, updated text becomes the norm, digital tools are becoming increasingly intuitive and interactive. What will this imply in terms of allowing access to heritage works without damaging the integrity of the legacy? With digital technology, readers' annotations can be seamlessly incorporated into the original text, thus producing a new text with each annotated reading. Special care must be taken if one wants to distinguish between the original texts and the annotations—and make the distinction visible to all. What must scholars deploy and include in their production so as to alert users to the heritage value of what they have worked so hard on? How can they reconcile the values of authority, authenticity, and scientificity with the changing reading environments? These are problems that will have to be solved by researchers if scholarly editions are to be present and visible in the digital world.

*Meta-Reading: The Future of Reading Critical Editions*

The gulf between the digital literacy of humanities scholars and the skills and competence necessary for handling digital editing and publishing software in their present state will need to be greatly reduced by time and training. Furthermore, there are two major flaws that hinder the reader's interaction with digital editions. The first one is the multiplicity of "isolated and incompatible platform-dependent" (Shillingsburg 2006) systems, each providing "at least one unique capability not found in the others" (90) and each requiring from the user a significant investment to master the intricacies of its tools. The second drawback is the lack of assured conversion tools; as technological systems are constantly developing and being updated, it is not acceptable that a critical edition produced in year n will no longer be accessible with the technology of year n+1 or n+2. Therefore two obvious demands must be met for scholars, other than a few pioneers, to embrace digital critical editions: (1) an interface (or a browser) that provides integrated or built-in access to the main tools necessary to attend to the needs of the different script acts that scholars choose to engage in, and (2) a file format that ensures easy conversion and updating, compatible with user-friendly reading and writing tools.

If these serious technological deterrents can be overcome, can digital editions replace paper editions? Up to now readers' opinions did not have much weight in decisions concerning editing of scholarly works. By implicit consensus these editions could be produced—and can still be produced—without any consideration for readers and can even end up without having any actual readers. The goal of these editions is to arrive at a recognized and established text, with the double aim of conservation and authenticity. As librarians have observed, readers who are not scholars but are nevertheless interested in ancient manuscripts, books, or texts generally ask to have access to documents they can understand, and this might mean not necessarily the originals but versions in modern fonts and spelling. These two aims, scholarly and amateur, do not necessarily converge.

Readers of historic texts do not discredit the different academic disputes over what constitutes textuality, but it is most often of no use to these readers to enter into such nuances, because they do not usually have the background to have a critical understanding of the issues addressed. Unless it is decided that critical editions are aimed only at the small population of students and researchers cognizant of the works edited, it is necessary to rethink the editorial objectives of critical editions in the light of reader expectations and needs. Furthermore, the digital representation of texts is bringing about new reading and critical analysis strategies. As digital representation alters the conditions of textuality, making it possible for readers to pursue new and diversified goals, editors must provide readers with alternative approaches and paths.

With universal accessibility, what has changed are the readers' goals, with a whole new range of possibilities for interacting with texts and documents. Most readers today do not go to historical texts to participate in obscure quarrels about alphabetical and punctuation signs. They do not ignore the cumulative nature of scholarship, nor do they necessarily dismiss the proofs of scientificity that the critical apparatus provides. But very few will seek a "definitive" text. Their questions do not address claims of truth and authority, or reliability, or completeness of an edited work. Readers are interested in knowing clearly and rapidly what are the contents of a work; they also want navigation tools that allow freedom of movement, browsing, and examination, tools that facilitate critical and associative reading by the user through the use of hyperlinks.

Editors present the text for reflexive and critical readers as if these readers want to read the entire text or work in depth. However, because of the evolving way of researching information, readers will increasingly want to be able to choose, to read only parts, and to pursue a text only if they find interest in what is being read. There may be a basic dissymmetry between reader and producer of digital editions: producers want to present the final complete version, whereas readers want to access segments of a text, depending on the objectives of their search. It is interesting to observe that a library such as the New York Municipal Library has undertaken to completely overhaul its online catalog in order to attend to the developing digital experience of those users who want to access only chapters, extracts, or parts of works.

Taking into account the increased differentiation between reading practices, which can already be observed, the main issue is what new possibilities digital technology brings for discovering, understanding, and interpreting scholarly editions of literary works. Two main characteristics are gradually changing the cultural background and expectations of digital readers: (1) the cultural and linguistic diversity inherent to digital resources; and (2) increasingly multimodal processes of learning and understanding. Written, linguistic modes are now accompanied much more by visual, audio, and spatial patterns of meaning. Different meaning conventions address different cognitive skills.

What advantages over paper editions do digital scholarly editions offer to readers?

- Access to more inclusive and richer versions of texts, through archives, multiple editions, eventually access to all related materials, with the capacity to represent the complexity of literary works
- Development of new methods for critical studies and analysis, allowing flexibility and taking into account the cumulative nature of scholarly work
- Open navigation, richer experiences, and parallel readings

- Ability to add comments, links, and annotations
- Opportunities for collective productions of new editions blurring the boundaries between "editor" and "user"

Umberto Eco, in *The Future of the Book* (1996), explained that students could read at such high speeds that even university teachers could not attain them: "The new generation is trained to read at an incredible speed. An old-fashioned university professor is today incapable of reading a computer screen at the same speed as a teenager" (297). This is usually seen as a problem because professors typically refer to only one representation of reading: intensive, repetitious reading—ultimately the religious practice of holy texts meditation. It is a constant observation in the history of reading that each important change in reading modalities, reading publics, and reading sources has seen acceleration in the reading rhythm.

## The Unresolved Ambitions of Digital Critical Editions

In order to develop beyond a small circle of erudite professors and students, digital scholarly editions have to address a public wider than disciples, those who abide by the discipline, who appreciate conforming to academic norms. With the renewed interest in heritage, multiculturalism, and in humanities generally, there is probably a very large potential public for scholarly editions, but before this public is attended to or reached, critical editors must rethink how to present what they have to offer.

The main issue is what new possibilities for discovering, understanding, and interpreting scholarly editions of literary works that digital technology can bring. Editors need to reconcile themselves with the fact that users will be looking at their productions in significantly different ways than those provided until now. Users access texts to find information with very different objectives, from participating in a media contest to writing one's thesis. Documents in critical editions can be consulted only partially, sometimes very rapidly, and often with processing tools such as search engines, translators, annotators, metadata harvesters, and so on. It is up to critical editors to develop access to their material if they want their production to be part of the continuing cultural heritage and therefore accessible by most digital tools used for interacting with this heritage today.

Ambitious prospects for critical editions are not new. As early as 1991, Jay Bolter was already explaining how the electronic (one would now say digital) space held unsuspected promises that could be attained by moving humanistic study to the computer. Referring to the Divine Comedy Project, of putting "into

the computer the text of the *Divine Comedy* together with all its Renaissance commentaries," Bolter sees the computer as the ideal writing space for such an ongoing project, "both because it handles change so easily and because it grants equal status to all the elements in the evolving structure" (2001, 203). Hailing the electronic library as a "new republic of letters," he saw the computer as making "the seductive promise to break down the barrier between thought and writing, to join the mind and writing surface into a seamless whole" (206).

These promising outlooks for critical digital editions have been tested to some degree over the years. Today a much more complex understanding of the digital possibilities prevails. Important changes are under way in the world of scholarly edition. As Peter Shillingsburg summarizes it:

> Textual critics [ . . . ] discovered that texts were more than simply correct or erroneous. Textual shape was in flux, affected by authorial revision and by the acts of editors meeting new needs: new target audiences, censorship, and the tastes of new times. Tracing the history of these textual changes and their various cultural implications became an activity parallel to that of literary critics pursuing new ways to (mis)read texts. Taking into account these important evolutions in the discipline, researchers are gradually acknowledging that constructing a scholarly edition has now gone beyond the capacities of print technology, making it more and more inescapable that scholarly editions should be constructed and published electronically. (2006, 81)

In fact, there are good reasons that explain why scholars have not been persuaded of the advances that digital editions can embody. A number of drawbacks have severely hampered the digital turnover. As has been shown in other digital areas, users will adopt only technology that is user-friendly, that does not require an investment considered outrageous in the light of the gains achieved, that does not entail an important deviation from one's course of action, and that provides greater satisfaction through peer recognition or social status enhancement. This is still not the case with digital critical editions. The work undertaken by different scholars has produced an array of tools, most of them requiring their own system, installment, and work method. This results in tools that are not easily mastered, even for prospective digital native readers, and for scholars it signals a real challenge still to be met of putting scholarly editions at the level of readers' expectations.

Digital space does seem particularly challenging for scholarly editing. It constitutes a medium that is capable of meeting readers' expectations through representing different versions of a work and the complex relationships between them through hyperlinking and multiple window and multitasking interfaces. However, how exactly these interactive navigational expectations can be met is still highly unspecified. Digital editions can also answer readers' new

requirements in text access and reading by providing an array of tools that allow word and thematic searches, creation of links, extractions, annotations, and comparisons, with the possibility of keeping track of all these activities. Yet if there is a general trend toward interactive involvement in digital space, there are very few identified and confirmed uses beyond e-mail, games, commercial transactions, and social networks. Visualization tools, which could present visually complex levels of meanings, of relations, and of historical evolution, are growing in number and capacity, but they have yet to be integrated significantly in scholarly editions.

Diverse modalities of reading are embedded within representation systems. The new reading practices have yet to prove that they are not simply remediated practices from within the paper paradigm but that they effectively represent a breakthrough in cognitive processing of data, information, and knowledge. Whether surfing, skimming, or navigating within multitasking is a decline in reading or the premises of new cognitive processes, and whether the systematic use of summaries, highlights, keywords, hyperlinks, and the resulting new types of reading paths will lead to greater enlightenment are issues still debated. Understanding what is at stake and maintaining belief in the value of these practices are fundamental to setting up critical editions that will correspond to today's dynamic reading. Digital surroundings are developing much faster than we can imagine. Digital critical editions need to find their place in these new surroundings, and this involves mainly focusing on how they will be able to bring about "compelling new cultural experiences" through dynamic reading of the enduring works of authors, heritage writers, and poets.

*Note*

1. Quoted from Lefèvre (n.d.).