Guest Column

On Disciplinary Finitude

JEFFREY T. SCHNAPP

THE YEAR 2008 WAS ONE OF FRUITFUL DISJUNCTIONS. I SPENT THE fall teaching at Stanford but commuting to the University of California, Los Angeles, to cochair the inaugural Mellon Seminar in Digital Humanities. During the same period, I was curating—at the Canadian Center for Architecture, in Montreal—an exhibition devised to mark the centenary of the publication of "The Founding Manifesto of Futurism," by Filippo Tommaso Marinetti. Whereas other centennial shows (at the Centre Pompidou, in Paris, and at the Palazzo Reale, in Milan) sought to celebrate the accomplishments and legacies of Marinetti's avant-garde, the Canadian exhibition, *Speed Limits*, was critical and combative in spirit, more properly futurist (though thematically antifuturist). It probed the frayed edges of futurism's narrative of modernity as the era of speed to reflect on the social, environmental, and cultural costs. An exhibition about limits, it looked backward over the architectural history of the twentieth century to look forward beyond the era of automobility.

My commitments, two pedagogical, the other curatorial, seemed fated to collide. And collide they did in the form of a document I initially drafted as an insider joke during the forty-five minutes I spent in the jet stream between San Francisco and Los Angeles: "A Digital Humanities Manifesto."[1] I had nurtured a fondness for the bluster of the manifesto genre since high school days, and digital humanists had jested about belonging to some sort of avant-garde. So, I asked myself, why not stir the pot by writing a manifesto that indulged in some academic politicking and philosophizing with a hammer while concluding with a call to transcend the digital humanities? In the final version of the manifesto, the valediction "Let's get our hands dirty" hovers over a fourfold repetition of John Heartfield's *Five Fingers Has the Hand* (1928), a photograph famously employed in

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a 1928 electoral poster reveling in the power of manual labor (*Digital Humanities Manifesto 2.0*). The original draft was animated by enough philofuturist nose thumbing to whip up a dust storm or two once it was placed in circulation and would undergo two collaborative rewritings: collaborative to the degree that the final document includes the voices of dozens of coauthors. But amid the ludic posturing, one provocation hasn't abandoned me over subsequent years of work at the confines of the arts and humanities: a section devoted to the question of disciplinary finitude. Do disciplines end, or do they just adapt, absorb, and mutate? What are their ends, in the sense of boundaries but also in the sense of their ability to undergo knowledge transfers? What, if anything, comes after or lies beyond disciplinarity: new disciplines? new disciplinary containers? always-shifting interdisciplinary grounds?

Disciplina (or in the old French, *decepline*) is a word with a complex classical and medieval Christian lineage. Whereas the classical meaning emphasizes the objects of instruction and cognition, the medieval Christian meaning focuses on the means of enforcing the successful transmission of a teaching through penance or punishment. Both meanings were already present in the Greek term παιδεία (*paideia*).[2] As the two merge and assume the sorts of secular institutional forms that proliferated in nineteenth- and twentieth-century universities, they associate a given corpus of knowledge and set of standardized procedures and routines for its acquisition and performance with a social hierarchy and system of control, even a system of rewards and punishments.

The above may sound like the beginnings of a complaint against disciplinarity. But, if anything, it is the opposite. Before graduate school, my interpretive engagements with modern and contemporary literature and art came a bit too effortlessly (and were thus less than deep or satisfactory). I devoted those early years to swimming in the stream of contemporary art as a wannabe abstract painter and to studying classical and modern languages, as well as nineteenth- and twentieth-century French and Spanish literature. What drew me more meaningfully into the academy, like a time-tested armchair that gradually and gratifyingly engulfs your body, releasing you only after strenuous effort, was a longing for something more challenging and exacting: not freedom but constraint.

Brilliant teachers who served up a foretaste of the feast that awaits the fully disciplined led me to fall in love with the rigors of thirteenth-century texts that played by alien cultural rules; with the endless puzzles posed by codicology and paleography; with the demands of reconstructing a cultural record reduced to fragments by time's depredations; and with the strange beauty of parchment and inks made of gum and gall, colored with lampblack or iron salts. Here was a galaxy of knowledge forms pulsating with learned reference works that could be marshaled to defend this or that position, a universe made up of vast silences as well as hot zones animated by multicentury stratigraphies of commentary, annotation, and emendation. And here was a world of inquiry where interpretation was never a given but rather the result of arduous reconstruction. Sometimes these reconstructions required near lifetimes of devotion, prompting equations (fair or not) between the asceticism of the philological method and monastic forms of piety.

The defining experiences of my academic life were training for, becoming part of, and participating in this disciplinary community. They have remained so, even as the compass of my research and teaching, as well as the worldly commitments to which both led, migrated from medieval Italian literary history to twentieth-century cultural history (media, architecture, and design) and then to twenty-first-century technologies (interaction design, data science, and—most recently—artificial

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intelligence and robotics). The passage was hardly frictionless, and medieval studies was, like any enduring and tightly woven disciplinary domain, not always irenic. There were clan rivalries, battles over everything from the macro to the micro level (from models, methods, and masters to textual cruxes), efforts to police the discipline's boundaries or to enforce orthodoxies that had run their course, and clashes between disciplinary generations. Eventually, I found some of the wellsprings that had initially nourished me running dry and encountered unexpected resistances: to theoretical engagements, to personal research interests in transversal literary- or art-historical ties, to excursuses into the anthropology of everyday medieval life and material culture. But, amid the contentiousness and the (often fruitful) frictions, I did more than chafe: I acquired a knowledge base, a corpus of procedures, and a sense of craft, not to mention what I'd describe as a disciplinary imagination, which has served me well in subsequent trans- or extradisciplinary peregrinations: whether as a twentieth-century cultural historian, a curator involved in the design and development of experimental history museums like the Trento Tunnels, or an experimentally minded humanist engaged in the forms of experimental work that I have come to define as knowledge design.[3]

So the question of disciplinary finitude that I am posing here is less concerned with why or when disciplines close up shop or come under threat—worthy topics of concern, to be sure—than with how disciplines spill over into other disciplinary, institutional, cultural, or social realms. Otherwise phrased, I'm wondering about the nature of disciplinary innovation and the ability of skills, knowledge, and experience that are based and bound in a discipline: from an intramural perspective, it's the question of cross-, inter-, or transdisciplinarity; from an extramural one, it's that of applicability or extensibility—the ability of a given skill and knowledge base to interoperate with disconnected domains, vocational or other. Both are familiar questions to researchers and educators; in neither case are the answers simple or ready at hand.

Cross-disciplinarity, *interdisciplinarity*, *transdisciplinarity*: these terms surely figure among the most inelegant of academic neologisms. Yet all have become the familiar banners of change during the past half century as disciplines have grown beyond their existing confines; as novel domains of research and teaching have sought recognition; and as new challenges and demands have been posed by shifting socioeconomic, cultural, political, and technological circumstances. Whether in the humanities or in the sciences, rare is the field that hasn't experienced an upheaval cast in this sort of mold. The reason seems straightforward (and well-acknowledged at least since the seminal reflections of Thomas S. Kuhn on the nature of scientific revolutions). Change that gradually bubbles up from within a given disciplinary domain is unlikely to rattle that domain's foundations. But extraneous models, unanticipated collisions and combinations, disciplinary invasions from the outside, can effect momentous transformations. Think of the impact of evolutionary biology on debates over literary stemmatics in the development of nineteenth-century textual criticism. Or consider the sudden emergence of fields like bioinformatics, built around the use of computational techniques in the analysis and interpretation of biological data, or cultural analytics (well-documented in the special feature on Franco Moretti in this issue), which mines cultural data sets on varying scales using computational methods and visualization tools. In such cases and most others, exogenous tools and techniques (network analysis, data visualization, machine vision, artificial intelligence) arise and come into dialogue with endogenous objects of analysis that become available under new conditions or on altered scales (DNA sequencing, genomics, digital text repositories,

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and image databases), giving birth to a new domain. (And to plenty of polemics.)

Far from resolving the question of disciplinarity, cross-fertilization, interchange, and transmutations pose the question afresh. For a new disciplinary domain may indeed spring forth from an exogenous-endogenous collision or even, as it were, from the brow of Zeus. More likely, the outcome is evolutionary, not revolutionary, and has consequences with respect to institutional arrangements. Interdisciplinary programs are the standard institutional expression of cross-, inter-, and transdisciplinary change in universities today, just as departments are the classic expression of a consecrated, historically sustained discipline. Interdisciplinary programs are characteristically more fragile and less well funded than departments, relying heavily on departmental labor and resources. Most are built on top of departments, operating as shared platforms, junction boxes that extend departments' reach. This reach reasserts itself at key moments of hiring, promotion, and evaluation, for disciplines possess well-established, if sometimes contested, standards of quality, depth, and rigor, whereas emergent interdisciplinary domains tend by their nature to be unstable and ill-defined: all the more so ones that diverge from established disciplinary norms.

The foregoing argues for a more trenchant distinction: between modes of cross-, inter-, and transdisciplinarity that explore disciplinary conjunctions or adjust their contours, leaving largely intact the shapes that research, training, and publication assume, and modes that are resolutely experimental, revolutionary (not evolutionary), imposing different professional language, altered research protocols, new models of teaching and training, and alternative methods of dissemination. During the past decades, the revolutionary, higher-risk approach has shaped a growing array of ventures that include SpecLab and the Scholars' Lab, at the University of Virginia; Humlab, at Umeå University; Humanities + Design and the Literary Lab, at Stanford University; McGill's .txtLAB; Maryland Institute for Technology in the Humanities (MITH), at the University of Maryland; and the Group for Experimental Methods in the Humanities, at Columbia University, to name only a few.[4] Experimentation was and remains the ethos of the Stanford Humanities Laboratory, which I directed from 1999 to 2009, and of metaLAB (at) Harvard, which I've directed since 2011.

The experimental initiatives just adumbrated suggest that an expanded notion of cross-, inter-, or transdisciplinarity—call it what you will—requires a different sort of institutional container than a department or an interdisciplinary program. To my mind, that container is the laboratory. When, in 1999, I had the good fortune to be asked by Stanford's leadership to develop a visionary venture in the arts and humanities, the apparent challenge was to build bridges between the disciplines in question and the cultural and technical revolution that was under way in the Silicon Valley, perhaps along the same lines as the productive entanglements of the counterculture with cyberculture in the 1960s and 1970s (Turner). I felt well-enough-equipped to do so, having tinkered with mainframe computing in high school and having served as the on-campus director for the first digital pilot project of the National Endowment for the Humanities: the *Dartmouth Dante Project*—a database of the seven centuries of line-by-line commentaries on Dante's *Divine Comedy*, from Boccaccio to the present.[5] But technology per se was never the object (note the absence of *digital* from any of the cited lab titles).[6] A survey of knowledge production and training practices in other fields and schools, accompanied by an informal poll regarding the dreams that my most adventurous colleagues aspired to realize but couldn't under current conditions, confirmed that new tools, technologies, and media were only one means, however powerful and laden with potential, to a greater end: to expand the

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compass, impact, appeal, scope, and scale of humanistic work; to complement individualized models of training and scholarship with collaborative, project-based, hands-on models similar to those encountered in the experimental sciences; to test and model alternatives to the current knowledge-distribution system in the arts and humanities.

Laboratoria are places of labor; they are workshops where an infrastructure made up of facilities, tools, instruments, and knowledge resources support the integrated, collaborative production of knowledge in a hierarchically structured community. As Bruno Latour and Steve Woolgar long ago observed with respect to the research laboratories of the industrial era, laboratory productivity has long been measured in scholarly writing. But what is learned writing? Where does such writing start, and where does it end? Is it restricted to the creation of scholarly books, monographs, and journal essays disseminated as industrialized print artifacts? Surely not: such a notion would have struck our eighteenth- and nineteenth-century predecessors as unduly limiting, even as stifling.

In sketching out an institutional blueprint for humanities innovation, I found myself thinking a great deal about the laboratories of the avant-garde, from constructivism and the Bauhaus to Black Mountain College. But most of all, I found my mind repairing back, time and again, to the medieval predecessors of Latour and Woolgar's laboratories: scriptoria.[7] Scriptoria, like the sixth-century renowned ones found at Cassiodorus's Vivarium in Squillace or Benedict of Norcia's monastery of Monte Cassino, combined research, study, and contemplation with functions that we'd associate today with the art studio, the maker space, the chemistry lab, the model farm, and the publishing house. They were sites of gathering, hands-on teaching, and collaborative fabrication, animated appendages to libraries where the arts of the hand and the life of the mind were understood as one. Writing in scriptoria was an encompassing—today, we'd say a transmedia—activity that included copying, indexing, annotation, and commentary, across the full disciplinary grid, as well as decoration, layout, illustration, and bookbinding. Writing was discovery, preservation, and exploration, and, as scribes are wont to remind us in their marginalia, it was also hard labor to the drip, drip, drip of water clocks.[8]

At the Stanford Humanities Laboratory, *laboratory* connoted the belief that "some crucial questions—about what it is to be human, about experience in a connected world, about the boundaries of culture and nature—transcend old divisions between the arts, sciences, and humanities; between the academy, industry, and the cultural sphere."[9] This copy, composed in 2000 for the lab's home page with my archaeologist colleague Michael Shanks, now feels a bit dated and overreaching. It went on to state: "We engage in experimental projects with a 'laboratory' ethos—collaborative, co-creative, team-based—involving a triangulation of arts practice, commentary/critique, merging research, technology, pedagogy, outreach, publication, and practice."

Overreaching or not, pedagogy loomed large in the lab's collaborative universe. Projects spanned from an experiment in the multimedia capture of the entire life cycle of a theater performance (dpResearch) to an art installation for the San José Public Library (*The Rosetta Screen*) to a "big humanities" project (Crowds) to a Christian-Jewish-Islamic Web resource on the Spanish Middle Ages (*Medieval Spains*) to a mapping platform (*Temporal Topographies Berlin*). They typically involved recurring course or seminar components that allowed students from all disciplinary walks of the university to learn "not only by *studying* existing knowledge in the traditional manner, but also by *producing* knowledge: by being assigned responsibility for the realization of a piece of research within a larger research mosaic, overseen (as in natural science

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laboratory settings) by an experienced senior researcher." There were deadlines and deliverables in the form of Web sites, databases, software, interactive media, gallery installations, book chapters, archival interventions, physical reconstructions, wall labels for museum exhibitions, or curated virtual galleries. Student work carried out beyond the walls of the classroom was paid: undergraduates were paid by the hour; graduate students received honoraria for assuming leadership roles.

The lab did some things well and other things not so well. Efforts to seed a multitude of projects soon stretched the lab's leadership team beyond the limit: a disproportionate share of energies and resources was being devoted to supporting the exploratory work of others rather than to modeling the transdisciplinary future that brought us within the lab's fold. Some projects were overly ambitious; most were underfunded. Grant writing absorbed more and more creative juices. An industrial-affiliates program failed to inspire warm and fuzzy feelings in the upper administration. At times, the pressure to deliver research on time while training students on the job yielded work of uneven quality. Attempts to craft and then support a digital humanities minor across all the literature departments emerged as an additional time sink and encountered resistance from many senior faculty members. Once the lab moved to the School of Humanities and Sciences and no longer reported to the provost and president, its days seemed numbered: momentum became harder to sustain, resources became tighter, internal reviews were contentious. The competition became departments, centers, and institutes: units with a more easily identifiable disciplinary terrain and firmer bases of faculty support.

The Harvard metaLAB arose not out of the ashes of the Stanford Humanities Laboratory but as a second cross-, inter-, or transdisciplinarity chapter. That chapter is being written in different times—digital humanities is now less the unkempt upstart than a force to be contended with in the academy—and under altered circumstances: metaLAB didn't have to start from scratch because it found an ideal, ready-at-hand institutional home in the thriving and highly variegated intellectual community of the Berkman Klein Center for Internet and Society. Like the Stanford Humanities Laboratory, metaLAB is a small community of scholars, designers, thinkers, and creative technologists working on a portfolio of projects that share a commitment to experimentalism, teamwork, and project-based pedagogy designed to promote students' translational skills. Unlike the Stanford Humanities Laboratory, metaLAB does not aspire (at least for the moment) to build an academic program. It's a lean and scrappy entrepreneurial operation, physically hosted in Harvard's Graduate School of Design.

In the absence of words like *digital* and *humanities* in its title, metaLAB describes itself as an "idea foundry, a knowledge-design lab, and a production studio" whose aim is to model (not just theorize) answers to the question of what shapes knowledge could or should assume in the twenty-first century.[10] Those answers include experiments in creative coding and multimedia scholarship, critical and expressive data use, exhibition design and curation as types of extended scholarly practice, and print publications that have a digital component and that span everything from design-driven scholarly books (the publication series metaLABprojects) to critical editions (the expanded reprint of *Blueprint for Counter Education*).[11] When it comes to software projects, metaLAB's mantra is modest: prototype rather than perfect. It approaches questions of knowledge design not just from the perspective of so-called content but also from that of knowledge containers: the design of future libraries, museums, and archives remains an abiding concern: no less so than curricular data sets, rare-book inventories, or collections databases.

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I may seem to have strayed far from my initial questions regarding the powers and limits of disciplines by describing two personal chapters, among the many being authored by creative colleagues throughout the world, from a collective work in progress dedicated to experimentation in the humanities. In so doing, my aim has been to circle back to the second extramural question posed earlier—that of disciplinary extensibility or the aptitude of a given skill set and knowledge base to prove effective in a distant domain—from the perspective of the sorts of cross-, inter-, or transdisciplinary ventures just evoked. It's a question of pedagogical, cognitive, and epistemological consequence, too complex to adequately address in these brief closing thoughts. As the faculty director of a research and training initiative, I am led to ask: What sort of students should we seek to educate, train, and involve in the life of the lab? How to balance disciplinary depth with interdisciplinary reach, rigor with imagination? As the leader of a robotics startup, I am prompted to extend those same questions out into the work world: What sort of employees do we wish to hire when it comes to taking on complex, collaborative, real-world tasks for which the training received in university classrooms can never be adequate? How to balance expertise with ingenuity?

Irrespective of which side of the fence I'm standing on, for me the answer remains the same: disciplinary homelessness is like a meal without textures, smells, or flavors. Innovators need to come from somewhere to go somewhere beyond. But to thrive, disciplinarity requires a counterforce, and such counterforces are fed, in turn, by discipline-based modes of inquiry. The paradox is irresolvable because it's productive: whether in the classroom, the laboratory, or the workplace, depth plus reach equals greater mental agility than either pursued in isolation can hope to provide. Disciplines may come and go, they may rejuvenate from within or without, but the great mosaics of twenty-first-century knowledge will be built from the tesserae of domain expertise, not from a scattering of skills.

Notes

1. The two main redactions of the text—with significant contributions by Todd Presner, my faculty collaborator at the University of California, Los Angeles, and by fellow Mellon seminar presenters Johanna Drucker and Peter Lunenfeld, along with paragraph-by-paragraph reader commentary and criticism—are available on the Web ("Digital Humanities Manifesto"; "Digital Humanities Manifesto 2.0"). The finalized version, with images, is available as a PDF (*Digital Humanities Manifesto 2.0*). The manifesto prompted the writing of a collaborative book (Burdick et al.).

2. The bibliography on discipline is vast, extending from overall accounts of the foundations of Western pedagogy, like Jaeger's *Paideia*, to Foucault's *Discipline and Punish*, in which associations between schooling practices and the structure of correctional institutions are a recurring topic.

3. The Trento Tunnels, known as Le Gallerie di Piedicastello, are a six-thousand-square-meter pair of highway tunnels in the northern Italian city of Trent repurposed as an experimental history museum. They were featured in the Italian pavilion of the 2010 Venice Biennale of Architecture; for more on the tunnels, see *La Biennale*. I first articulated the notion of knowledge design in a keynote address I gave in December 2013 for the Herrenhausen Conference (Digital) Humanities Revisited—Challenges and Opportunities in the Digital Age. The talk was published in the pamphlet *Knowledge Design* (Schnapp).

4. This list should surely be amplified with references to media studies and history centers like the Signallabor and Medienarchäologischer Fundus, of the media studies program at the Humboldt University of Berlin, or Media Archeology Lab, at the University of Colorado, Denver.

5. The *Dartmouth Dante Project* (dante.dartmouth.edu/) was founded and led by Robert Hollander at Princeton but run out of Dartmouth because of Dartmouth's advanced computing infrastructure. Today the project remains one of the defining reference works in the field of Dante studies.

6. The debate over the value of *digital* in the phrase *digital humanities* is long-standing. *The Digital Humanities Manifesto 2.0* embraced it only for reasons of "strategic essentialism": "We wave the banner of 'Digital Humanities' for tactical reasons . . . not out of a conviction that the phrase adequately describes the tectonic shifts embraced in this document. But an emerging transdisciplinary domain without a name runs the risk of finding itself defined less by advocates than by critics and opponents, much as

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cubism became the label associated with the pictorial experiments of Picasso, Braque, and Gris" (13). For thoughtful reflections on the debate, see the essays in Gold and Klein, particularly the contribution by Jentery Sayers.

7. The best overall introduction to medieval scriptoria remains Reynolds and Wilson.

8. In his famous account of the virtues of scribal activity, Cassiodorus writes: "We have not allowed you to be ignorant in any way of the measurement of time which was invented for the great use of the human race. I have, therefore, provided a clock for you which the light of the sun marks, and another, a water clock which continually indicates the number of the hours by day and night, because on those days when the brightness of the sun is missing, the water traces marvelously on earth the course that the fiery power of the sun runs on its path above. Thus, things which are divided in nature, men's art has made to run together; in these devices the trustworthiness of events stands with such truth that their harmonious function seems to be arranged by messengers" (sec. 30, par. 5).

9. All quotations about the lab appeared on the now-defunct Stanford Humanities Laboratory Web site, circa 2000, and are taken from the author's personal archives. Two linear feet and 10.9 gigabytes of materials documenting the history of the lab are present in the Special Collections of the Stanford University Libraries; for more information, see *Search Works* (searchworks.stanford.edu/view/9333717). *Internet Archive* (archive.org) also contains ample documentation, particularly regarding the lab's work in interactive media and machinima.

10. See *metaLAB* (metalabharvard.github.io/).

11. The Harvard University Press series metaLABproject has published six titles to date, including Presner et al. and Drucker. Stein and Miller's seminal work of radical pedagogy is supported by the Web site *Blueprint for Counter Education* (blueprintforcountereducation.com/).

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