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Literary Scholarship in the Digital Future

A WIDE SPREAD MALAISE has been notable in literary studies for more than a decade at least, particularly among those heavily invested in the education of humanities researchers. One of the sources of this malaise--it has many--was highlighted by a special letter sent to the members of the Modern Language Association in May by the organization's president, Stephen Greenblatt. Pointing to publishing conditions that make it difficult or even impossible for young scholars to meet current standards for tenure in research departments of literature, he called the problem, correctly, a "systemic" one. Just try to find a publisher for primary-document materials, or for any basic research that doesn't come labeled for immediate consumption: "Sell this by such and such a date" (before it spoils).

Do you see a digital savior waiting to descend? Do you think I see this redeemer? Well, I don't. But because these broad institutional problems intersect with the emergence of digital technology, we won't usefully address the former unless we come to terms with the latter.

Consider this. For as long as I've been an educator, a system of apartheid has marked literary and cultural studies. On one hand we have editing and 'textual work, on the other theory and interpretation. I don't have to tell you which of those two has been regarded as menial, if also somehow necessary. And like any system of apartheid, ours has corrupted both. One of the few who worked brilliantly on both sides of the divide, the late D.E McKenzie, of the University of Oxford, once remarked that material culture is never more grossly perceived than it is by theoreticians, whose ideas tend to remove them from base contacts with the physical objects that code material culture. The ignorant theoretician met his match in the myopic scholar who gets lost in the forest, transfixed by the bark of the trees.

When I describe our recent educational history in those terms, I am sometimes suspected of fellow-traveling with a cadre of moralizers and educational instrumentalists. But remember, William Bennett, Allan Bloom, Lynne Cheney, and Dinesh D'Souza are not enemies of theory or interpretation; they are simply strict constructionists in a field where Stanley Fish, Edward Said, Catharine Stimpson, and Cornel West have been looking to broaden our ancient ideal of liberal education. Seeing the educational history of the past 15 or 20 years only in terms of the celebrated struggles between the two groups has obscured our view of an educational emergency now grown acute with the spread of digital technology.

Let me make a forecast: In the next 50 years, the entirety of our inherited archive of cultural works will have to be re-edited within a network of digital storage, access, and dissemination. This system, which is already under development, is transnational and transcultural. Let's say that prophecy is true. Now ask yourself these questions: Who will be carrying out this work? Who will do it? Who should do it?

Those turn into sobering queries when we reflect on the recent history of higher education in the United States. Just when we will be needing young people well-turned in the histories of textual transmission and the theory and practice of scholarly method and editing, our universities are seriously unprepared to educate such persons. Electronic scholarship and editing necessarily draw their primary models from long-standing philological practices in language study, textual scholarship, and bibliography. As we know, those three core disciplines preserve but a ghostly presence in most of our Ph.D. programs.

The development of editorial and archival projects in digital form is now taking place and will proliferate. Departments of literary study have perhaps the greatest stake in these momentous events, and yet they are--in this country--probably the least involved. (In England and in Europe, the situation is less dire, probably because philological traditions there are more deeply grounded.) Here, the work is mostly being carried by librarians and systems engineers. Many, perhaps most, of those people are smart, hardworking, and literate. Their digital skills and scholarship are often outstanding. Few, however, have a strong grasp of the theory of texts. It has been decades since library schools in this country required courses in the history of the book. Does it shock those of you in literature departments to learn that? We aren't shocked at our own ignorance of the history of language or the sociology of texts.

OK, then, what's the problem? Our traditional departments have managed to keep around a few old-fashioned editorial and bibliographical types. Let's send them out to help with the technical jobs and hope that their (that's our) brains aren't completely fried by beetle-browed and positivist habits. Once upon a time, even they (that's we) were involved with the readerly text, right?

Those contacts might, perhaps, prove barely sufficient were it not for another recent upheaval in the world of higher education. For it

happens that, between about 1965 and 1985, textual scholars began to rethink some of the most basic ideas and methods of their discipline. I chose those dates because Ernest Honigman published The Stability of Shakespeare's Text in 1965, and, in 1985, Don McKenzie delivered his famous Parnizzi Lectures, Bibliography and the Sociology of Texts (published in 1986). So disconnected had the general scholarly community grown from its foundational subfield of textual and bibliographical studies, however, that this watershed passed by with little notice. Both moments overlapped with the more public emergence of what would be called "literary theory"--perhaps "underlapped" is better--and drew scant attention.

The "genetic" and "social" editing theories and methods that developed in those years signaled a major shift in literary and cultural scholarship. Yet the significance of the 1986 Hans Walter Gabler edition of Ulysses is not widely understood to this day, except by specialists, and McKenzie's name is, alas, scarcely known to most humanists. In that work and in other work like it, the idea of "the materiality of texts"--a complex set of social and material facts--was set on a firm new theoretical footing. As a result, we can now see and formalize in quite precise ways the structure and operation of "discourse networks." Close study of the materiality of cultural products has thus brought us to a reversal of Roland Barthes's famous injunction, "From Work to Text."

An imminent publication measures the change that overtook textual scholarship at the end of the last century. In 1982, Harold Jenkins published his celebrated edition of Hamlet in the Arden Shakespeare series. A lifetime's work, the book epitomized a traditional, so-called eclectic approach, whereby Jenkins educed a single text of the play out of a careful study of the three chief documentary editions. But now a new Arden Shakespeare Hamlet, edited by Ann Thompson and Neil Taylor, will replace Jenkins's remarkable work. The new Arden Hamlet will not publish a single conflated text, but will present all three documentary witnesses--The First Folio (1623), The First Quarto (1603), and The Second Quarto (1604-5)--each in its special integrity (or lack thereof).

The New Yorker reported the event in a piece by Ron Rosenbaum last May. The article gives a good general introduction to the upheaval in textual studies that has been going on for almost 40 years and has been at white heat for 20. Because the work of scholarship moves in a kind of slow motion--that remains true even today, odd as it may seem--such belated awareness would not normally be cause for much notice. But at this particular historical moment, when information storage and transmission and methods of knowledge representation are calling for immediate practical attention, Rosenbaum's piece seems most interesting for what it did not talk about: the role of digitization in current scholarship.

FORCE OF CIRCUMSTANCE TODAY calls on us to develop scholarly editions in digital forms. Even though the new Arden Hamlet is not being produced in digital form, scholars--including Jenkins and Thompson--are now involved in serious controversies over how the digital work should be carried out. The theory and practice of traditional textual scholarship are, thus, in a lively, not to say volatile, state of self-reflection. Scholarly editing today cannot be undertaken in any medium without a disciplined engagement with editorial theory and method. Scholars who think to use information-technology resources, as now we must, face a double difficulty. We must learn to use digital tools whose capacities are still being explored in fundamental ways, even by technicians. We must also approach all the traditional questions of scholarly editing as if a transformed world stood all before us.

A humanist may well wonder what to think, or how to proceed, in such an informational white-out. Observing it, the literary critic Sven Birkerts, in The Gutenberg Elegies, has advised us to a great refusal of the digital emergence.

That very bad advice does tittle justice to the power and usefulness of the book. We recognize the capacity of digital instruments to simulate so many of our elements and forms of living, and thinking, and imagining. But just because the book has been our simulation machine of choice for centuries, we need to study and understand it now more than ever--not as a place of retreat, but as a profound source, and resource--at a moment when we are trying to design and control digital simulation tools. The information white-out pervading digital space signals poorly designed interface functions. In this context, we have much to learn from bibliographical design and the sophisticated information systems in which it is integrated. The codes of simulation operating through printed works are at once robust and amazingly flexible. The passage into digital culture should be made--can only be made, in my opinion-through a re-engagement with print culture. It must and will be so because, like Aeneas passing from Troy to Latium, we cannot leave our household gods behind.

In this move back to the future, we will find ourselves arriving where we started, but now beginning to know that bibliographical place for the first time. And that is the other reason we are called to an involvement with digital technology. The very differences between digital forms of expression, on the one hand, and the alphanumeric and graphical forms we are accustomed to from books, on the other hand, give us a remarkable vantage from which to study books and the paper works in which so much of our cultural heritage is stored for us.

AT THE UNIVERSITY OF VIRGINIA, for example, we have been creating the Rossetti Archive, a digital compilation of the complete writings and pictures of the English pre-Raphaelite poet and artist Dante Gabriel Rossetti. Building the archive has brought the "proof of concept" to McKenzie's ideas about the importance of the sociology of texts, by devising a scholarly edition that integrates in a single work the two great functions of scholarly editing in general: facsimile editing and critical editing. The design shows, in other words, what textual theory, until recently, had judged an impossibility: that digital simulations could formalize the structure of books and other material objects.

But the Rossetti Archive has also spun off other interesting ideas and practical consequences. Not least significant has been the argument it implicitly makes for what Marxists like to call "the praxis of theory." The move to put into effect a set of ideas in concrete ways is itself a theoretical event; that is to say, a way of seeing. Gertrude Stein's demonstrative argument for "composition as explanation" forecast and supported what we have rediscovered day by day in building the archive. We have, therefore, begun to imagine how digital tools can be more directly used for our traditional interpretive work as humanist scholars.

So a small group of faculty members and graduate students is currently working on several projects of that kind. The first, the IVANHOE game, is a Web-based software application that organizes a collaborative work space for research and interpretation of humanities materials, traditional as well as digital. Digitization brings certain advantages. It can simulate a wide variety of materials--books, maps, pictures, and so forth--that are the traditional focus of our acts of interpretation. It can access those materials no matter

how widely they are dispersed, and it can store, retrieve, reorganize, and transform these massive corpora according to the designs and purposes of specific users.

IVANHOE thus encourages one to explore not so much the "meanings" of materials as their many possibilities of meaning. Interpretation can emerge only as a performative operation and event. "Possible meanings" develop in various ways--partly through competition and collaboration among players, partly through the use of masks and roles to constrain the players' interpretive engagements, and partly through immersing players within a vast field of digitally enhanced and geographically dispersed materials that are specifically organized for further enhancements. We then introduce electronic visualization tools into that field to help us grasp and invent the shapes of thought, both our own and others', as they emerge through our acts of navigating the materials and linking them together in new, imaginative ways.

Physicists tell us that a quantum world thunders silently beyond (or below) our human scale of perception. It is a world full of contradictions where everything is as it is perceived, and so everything changes depending on where and how and why you choose to take observations. In one perspective, photons are wave functions; in another, they are particles. It is a world of random order and disorder. We were finally able to establish regular contact with this world only after the invention of statistical mathematics. To the end of his life, Einstein disbelieved in the reality of quantum worlds, maintaining that they are nothing more than a set of (more or less useful) mathematical functions.

Reality or apparition, a quantum order of bibliographical objects becomes accessible to us through computerization. I am not speaking about the physicochemical makeup of paper objects but of the immense number of dynamic relations and functions that make up the field of discourse of social texts. We touch the hem of this garment whenever we open a Web browser. The field of textual relations accessible through that digital device is statistically significant at a quantum order. People are trying to build quantum computers precisely to improve controlled access to that discourse field.

When such computers are built and made stable enough to be used, history tells us they will initially have very clumsy interfaces. In the meantime, we have our hands full trying to design interfaces for our current digital tools and systems. We must have them in order to translate the computer's statistical operations into terms that our minds can seize, understand, and put to human uses. The need is especially apparent when the database is a bibliographical arena of discussion. The interface we have built for the Rossetti Archive is barely adequate to the archive's data set of materials. At present, the archive organizes some 11,000 distinct files, about half of which are SGML/XML files, and the other half image files. When it reaches its scheduled completion date, some four years from now, it will have about twice that many files.

NOW TAKE THOSE FILES and understand that they are interconnected by a set of some 200,000 hyperlinks. Then add to your equation the fact that every SGML/ XML text file is structurally divided into hundreds of types of divisions. Finally, factor in the specific divisionary instances that make up any particular file, which will range from several hundreds to many thousands. I could ask the server holding the archive to make the actual counts in each case, but I think you can see the staggering number of possible relationships that the archive puts into computational play at any moment of its use. When those ways of involving users get integrated into the archive's computational field--when those engagements are stored and made accessible in the system as a whole--the archive will become a dynamic interpretive environment of enormous scale. Most important, its dynamics will be completely formalized.

Let me close with what is for me--a fetishist of imaginative writing, especially poetry--the most important moral of this story: that poems and other imaginative kinds of social texts are quantum fields. Although we have said for a long time that their meanings are inexhaustible, pursuing a sociologics of textuality in a digital frame of reference helps us to specify more clearly why and how that is the case. I offer the quantum poem not as a useful metaphor, but as a fact about the facts making up fields of poetry discourse--a computable fact. The implications of that view of social textuality for humanities studies seem to me considerable. It will provide us, I believe, the only method adequate to the textual condition we now see dearly unfolding before us.

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By Jerome J. McGann

Jerome J. McGann is a university professor at the University of Virginia. This essay is adapted from a lecture he gave upon receiving the first Richard W. Lyman Award, presented by the National Humanities Center to honor pioneers in the use of digital tools in the humanities. He has just been named a recipient of a Distinguished Achievement Award by the Andrew W. Mellon Foundation. His book Radiant Textuality: Literature after the World Wide Web (Palgrave, 2001) won this years James Russell Lowell Prize, awarded by the Modern Language Association.