

The Rationale of Hypertext

McGann, Jerome J.

About the electronic version

The Rationale of Hypertext

McGann, Jerome J.

Conversion to TEI.P3-conformant markup by:

University of Virginia Online Scholarship Initiative
Online Scholarship Initiative Charlottesville, VA
Online Scholarship Initiative Alderman Library, University of Virginia Charlottesville VA 22903

English, MCG026

Available world wide

About the Print Version

McGann, Jerome J.

"The Rationale of Hypertext"

OSI file created: 1 Dec 1995

Preprint

Commercial use prohibited. Usage governed by our [Conditions of Use](#)

Lofty reflections on the cultural significance of information technology are commonplace now. Tedious as they can be, they serve an important social function. Some distribute general knowledge to society at large, some send it to particular groups whose professional history makes information about information an important and perhaps problematic issue.

Literary scholars comprise just this kind of group. If certain features of the new information technologies have overtaken us-- for instance, the recent and massive turn to word processing-- more advanced developments generate suspicion. When one speaks to colleagues about the emergence of the electronic library, information networks, or about the need and usefulness of making scholarly journals electronic, brows grow dark and troubled. And yet it is clear to anyone who has looked carefully at our postmodern condition that no real resistance to such developments is possible, even if it were desirable.

In this essay I will focus primarily on a particular feature of literary works--their physical character, whether audial or visible. I shall be pointing out why these features are important in a literary point of view and also sketching certain practical means for elucidating these textual features. This last matter--the central subject of the essay--is also the most difficult. The

methodology I shall be discussing requires the scholar to learn to use a new set of scholarly tools.

One final introductory comment. My remarks here apply only to textual works that are instruments of scientific knowledge. The poet's view of text is necessarily very different. To the imagination the materialities of text (oral, written, printed, electronic) are incarnational not vehicular forms. But for the scientist and scholar, the media of expression are primarily conceptual utilities, means rather than ends; to the degree that an expressive form hinders the conceptual goal (whether it be theoretical or practical), to that extent one will seek to evade or supercede it--perhaps even, in critical times, to develop new intellectual devices. But good poets do not really quarrel with their tools. As William Morris famously observed, "You can't have art without resistance in the materials".

The Book as a Machine of Knowledge.

This general context explains the need to give a clear answer to the question "why": why take up these new editing methods, especially when the methods make (as shall be clear later) such demands upon us? At this point most scholars know about the increased speed and analytic power that computerization gives, and about the "information highway" and its scholarly possibilities. Major changes in the forms of knowledge and information are taking place. From a literary person's point of view, however, the relevance of these changes can appear to be purely marginal: for whatever happens in the future, whatever new electronic poetry or fiction gets produced, the literature we inherit (to this date) is and will always be bookish.

Which is true--although that truth underscores what is crucial in all these events from the scholar's point of view: we no longer have to use books to analyze and study other books or texts. That simple fact carries immense, even catastrophic, significance. Until now the book or codex form has been one of our most powerful tools for developing, storing, and disseminating information. In literary studies, the book has evolved (over many centuries) a set of scientific engines--specific kinds of books and discursive genres--of great power and complexity. Critical and other scholarly editions of our cultural inheritance are among the most distinguished achievements of our profession.

When we use books to study books, or hard copy texts to analyze other hard copy texts, the scale of the tools seriously limits the possible results. In studying the physical world, for example, it makes a great difference if the level of the analysis is experiential (direct) or mathematical (abstract). In a similar way, electronic tools in literary studies don't simply provide a new point of view on the materials, they lift one's general level of attention to a higher order. The difference between the codex and the electronic *Oxford English Dictionary* provides a simple but eloquent illustration of this. The electronic OED is a meta-book, i.e., it has consumed everything that the codex OED provides and reorganized it at a higher level. It is a research tool with greater powers of consciousness. As a result, the electronic OED can be read as a book or it can be used electronically. In the latter case it will generate readerly views of its information that cannot be had in the codex OED without unacceptable expenditures of time and labor.

[Connect to the OED \[UVa users only\]](#)

Scholarly editions comprise the most fundamental tools in literary studies. Their development came in response to the complexity of literary works, especially those that had evolved through a long historical process (as one sees in the bible, Homer, the plays of Shakespeare). To deal with these works, scholars invented an array of ingenious machines: facsimile editions, critical editions, editions with elaborate notes and contextual materials for clarifying a work's meaning. The limits of the book determined the development of the structural forms of these different mechanisms; those limits also necessitated the periodic recreation of new editions as relevant materials appeared or disappeared, or as new interests arose.

So far as editing and textual studies are concerned, codex tools present serious difficulties. To make a new edition one has to duplicate the entire productive process, and then add to or modify the work as necessary. Furthermore, the historical process of documentary descent generates an increasingly complex textual network (the word "text" derives from a word that means "weaving"). Critical editions were developed to deal with exactly these situations. A magnificent array of textual machinery evolved over many centuries.

Brilliantly conceived, these works are nonetheless infamously difficult to read and use. Their problems arise because they deploy a book form to study another book form. This symmetry between the tool and its subject forces the scholar to invent analytic mechanisms that must be displayed and engaged at the primary reading level--e.g., apparatus structures, descriptive bibliographies, calculi of variants, shorthand reference forms, and so forth. The critical edition's apparatus, for example, exists only because no single book or manageable set of books can incorporate for analysis all of the relevant documents. In standard critical editions, the primary materials come before the reader in abbreviated and coded forms.

The problems grow more acute when readers want or need something beyond the semantic content of the primary textual materials-- when one wants to hear the performance of a song or ballad, see a play, or look at the physical features of texts. Facsimile editions answer to some of these requirements, but once again the book form proves a stumbling block in many cases. Because the facsimile edition stands in a one-to-one relation to its original, it has minimal analytic power--in sharp contrast to the critical edition. Facsimile editions are most useful not as analytic engines, but as tools for increasing access to rare works.

Editing in codex forms generates an archive of books and related materials. This archive then develops its own meta-structures--indexing and other study mechanisms--to facilitate navigation and analysis of the archive. Because the entire system develops through the codex form, however, duplicate, near-duplicate, or differential archives appear in different places. The crucial problem here is simple: the logical structures of the "critical edition" function at the same level as the material being analyzed. As a result, the full power of the logical structures is checked and constrained by being compelled to operate in a bookish format. If the coming of the book vastly increased the spread of knowledge and information, history has slowly revealed the formal limits of all hardcopy's informational and critical powers. The archives are sinking in a white sea of paper.

Computerization allows us to read "hardcopy" documents in a nonreal, or as we now say a "virtual", space-time environment. This consequence follows whether the hardcopy is being marked up for electronic search and analysis, or whether it is being organized hypertextually. When a book is translated into electronic form, the book's (heretofore distributed) semantic and visual features can be made simultaneously present to each other. A book thus translated need not be read within the time-and-space frames established by the material characteristics of the book. If the hardcopy to be translated comprises a large set of books and documents, the power of the translational work appears even more dramatically, since all those separate books and

documents can also be made simultaneously present to each other, as well as all the parts of the documents.

Of course, the electronic text will be "read" in normal space-time, even by its programmers: the mind that made (or that uses) both codex and computer is "embodied". This means that, from the user's point of view, computerization organizes (as it were) sequential engagements with nonsequential forms of knowledge and experience--immediate encounters with abstract or complexly mediated forms. If the limits of experience remain thus untranscended through computerization's virtual enginery, however, the new tools offer a much clearer and more capacious view of one particular class or "order of things"--in this case, the order of those things we call texts, books, documents.

HyperEditing and Hypermedia.

The electronic environment of hyperEditing frees one to a considerable extent from these codex-based limits. Indeed, computerization for the first time releases the logical categories of traditional critical editing to function at more optimal levels. But "editing" text through wordprocessors is not, in the view being taken here, "HyperEditing" because wordprocessing engines are structured only for expressive purposes. On the other hand, the deployment of "hypertext" software should not be judged a necessity of HyperEditing. The electronic OED does not use hypertext but it is certainly a HyperEditing project. So too is the work initiated by Peter Robinson and the COLLATE program he has developed. To function in a "hyper" mode, an editing project must use computerization as a means to secure freedom from the analytic limits of hardcopy text.[\[1\]](#)

Nonetheless, hypertext programs provide the clearest model for HyperEditing. Hypertexts allow one to navigate through large masses of documents and to connect these documents, or parts of the documents, in complex ways. The relationships can be predefined (as in George Landow's various "webs", like the Dickens Web) or they can be developed and pursued "on the fly" (through the relationships created in the SGML mark-up of a work). They are called hypermedia programs when they have the power to include audial and/or visual documents in the system. These documentary networks may or may not be interactively organized (for input by the reader/user). They can be distributed in self-contained forms (e.g., on CD-ROM disks, like the Perseus Project) or they can be structured for transmission through the Network. In this last case, the basic hypertext structure is raised to a higher power (but not to a higher level): a networked structure (say, World Wide Web) of local hypertexts opens out into a network of networks.

I rehearse these matters, which are familiar enough to increasing numbers of scholars, to remind us that the different purposes of different scholars determine the choice of an actual HyperEditing procedure. The range of options also indicates that HyperEditing should be seen as a nested series of operational possibilities (and problems). In my own view, for example, a fully networked hypermedia archive would be an optimal goal. Because such an archive of archives is not yet a practical achievement, however, one must make present design decisions in a future perfect tense. What that means in practise is the following: (1) that the HyperEditing design for a specific project be imagined in terms of the largest and most ambitious goals of the project (rather than in terms of immediate hardware or software options); and (2) that the design be structured in the most modular and flexible way, so that inevitable and fast-breaking changes in hardware and

software will have a minimal effect on the work as it is being built. In practice, then, one would not lock into a front-end hypertext system prematurely, or choose computer platforms or hardware because of current accessibility. Similarly, one wants to store data in the most complete forms possible (both as logically marked-up etext and as high-resolution digitized images).

Obviously this paper cannot deal with all these matters in any extended way. One topic will be paramount: the importance, as I see it, of organizing a HyperEditing project in hypermedia form. Hypereditions built of electronic text alone are easier to construct, of course, but they can only manipulate the semantic level of the original work. Hypermedia editions that incorporate aural and/or visual elements are preferable since literary works are themselves always more or less elaborate multimedia forms. When Pound spoke of the three expressive functions of poetry--phanopoeia, melopoeia, and logopoeia--he defined the optimal expressive levels that all textual works possess by their nature as texts. Texts are language visible, additional, and intellectual (gesture and (type)script; voice and instrumentation; syntax and usage).

The Necessity of Hypermedia.

The most direct way to show this need is through a set of examples. In these illustrations I shall move from a straightforward presentation of the elementary material demands raised by texts, to more complex interpretive issues that those demands create.

EXAMPLE A.

First, then, think about songs and ballads--think in particular about Robert Burns's ballad "Tam Glen" . For a text we might turn to what is now widely regarded as the definitive (so-called) edition of Burns, the Kinsley/Clarendon Press edition, where it is printed from a manuscript text sent by Burns to James Johnson, who first published the ballad in his collection the Scots Musical Museum in 1790. Kinsley's (like Burns's and Johnson's) is a text for the eyes, and because the text of this essay is also typographical, I could easily reproduce it here. [\[2\]](#)

Yet the ballad interested Burns exactly because it was an additional text. Under different circumstances I could give a reasonable reproduction of that ballad. I could play for you a audio version of, say, Jean Redpath singing the ballad to a score imitating the ballad as Burns might have heard it sung. Or I could play for you Andy Stewart's "version" of the ballad, or others as well.

The words of "Tam Glen" were in fact written by Burns, though the air for it is traditional. Many of the texts in Kinsley's edition of Burns, however, are hybrid works fashioned by Burns from Scots songs he collected and then modified, more or less drastically. [\[3\]](#) He did not hesitate to make his own changes in these works because in collecting his Scots songs he heard many versions. The ones he himself published, and the texts that come down to us through an edition like Kinsley's, do not represent the kinds of variety Burns would have known.

Besides, contemporary performances probably stand far removed from what Burns must have

originally heard. In this sense, the Kinsley/Clarendon Press printed text is perhaps truer to its (printed) textual tradition than contemporary performances could be to their oral traditions. Nonetheless, if our primary care is toward preserving the original materials in a living way, could anyone prefer a paper text of such a work to an auidial text?

"But that question compares apples and oranges", you will say. "The tape is the equivalent of a popular, a modernized, an `uncritical' text. It is good for what it does, of course, but it cannot be imagined as a model for replacing what one gets in a complete critical edition like Kinsley/Clarendon."

Then let us go further: would anyone who had it to choose prefer the Kinsley/Clarendon edition of Burns's complete works to an equivalent edition based primarily on auidial texts?

Burns's work is grounded in an oral and song tradition. Paper editions are incompetent to render that most basic feature of his verse. (The same might be said, incidentally, of much of the work of Thomas Moore--a lesser writer than Burns altogether, of course, but a central romantic figure nonetheless, and one who has suffered badly from the inability of scholarship to preserve the memory of his work in living forms.)

The point is not to denigrate the Kinsley/Clarendon edition, which is in fact a model of scholarship. It gives us not only good reading texts, it supplies us with an apparatus, a glossary, excellent notes, and--a very nice feature--a few bars of sheet music for each text, so that we can hum up in our minds the memory of the original tunes. And all this in three volumes.

"Yes. And to have the equivalent in an oral form would take many tapes or disks. Besides, those musical documents wouldn't be able to organize and interrelate the auidial materials the way the Kinsley/Clarendon edition has done with its textual materials--the way any good critical edition will do."

But what if one could do that? What if one could have a critical edition of Burns's work in auidial forms that allowed one to engage the songs in the same kind of scholarly environment that we know and value in works like the Kinsley/Clarendon edition? An environment allowing one to navigate between versions, to compare variants, an environment able to supply the central documents with a thick network of related critical and contextual information that helps to elucidate the works?

What if one could do that? The point is, we can.

EXAMPLE B.

When I was asked to edit the *New Oxford Book of Romantic Period Verse* I wanted to print texts that stayed as close to the original ones as possible. I also wanted to print a good deal of the most characteristic and popular work of the period, as well as work (for example, Blake's) that only came into prominence at a much later time.

So I wanted color facsimiles of Blake, and color facsimiles of a poem like William Roscoe's "The Butterfly's Ball and the Grasshopper's Feast". And I wanted to print one of the most popular and important satires of the day, William Hone's "The Political House that Jack Built", with the original

(and closely integrated) Cruickshank illustrations. And I had other similar ideas. As it turned out, various commercial and institutional circumstances shot down most of these plans. All that remains of them is a facsimile of the wonderful Hone/Cruickshank satire.

The *New Oxford Book* is a reader's edition, not a critical edition. Nonetheless, it is a reader's edition sieved through a scholarly conscience. To give adequate reading texts of Blake, then, it ought to have given us colour facsimiles. The edition doesn't do that, and it is less than I had hoped as a result. Of course the edition does many other things, and does them (I hope) well. Its unusual organization is something not every press would have permitted, especially in such a well-established series. But in the matter of visual materials, the edition's limits are clear.

I give this example partly to foreground the technical, commercial, and institutional realities that determine what scholars can do in book forms. We have already glimpsed such determinants in the example from Burns. The present example reminds us how poetical texts frequently use the visual features of their media as part of their imaginative field. Just as Burns's poetry almost always exploits the language's additional forms and materials, Blake's almost always exploits the print medium for expressive effects. A text of Blake's "Songs", for example--whether critical or otherwise--that does not at a minimum give us a colour facsimile, is simply an inadequate text.

These two examples may stand as paradigms for a whole range of textual materials that scholarly editing to this point in time has not dealt with very well. We have had many fine editions of ballads and songs since the late eighteenth-century, but none has been able to accommodate, except in minimal ways, the additional features of the texts. Similarly, expressive typography and other visually significant features of book design have been handled to date in facsimile editions, which rarely--and never adequately--incorporate critical and scholarly apparatuses into their structure. The failure to meet the latter needs is especially apparent in the work produced during the periods I have been most involved with. The renaissance of printing that took place in the late nineteenth-century utterly transformed the way poetry was conceived and written. In England, William Morris and D. G. Rossetti stand at the beginning of a poetical history that to this day shows no signs of abatement. The evolution of the modernist movement could (and at some point should) be written as a history of book production and text design.

These developments in England and America trace themselves back to William Blake, whose work was put into circulation and made historically significant largely through the efforts of the Pre-Raphaelites, especially Rossetti. Blake's work thus forecasts the massive opening of the textual field that took place in the nineteenth-century, when image and word began to discover new and significant bibliographical relations. Technological breakthroughs like lithography and steel engraving are more than causes accelerating these events. They are the signs of a culture-wide effort for the technical means to raise the expressive power of the book through visual design.

An adequate critical representation of such work has to this point been seriously hampered by the limits of the book as a critical tool. To date, for example, it has been impossible to produce a true critical edition of the works of Blake. Because Blake's texts operate simultaneously in two media, an adequate critical edition would have to marry a complete facsimile edition of all copies of Blake within the structure of a critical edition. One needs in such a case not a critical edition of Blake's work, but a critical archive. This archive, moreover, must be able to accommodate the collation of pictures and the parts of pictures with each other as well as with all kinds of purely textual materials. Hypermedia structures for the first time make this kind of archive possible; indeed, work toward the development of such a Blake archive is now underway.

The problem of editing Blake's work in a thoroughly critical way is not peculiar to Blake's idiosyncratic genius, however, it is symptomatic and widespread. To show how and why this is the

case I offer three further examples, all from the nineteenth-century. The first and third involve authors as famous as Blake, Emily Dickinson and William Wordsworth. The second will also be brought forward under an authorial sign, the once celebrated but now forgotten poet Laetitia Elizabeth Landon. The examples of Dickinson and Landon will show the structure and extent of the editing problems already glimpsed through the example of Blake's work. We conclude with a discussion of the historical significance of the most recent critical editions of Wordsworth.

EXAMPLE C.

It has taken one hundred years for scholars to realize that a typographical edition of Dickinson's writings--whether of her poetry or even her letters--fundamentally misrepresents her literary work. A wholesale editorial reevaluation of Dickinson is now well under way. A particularly telling example appeared recently in an article by Jeanne Holland on the Dickinson poem "Alone and in a Circumstance" (J 1167). Holland's facsimile reprint of the poem shows a work structured in a close, even a dialectical, relation to its physical materials. [\[4\]](#)

Dickinson set up a kind of gravitational field for her writing when she fixed an uncanceled three-cent stamp (with a locomotive design) to a sheet of paper and then wrote her poem in the space she had thus imaginatively created. Whatever this poem "means", the meaning has been visually designed--more in the manner of a painter or a graphic artist than in the manner of writers who are thinking of their language in semantic or--more generously--linguistic terms.

One could easily multiply instances of this kind of text construction in Dickinson's work. As we know, she refused what she called "the auction" of print publication. All of her poetry--including those few things put into print during her lifetime without her permission--was produced as handicraft work. This means that her textual medium is treated in the writing process as an end in itself--ultimately, as part of the aesthetic field of the writing. Again and again in Dickinson's work we observe her using the physique of the page and her scripts as expressive vehicles of art. In an age of print publication, manuscripts of writers tend to stand in medias res, for they anticipate a final translation into that "better world" conceived as the printed word. In Dickinson's case, however, the genres that determine the aspirations of her work are scriptural rather than bibliographical: commonplace book writing, on one hand, and letter writing on the other.

To edit her work adequately, then, one needs to integrate the mechanisms of critical editing into a facsimile edition--which is precisely the kind of thing that codex-based editing finds exceedingly difficult to do.

EXAMPLE D.

Here I shall turn to another kind of text--apparitionally very different, but finally closely related to Dickinson's work. Before we look at it, however, some preliminary comments may be useful.

The nineteenth-century is famously the age of the novel. Quantities of verse continued to be

written and read, of course, and the period has more than its share of poets who were either very important or very successful or both. Nonetheless, it is a commonplace that the period approximately defined by the deaths of Byron on one end, Tennyson on the other, was a great age of fictional prose.

This decline in the cultural fortunes of poetry, if in fact such occurred, has often been connected to the explosion of late romantic sentimental verse, a kind of writing typically associated with women or a feminized imagination. Dickinson, we know, became a great poet by exploiting and modifying the sentimental tradition that so evidently supports her work. In the version of this tale told by the ideologues of modernism, Dickinson did not simply exploit and modify the tradition, she exploded it altogether, and escaped thereby into greatness.

Like most such tales, this last inscribes a highly moralized fiction on a body of evident fact. For example, probably the most important venue for nineteenth-century poetry were the gift books and annuals that began to appear in the early 1820s and that dominated the market until late in the century. Scores of these works were produced, though now we remember them, if at all, in terms of a very few: *The Keepsake*, *Bijou*, *Forget-Me-Not*. Literary history pigeonholed them years ago. They became a synonym for bad and sentimental writing, and to this day remain—properly too—an index to the feminization of culture.^[5]

An equivalent textual condition develops in the world of nineteenth-century fiction. The genre of the novel underwent a great transformation as a consequence of new methods of producing and distributing these works. This story is now well-known. Suffice it to say here that serialization (in its many forms) and the three-decker format had a decisive impact on the character of fiction writing. These and other new transmissional mechanisms not only gave authors fresh opportunities to change and revise their works, they complicated the fictional options in other ways as well. The illustrated novels of Dickens and Thackeray are simply the most outstanding examples of the generic changes being brought about through new methods of book production.

Out of this cultural context emerged one of the most distinctive minor genres of the period: the poem on the subject of a painting or picture. The form would be elaborated in remarkable ways by the Pre-Raphaelites, and in particular by Rossetti, but it began much earlier. Good examples can be found throughout the early nineteenth-century, but it was not extensively developed until the advent of the period of gift books and annuals. At that point the form undergoes a distinct mutation, as one can see by comparing (say) a poem like Wordsworth's "Peele Castle" elegy with the picture-poems of Laetitia Elizabeth Landon. In Landon's work, Wordsworth's psychologically dynamic form passes beyond (perhaps also through) the Keatsian and Shelleyan process of aestheticization so brilliantly analyzed in Hallam's essay on Tennyson's early poetry.^[6] What is dynamic and psychological in Wordsworth becomes formal and literal in Landon and, after Landon, in Tennyson, whose early poetry is clearly written out of the same kind of sensibility.

The queen of the annuals, Landon was obliged to write a great many poems for pictures, and her work nicely illustrates the two dominant stylistic procedures encouraged by the genre. First is the poem that tries to render, more or less faithfully, the details of the picture's imagery. To this is added, or interwoven with it, an interpretive element. Some of Landon's best known works are of this kind: for example, "A Child Screening a Dove from a Hawk", after Stewardson, and "The Enchanted Island", after Danby.

Both of these poems are from Landon's 1825 series "Poetical Sketches for Modern Pictures" (published in the volume *The Troubador, and Other Poems*). Because the texts were originally printed without accompanying engravings, we might think that a scholarly edition now could suitably forego reproducing their related pictures. The opposite, it seems to me, is true.

Wordsworth's Peele Castle poem, for instance, does not absolutely need its picture, is not integrated into its visual materials the way Landon's poems are. For her part, Landon has not just written poems after pictures that have moved her, she has written picture poems for an audience whom she expects to be familiar with the pictures. In each case we are dealing with a very different "picture of the mind" ("Tintern Abbey" 61). Wordsworth takes his picture from an imagination of the individual person--ultimately, from the figure Wordsworth made of himself in his verse. By contrast, Landon's individual--her figure of herself--is everywhere represented in her work as a function of social codes and attitudes. In this respect her work recalls Burns's: though many of his songs were printed without (sheet) music, they nonetheless bear their music in their heart, like the original solitary reaper, and they expect their audience to be familiar with it. (On the other hand, Burns stands closer to Wordsworth to the extent that his audience has forgotten or lost touch with those songs.)

The picture-poem was a characteristic form in gift books and annuals, which often constructed themselves around sets or groups of pictures rather than collections of texts. Contributors were asked to write poems to specific pictures, just as novelists of the period were asked to write novels in three volumes, or in a sequence of episodes of a certain number and size. Fisher's Drawing Room Scrap-Book for 1832 is quite typical. Edited by Landon, the volume contains a series of poems--all but one written by Landon herself--which were composed as "Poetical Illustrations" to a set of engravings. The phrase "Poetical Illustrations", from the subtitle of the volume, underscores in the most dramatic way the special character of this poetry.

Literary-history has invisibilized Landon and the gift book traditions she used. And yet it is an historical fact that for fifty years and more those traditions were a dominating influence on imaginative writing that exploited relatively brief forms (like lyric and short story). Indeed, it could easily be argued that Landon wrote in and through the single most important (and institutionally based) poetic genre of the period. Even more interesting, this genre was not a conceptual form (like epic, sonnet, or the novel) but a material one: the gift book and literary annual. So if one wants to understand works produced for those formats, we have to recover or seriously approximate their original textual condition. In Landon's case, the pictorial and ornamental context of gift book production will be torn away from her work only at the cost of its utter destruction.

The example of Landon therefore culminates my answer to the question of "why" one would want to exploit hypermedia environments in scholarly work. I submit that no edition aspiring to represent the kinds of textual situation we have been examining would be happy with the removal of any of the materials, or--what often happens--with the translation of concrete textual features into those thin, abstract presences: a bibliographical notation or a scholar's narrativized description. I submit further that every critical and scholarly edition will be--has been--forced into such abstractions when it aspires, within the physical constraints of a traditional book format, to a comprehensive treatment of its materials. The more complex the materials, the more abstract and/or cumbersome the edition becomes.

EXAMPLE E.

In this case I ask you to recall the Cornell Wordsworth, in particular the 3 volumes devoted to *The Prelude*: Stephen Parrish's edition of the "Two Book Prelude" (1977), W. J. B. Owen's edition of the "Fourteen Book" Prelude (1985), and Mark Reed's edition of the "Thirteen Book" Prelude (1993). All

three are models of their kind, meticulous and thorough. Nonetheless, in their heroic efforts to represent that original complex and unstable scene of writing, these editions--coming at just the historical moment that they do--have put a period to codex-based scholarly editing.

Here is a true story that may help to explain my meaning. Several years ago I wrote to Mark Reed to ask who was going to edit the "Five Book" Prelude. He wrote back and said there would be no such edition since (a) that particular form of the work only attained a fleeting existence, and (b) the Prelude project was already dauntingly large and, from the publisher's point of view, textually repetitive. Instead, his edition would provide a narrative description and textual history of the "Five Book" Prelude. He sent me a copy of this narrative, which eventually appeared as part of his edition.

Mark Reed narrativized the "Five Book" Prelude for one reason only: the book format (including the commercial factors governing that format) did not lend itself to printing yet another Prelude volume in the Cornell series. Too much of the material was viewable in the other volumes. Indeed, the limits of the codex imposed all kinds of constraints on the editors of Wordsworth's great uncompleted work, so that one will find it difficult to use: on one hand full of scholar's codes, on the other cumbersome when one wishes to compare different documents and texts.

As I have already pointed out, these problems inhere in the codex form itself, which constrain the user of the critical edition to manipulate difficult systems of abbreviation, and to read texts that have (typically) transformed the original documents in radical ways. In an electronic edition, however, both of these hindrances can be removed. Precisely because an electronic edition is not itself a book, it is able to establish itself in a theoretical position that supervenes the (textual and bookish) materials it wishes to study. The operations carried out by the traditional book-based abbreviation systems continue to be performed in the electronic edition, of course, for they are central to the whole idea of the scholar's critical edition. In the computerized edition, however, the reader does not have to learn or even encounter the codes in order to execute critical operations (e.g., moving back and forth across different parts of books or separate volumes, carrying out analytic searches and comparisons). These operations are performed on command but out of sight. In addition, of course, the computerized structure allows the reader to undertake searches and analyses of the material that would have been impossible, even unimaginable, in a codex environment.

Conclusion: The Rossetti Hypermedia Archive.

[Connect to the Rossetti Archive](#)

HyperEditing is what scholars will be doing for a long time. Many difficult problems will have to be dealt with, of course, including major problems hardly touched on here: questions of copyright, for instance, or the whole array of problems posed by the emergence of the vast electronic information network that is even now coming into being. In the immediate context, multimedia HyperEditing poses its own special difficulties.

For instance, hypermedia projects (like Perseus, for instance) are notably constrained by a

structural feature of the digitized images they employ. When these images are introduced into a hypermedia structure, they have had to serve as simple illustrations; for the (bitmapped) information in the digitized image cannot be searched and analyzed as electronic texts can be.

How to incorporate digitized images into the computational field is not simply a problem that HyperEditing must solve, it is a problem created by the very arrival of the possibilities of HyperEditing. In my own case, the Rossetti Hypermedia Archive was begun exactly because the project forced an engagement with this problem. Those of us who were involved with the Rossetti Archive from the beginning spent virtually the entire first year working at this problem. In the end we arrived at a double approach: first, to design a structure of SGML markup tags for the physical features of all the types of documents contained in the Rossetti Archive (textual as well as pictorial); and second, to develop an image tool that permits one to attach anchors to specific features of digitized images. Both of these tools effectively open visual (and potentially audial) materials to the full computational power of the HyperEditing environment. At this writing the DTDs (Document Type Definitions) for all textual materials, including digitized materials, are fully operational. The image tool is currently in its first release.

It is important to realize that the Rossetti project is an archive rather than an edition. When a book is produced it literally closes its covers on itself. If its work is continued, a new edition, or other related books, have to be (similarly) produced. A work like the Rossetti Hypermedia Archive has escaped that bibliographical limitation. It has been built so that its contents and its webwork of relations (both internal and external) can be indefinitely expanded and developed.

The "hyper" organization has also permitted the Archive to escape another bookish horizon which has profoundly affected editorial theory and textual scholarship. A major aspect of this scholarship has been the investigation of ancient texts--in particular, the scholarly reconstruction of such works from textual remains that have been seriously broken over time. Such work encouraged scholars to focus on a single text, the ideal goal of their reconstructive operations.

In more modern periods, however, the textual remains are often very numerous. The history of the texts of Wordsworth and Blake and Dickinson is not seriously fractured. Indeed, the scholarly problem in such cases is how to sort out the relations of the documents and put all those relationships on display. However, the goals of classical scholarship and the material formalities of the book encouraged scholars to imagine and produce single-focus works--editions that organized themselves around what used to be called a "definitive" text, the source and end and test of all the others.

Whatever the virtues of this kind of focus--there are many--one would like to be free to choose it or not, as one needs. In most cases scholars confront a vast, even a bewildering, array of documents. Determining a single focus can be analytically useful, even imperative for certain purposes. On the other hand, one can easily imagine situations where a single determining focus hinders critical study. Besides, in many other cases one would like the possibility to make ad hoc or provisional choices among the full array of textual alternatives--to shift the point of focus at will and need. One cannot perform such operations within the horizon of the book. A hypermedia project like the Rossetti Archive offers just these kinds of possibility. Unlike in traditional editions, "hyper"editions need not organize their texts in relation to a central document, or some ideal reconstruction generated from different documents. An edition is "hyper" exactly because its structure is such that it seeks to preserve the authority of all the units that comprise its documentary arrays. In this respect a hyperedition resembles that fabulous circle whose center is everywhere and whose circumference is nowhere.

The change from paper-based text to electronic text is one of those elementary shifts--like the

change from manuscript to print--that is so revolutionary we can only glimpse at this point what it entails. Nonetheless, certain essential things are clear even now. The computerized edition can store vastly greater quantities of documentary materials, and it can be built to organize, access, and analyze those materials not only more quickly and easily, but at depths no paper-based edition could hope to achieve. At the moment these works cannot be made as cheaply or as easily as books. But very soon, I am talking about a few years, these electronic tools will not only be far cheaper, they will also be commonplace. Already scholars are creating electronic editions in many fields and languages, and are thereby establishing the conventions for the practise of HyperEditing. The Rossetti Archive is one project of this kind.

Coda. A Note on the Decentered Text.

Editors and textual theorists interested in computerized texts appear to differ on a significant point: whether or not HyperEditing requires (even if it be at some deep and invisible level) a central "text" for organizing the hypertext of documents. My judgment is that it doesn't.

The problem at issue here can and often does get quite muddled. Enthusiasts for HyperText sometimes make extravagant philosophical claims, and skeptics are then drawn toward sardonic reactions. HyperText is no more a sign of the Last Days than was moveable type five centuries ago.

To say that a HyperText is not centrally organized does not mean--at least does not mean to me--that the HyperText structure has no governing order(s), even at a theoretical level. Clearly such a structure has many ordered parts and sections, and the entirety of the structure is organized for directed searches and analytic operations. In these respects the HyperText is always structured according to some initial set of design plans that are keyed to the specific materials in the HyperText, and the imagined needs of the users of those materials.

Two matters are crucial to remember here, however. First, the specific material design of a HyperText is theoretically open to alterations of its contents and its organizational elements at all points and at any time. Unlike a traditional book or set of books, the HyperText need never be "complete"--though of course one could choose to shut the structure down if one wanted, close its covers as it were. But the hypertextual order contains an inertia that moves against such a shutdown. So, for example, if one were to create a HyperText of (say) King Lear, the "edition" as it is a hypertext can pass forward in time indefinitely. Someone will have to manage it, but if it remains hypertextual it will incorporate and then go beyond its initial design and management. It will evolve and change over time, it will gather new bodies of material, its organizational substructures will get modified, perhaps quite drastically.

The second point goes to the matter of the conceptual form of HyperText as such (as opposed to the specific implementation of that form for certain materials and purposes). Unlike a traditional edition, a HyperText is not organized to focus attention on one particular text or set of texts. It is ordered to disperse attention as broadly as possible. Of course it is true that every particular HyperText at any particular point in time will have established preferred sets of arrangements and orderings, and these could be less, or more, decentralized. The point is that the HyperText, unlike the book, encourages greater decentralization of design. HyperText provides the means for establishing an indefinite number of "centers", and for expanding their number as well as altering

their relationships. One is encouraged not so much to find as to make order--and then to make it again and again, as established orderings expose their limits.

An important historical fact might be usefully recalled: that the Internet, which is an archive of archives, was originally designed precisely as a decentered, nonhierarchical structure. The point was to have an information network that could be destroyed or cut at any point, at any number of points, and still remain intact as a structured informational network. The modern theory of hypertext flows directly from this way of imagining a noncentralized structure of complex relationships. With hypertext, as with the Net, the separate parts of the ensemble (nodes on the Net, files in a hypertext) are independently structured units. That kind of organization ensures that relationships and connections can be established and developed in arbitrary and stochastic patterns.

This kind of organizational form resembles our oldest extant hypertextual structure, the library, which is also an archive (or in many cases an archive of archives). As with the Internet and hypertext, a library is organized for indefinite expansion. Its logical organization (e.g., the LC system) can be accommodated to any kind of physical environment, and it is neutral with respect to user demands and navigation. Moreover, the library is logically "complete" no matter how many volumes it contains--no matter how many are lost or added.

The noncentralized character of such an ordering scheme is very clear if one reflects even briefly on the experience of library browsing. You are interested in, say, Dante Gabriel Rossetti's writings. So you move to that LC location in the library (any library). You stand before a set of books and other documents, which may be more or less extensive. Nothing in that body of materials tells you where to begin or what volume to pull down. It is up to you to make such a decision.

You can only find your way to that point in the library if you can negotiate its logical structure; and further browsing (or directed research) requires an even greater self-conscious understanding of the organization. Neophyte library users are often intimidated by a library because they can't immediately tell how to use it. Guides to a library will explain its logical structure as well as the physical implementation of that structure. Even so, they are conceived in the same spirit as the Internet and hypertext.

Subnets (or substructures) of these kinds of organization may be more or less hierarchically organized than other substructures. In a library, for example, historical orderings of various kinds appear everywhere. Nevertheless, these local basins of order are arbitrary with respect to the total archive. This result obtains because each unit of the organization (each document and also each set of documents), like each node on the Internet, is logically defined as an independent item.

In a hypertext, each document (or part of a document) can therefore be connected to every other document (or document part) in any way one chooses to define a connection. Relationships do not have to be organized in terms of a measure or standard (though subgroups of organization can be arbitrarily defined as nonarbitrary forms). From a scholarly editor's point of view, this structure means that every text or even every portion of a text (i.e., every logical unit in the hypertext) has an absolute value within the structure as a whole unless its absolute character is specifically modified.

The Rossetti Archive organizes its texts, pictures, and other documents in this kind of noncentralized form. So when you go to read a poetical work, no documentary state of the work is privileged over the others. All options are presented for the reader's choice. Among those options are arbitrary constraints that can be placed on the choices available. These constraints, which can be defined at any level of the organization, can be invoked or revoked at will. The point is that the

structure preserves the independence of every document because the organization, like the Net, is "divided into packets, [with] each packet separately addressed". Since each of these packets has "its own authority to originate, pass, and receive messages", each is free to "wind its way through the [archive] on an individual basis". [7] Of course that is a metaphoric way of putting the matter: files in a hypertext, like documents in a library, are not active agents. It is the user who moves through the hypertext. Nevertheless, the ordering of the hypertext materials is, by default, arbitrary and discrete. If the archive contains any more centralized or hierarchical structures, these have to be (arbitrarily) introduced. Furthermore, if they are introduced, the extent of their authority over the user has to be (arbitrarily) defined as well.

The problem here returns us once again to the fundamental issue of the relation of (hard copy) text to (electronic) hypertext. The decentralized forms of hypertextual archives clearly possess logical structure. That structure is designed to facilitate navigation through the archived materials irrespective of the purposes of the navigation. [8] When the hypertext is used to manage study of and navigation through complex bodies of (hardcopy) documentary materials--the kinds that traditional scholarly editors deal with--a special type of "decentralism" appears. The exigencies of the book form forced editorial scholars to develop fixed points of relation--the "definitive text", "copy text", "ideal text", "Ur text", "standard text", and so forth--in order to conduct a book-bound navigation (by coded forms) through large bodies of documentary materials. Such fixed points no longer have to govern the ordering of the documents. As with the nodes on the Internet, every documentary moment in the hypertext is absolute with respect to the archive as a whole, or with respect to any subarchive that may have been (arbitrarily) defined within the archive. In this sense, computerized environments have established the new "Rationale of HyperText". [9]

Endnotes

[1] The simplest definition of hypertext is Theodore Nelson's, "nonsequential writing" (*Literary Machines* [Mindful: Sausalito, CA, 1990], 5.2). Nelson's book is a classic introduction to hypertext. For other introductory information about hypertext and hypermedia, and about the projects mentioned in this and the next paragraphs, see *Hypertext/Hypermedia Handbook*, ed. Emily Berk and Joseph Devlin (Internet Publications, McGraw Hill: New York, 1991); *The Digital Word. Text-Based Computing in the Humanities*, ed. George P. Landow and Paul Delany (The MIT Press: Cambridge MA, 1993); *Hypertext. The Convergence of Contemporary Critical Theory and Technology* (Johns Hopkins UP: Baltimore, 1992); *Hypermedia and Literary Studies*, ed. George P. Landow and Paul Delany (MIT Press: Cambridge MA, 1991); Jay David Bolter, *Writing Space: The Computer, Hypertext, and the History of Writing* (Laurence Erlbaum: Hillsdale, 1991).

[2] See *The Poems and Songs of Robert Burns*, ed. James Kinsley (Clarendon Press, Oxford UP: Oxford, 1968) I. 435-6.

[3] See for example the ballad "Tam Lin" (Kinsley no. 558, II. 836-41).

[4] This revaluation of Dickinson studies was sparked by the great facsimile edition of the poet's original fascicles, edited by R. W. Franklin, *The Manuscript Books of Emily Dickinson* 2 vols. (Belknap Press, Harvard UP: Cambridge, MA, 1981). Since then the work of Susan Howe and her students has been only slightly less significant, especially the soon to be published edition of Dickinson's fragments edited by Marta Werner (U. of Michigan Press: Ann Arbor, 199) and the essay by Jeanne Holland, "Scraps, Stamps, and Cutouts," in *Cultural Artifacts and the Production of Meaning*, ed. Katherine O'Brien O'Keefe and Margaret J. M. Ezell (Princeton UP: Princeton, 1993), forthcoming. Howe's seminal essay is indispensable: "These Flames and Generosities of the Heart: Emily Dickinson and the Illogic of Sumptuary Values", *Sulfur* 28 (spring, 1991), 134–55. See also Paula Bennett, "By a Mouth that Cannot Speak: Spectral Presence in Emily Dickinson's Letters", *The Emily Dickinson Journal* 1 (1992), 76–99 and my own "Emily Dickinson's Visible Language", *ibid.* 2 (1993), 40–57. Martha Nell Smith is currently the head of the Emily Dickinson Editorial Collective, a group of scholars committed to seeing Dickinson's work re-edited so as to expose its "sumptuary values", i.e, the scripts and visible designs that are such an important feature of the writing.

[5] See Andrew Boyle, *An Index to the Annuals* , vol. I (vol. II never printed), (Privately Printed by Andrew Boyle: London, 1967); F. W. Faxon, *Literary Annuals and Gift Books: a bibliography 1823–1903* (originally printed 1912, reprinted Pinner, Private Libraries Assoc: Boston, 1973); Anne Renier, *Friendship's Offering. An Essay on the Annuals and Gift Books of the 19th Century* (Private Libraries Assoc.: London, 1964); Alison Adburgham, *Silver Fork Society. Fashionable Life and Literature from 1814 to 1840* (Constable: London, 1983).

[6] Arthur Henry Hallam, "On Some of the Characteristics of Modern Poetry, and on the Lyrical Poems of Alfred Tennyson", reprinted from the *Englishman's Magazine* (August, 1931) in T. H. Vail Motter, ed., *The Writings of Arthur Hallam* (Modern Language Assoc. of America: New York and London, 1943), 182–197.

[7] Quoted from Bruce Sterling, "Internet", *The Magazine of Fantasy and Science Fiction* , Science Column no. 5 (February, 1993). I quote here from the text of the column that was made available through a Network mailing list.

[8] For discussion of the structure of hypertext (and a critique of rather loose representations of its decentralized form) see Ross Atkinson, "Networks, Hypertext, and Academic Information Services: Some Longer Range Implications," *College & Research Libraries* 54 no. 3 (May 1993), 199–215.

[9] Textual scholars will understand that this essay has been written in a conscious revisionary relation to W. W. Greg's great essay "The Rationale Of Copy-Text", which had such a profound influence on twentieth-century textual scholarship. For Greg's essay see *Studies in Bibliography* 3 (1950–51), 19–36.