Statement of Current and Planned Research
Devin Griffiths, USC

My work focuses on a few basic questions: What is the relation between practicing science and writing? How does literary form change our understanding of time and natural systems? How can interdisciplinary research ask new questions and find new answers to old problems? In my five years at USC, I have made substantial contributions to my chosen areas of study, and have worked consistently in my writing, conference presentations, and service both within and beyond the university to articulate these questions clearly and set out specific strategies for addressing them.

Last October Johns Hopkins University Press published my academic monograph, *The Age of Analogy: Science and Literature Between the Darwins*. The book has already received substantial and highly positive reviews, and was recently shortlisted for a book prize by the British Society of Literature and Science. *The Age of Analogy* changes our understanding of the connections between science, literature, and history in the nineteenth-century by explaining how literary authors and naturalists produced a new vocabulary for historical experience, and a new understanding of the historical dimensions of daily life. My study begins with two seemingly distinct, but closely interrelated questions. First, if Erasmus Darwin, and his grandson, Charles Darwin, were respectively the two most important British evolutionists of the eighteenth-century and nineteenth-centuries, how did Charles draw on and modify his grandfather's research for his own theory of "natural selection," the central thesis of the modern biological synthesis? And second, how did historical fiction contribute to the "historicization of everyday life" that, in the analysis of some scholars, took hold in the transition from the eighteenth to the nineteenth centuries? In both cases, I suggest, the answer was the turn to a new historical understanding rooted in the comparative method and articulated through the historical novel's capacity to tell pluralistic stories about the past. This new historical sensibility, which I term "comparative historicism," rejected the stability of earlier typological and progressive narratives of change in favor of analyzing local patterns *between* epochs, individuals, and systems. These ambitious comparative studies shaped new evolutionary theories, a new investment in social history, and new understanding of how culture shapes daily life. In essence, this intensely imaginative and comparative mode of writing, given mature form by the historical novel, taught Charles Darwin (an avid reader) how to refashion the linear evolutionary plots developed by his grandfather into ramifying and contingent stories that explained how natural selection might have operated.

At the center of *The Age of Analogy* is an argument about the literary and conceptual implications of deploying analogy as the central framework of comparative historicism. I argue that analogy must be recognized as a definitive feature of interdisciplinary study, and a powerful engine for driving new scientific, social, and technical theories. Moreover, and in dialogue with discussions of analogy within linguistics, cognitive science, and speculative philosophy, I show that the critical protocols of literary history cast a powerful light on the function of analogy across a range of disciplinary fields. I show that while some analogies provide ready-made models, allowing us to map a pattern of relations from one domain to another, other perhaps more powerful analogies elucidate common patterns and fashion new models where no adequate previous model exists. One of the most startling implications of *The Age of Analogy* -- one that both draws together the work of both Erasmus and Charles Darwin and speaks to our

contemporary environmental crisis -- is that we must consider the analogies that subsist between different forms of life, especially between the human and the nonhuman, in order to understand the complex nature of ecologies and our place within them. The early success of *The Age of Analogy* has led to numerous invitations to speak at institutions including UCLA, UC-Riverside, the University of Washington, and the University of Chicago.

Though the book is complete, it raises broad questions -- regarding the importance of analogy, the history of comparatism, and the value of literary analysis for interdisciplinary research -- that continue to drive my work. I am currently working on two monographs that consider, first, the significance of Darwinian thinking for analogies drawn between organisms and literary forms, and second, the archival conditions that motivated the turn toward comparative historicism in the early nineteenth century.

The first new book project, a short monograph titled "The Ecology of Form: Darwinian Theory and the Shape of Literature," takes up Darwin's often ridiculed theory of pangenesis in order to propose a new ecological conception of social and natural bodies. 19th and 20th-century writers, naturalists, and social theorists, confronted with the problem of understanding the collective organization of literary, social, and natural systems, often relied upon the notion of the organic body as a unified relation between whole and part, an integrity of both structure and function. Darwin's pangenesis rejected this organic model in favor of an ecological theory of bodies that envisioned all living creatures as loose collections of independent life forms, congeries of cells and organic particles defined by overlapping but sometimes distinct timescales, modes of reproduction, and lines of descent. In striking fashion, his vision anticipated recent work on epigenesis and the microbiome, and today offers a powerful new model for thinking about our treatments of form. In recent work Caroline Levine, Sandra MacPherson, Jonathan Kramnick and Anahid Nersessian have argued that forms are stable (if portable) structures or shapes. Yet in Darwin's view all forms are dynamic and unstable ecologies, even as they are embedded within, and interacted with, larger natural or social systems. Recognizing Darwin as the foremost nineteenth-century ecologist, "The Ecology of Form" revisits pangenesis in order to understand literary forms as networks of relations rather than objects or shapes. It treats three radically distinct cultural artifacts -- Charles Dickens's *Bleak House* (a nineteenth-century novel); Watson and Crick's paper the "Molecular Structure of Nucleic Acids" (the famous twentieth-century paper that discerned the double helix); and "the meme to end all memes" (generated by twenty-first century protest movement Black Bloc) -- to show how our understanding of novels, scientific writing, and popular culture are inflected by ecological thought. I have already begun presenting material drawn from this project at a variety of conferences and workshops, and a solicited chapter from this study, which deals with Darwin's pangenic theory, will be published next year as part of a special issue of *Romanticism and Victorianism on the Net*. In addition, and in collaboration with Deanna Kreisel of the University of British Columbia, I am in the final stages of negotiating a special issue of *Victorian Literature and Culture* on the topic of "Open Ecologies," to which I will contribute both the introduction and an article applying pangenic thought to the mid nineteenth-century novel and contemporary epigenetic theories. Finally, I am working on a critical history of organicism and epigenetic theory in both literary history and continental philosophy intended for the journal *Critical Inquiry*. I also anticipate stand-alone articles on the scientific history of epigenesis and meme theory. I aim to solicit a publisher for *The Ecology of Form* in Spring, 2018.

My second new monograph, "The Radical Catalogue: Victorian Fiction and the Science of Order," requires much more extensive archival research and will take more time to complete. *The Age of Analogy* asked but could not yet answer a more fundamental question: how did the comparative method become a

central methodology for both social and natural science in the early nineteenth century? To answer this question, I have turned my attention to the role that massive late eighteenth- and nineteenth-century cataloguing projects played in constituting new historical series for comparative study. These catalogues, and the specimens they organized, were the basis of nineteenth-century comparative science and historical thinking, and drove major breakthroughs in comparative anatomy, philology, and anthropology. "The Radical Catalogue" will explore these new cataloguing technologies as they evolved to address the explosive growth of natural history and print collections in the nineteenth century. These technologies transformed our understanding of nature and social life. As an example, many key nineteenth-century theories evolved from extensive cataloguing projects, from the decades Charles Darwin spent cataloguing barnacles before writing *On the Origin of Species*, to the decades of "armchair" archaeological research performed by Edward Burnet Tylor in advance of writing *On Primitive Cultures*. The social and textual technologies developed for these new cataloguing efforts were important precursors to library information science and a key conceptual background for the data structures that support modern computing technology. Moreover, these catalogues were imperial and global in nature, insofar as empire and the expansion of global trade drove the unprecedented growth of collections and the consequent and unparalleled increase in the libraries, museums, conservatories, and imperial archives that nurtured the comparison of artifacts in series. For this reason, "The Radical Catalogue" will explore the relation between imperial administration and archival science while studying how contemporary authors both reflected upon and shaped these new cataloguing technologies. I plan to include chapters on Virginia Woolf and the British Museum Library, Darwin's exhaustive studies of barnacles and Goethe's *Elective Affinities*, Thomas Carlyle and the London Library, Charles Dickens and the British parliamentary archive fire of 1834, Olive Schreiner and the Dutch East India Company Garden in Capetown (as a "living" archive with lasting material traces), and the Library of Madras and Krupabai Satthianadhan (an important late nineteenth-century Anglophone novelist). *Book History* has already published my initial study of the catalogues of the British Museum Library, which developed influential and innovative techniques later adopted by both the Library of Congress and Dewey decimal cataloguing systems. And as a preparatory treatment of this new work, I have written an interdisciplinary study of the history of the comparative method forthcoming in the *The History of the Humanities* (a relatively new but influential journal published by the University of Chicago Press). *The Age of Analogy* was about the new science of history that emerged in the nineteenth-century; "The Radical Catalogue" will explore the science of order that support this new approach to the past. Given the extensive archival work and travel required, and its investment in digital methodologies (described below), I aim to complete a first treatment of "The Radical Catalogue" and solicit a publisher in 2023.

As these studies indicate, my research is deeply interdisciplinary, and over the last five years I have continued to develop digital methodologies that draw upon my scientific and technical background to address humanist questions of meaning and significance. The introduction to *The Age of Analogy* presented a brief analysis of the use of analogical language in academic articles indexed within JSTOR, and I continue to develop digital tools for studying analogy and answering questions central to my research. I am currently working to adapt my work on the theory of analogy, shaped by my studies of the comparative method, for application within machine learning and artificial intelligence. Though analogy has been extensively studied by computer scientists, they have not generally explored how it has been used historically in popular writing. In 2015 I was invited to give a talk at USC's Information Sciences Institute that summarized my previous work developing digital tools for finding analogies in scientific and technical writing. Since that presentation, I have used the Stanford LEX Parser to develop a database of analogies drawn from thirty years of *New York Times* editions. In collaboration with researchers at ISI including Gully Burns and Jonathan May, I hope to use this training set to develop new machine learning algorithms

that find analogies in a wider range of textual sources. In support of my current work on "The Ecology of Form," I have also begun studying how network analysis, specifically the study of link and tag correlation and network "flow," can be used to study the distribution and variability of memes. I have been invited to give a talk next year summarizing this research at the Information School of the University of Washington -- a major research group for the study of the digital humanities. Finally, "The Radical Catalogue" has been designed as a "born digital" DH project. My preliminary work has used traditional methods drawn from the material history of the book and surviving notes about the institutions that supported them to glean valuable insight into nineteenth-century information science. But I believe that new digital tools offer promise as a way to capture a more extensive view of the large-scale, idiosyncratic, and unrecorded protocols and decisions that were made during the creation of the most important 19th-century catalogues. Current digital repositories, from Google Books to Worldcat, rely on inconsistent sets of metadata that have erased historical changes in how specific items were catalogued and understood. A comprehensive digital study of the ontologies that supported these catalogues, which examines both how the indexing of specific items changed over time, and how indexing evolved and departed from published standards, holds the promise of recovering valuable historical data and reshaping our understanding of the nineteenth century science of order. Curators at USC's Digital Library and at the Huntington Library have expressed interest in supporting this project with both staff and technical resources, especially in the initial phase, the digitization of several source catalogues and indexes. And over the next two years, I plan to apply for an ASHSS grant to support further training and the development new digital tools to capture para-bibliographic data within the pages of these collections, including shifts in justification and typeface. Outputs for this work will include a scholarly monograph, journal publications and talks, as well as new datasets for the literary history and the history of science, especially the computer and library sciences.

In the coming year I will be presenting aspects of this new areas of research at a variety of conferences, including the annual meetings of the Modern Language Association, the Association for the Study of Literature and the Environment, Interdisciplinary Nineteenth-Century Studies, the North American Victorian Studies Association, the North American Society for the Study of Romanticism. In the coming year I will also be applying for long-term fellowships from the American Council of Learned Societies, the Huntington Library, the Humboldt Foundation, the National Endowment for the Humanities, and the Guggenheim Foundation.