licenses/by/2.0/). The *brat* authors feature examples of the tool's usage with freely available datasets, furthering their visible commitment to promoting the use of open access tools for use with open access data.

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Virtual Paul's Cross Project: A Digital Recreation of John Donne's Gunpowder Day Sermon. Other.

Raleigh: North Carolina State University. Accessed 27 April 2019.
vpcp.chass.ncsu.edu/.

The study of Renaissance drama has in recent years fully embraced the idea that a play is text plus performance. Prominent series of editions of Shakespeare's plays, for example, focus on the play in the context of its performance history. *The Virtual Paul's Cross Project (VPCP)* addresses a gap in other domains of Renaissance studies where performance was equally important—the arts of discourse and, specifically with respect to oratory and the fifth office of rhetoric, delivery. The *VPCP* might therefore be best appreciated as an edition of a text in performance, where the supporting materials serve to provide context for understanding how a sermon might have been delivered and received within the circumstances of its original performance. The text and occasion featured here is Donne's sermon intended for delivery at Paul's Cross (in the churchyard of St. Paul's Cathedral) but in the event relocated inside the church owing to inclement weather. The sermon was preached on 5 November 1622, "being the Anniversary celebration of our Deliverance from the Powder Treason," as subtitled in the print edition of the sermon.¹ The core of the *VPCP* edition is not the written text (although transcriptions of both extant witnesses are provided), but rather two models that provide insight into the performance of the early modern sermon: in the first instance, a visual rendering of the space in which a Paul's Cross sermon (although in the end not this one) was delivered, and therefore some of the environmental considerations that would have affected

1. John Donne, *Fifty Sermons* (London, 1649), 398–411 sigs. [Llv]–Mm3.

performance; from this physical and social environment were extrapolated the acoustic dynamics and conditions of the sermon's original performance, which inform the second model, a performance of the sermon that replicates the acoustic dynamics and how the sermon might have been heard within those dynamics of space.

The *VPCP* site provides several documents amounting to the sort of introduction one would expect to accompany an edition of a sermon. These documents (delivered through a series of webpages accessed through drop-down menus) serve both to contextualize the sermon generally and to lay out the considerations of context that the model attempts to respond to, with commentary on how the model attempts to do so. A section on the "Occasion" summarizes the physical space of the cathedral, focusing on the churchyard, and discusses the weather on the day of the sermon, as reflected in the visual model, based on testimony of the printed sermon itself and historical weather patterns for that time of year. A page on the "Social Environment" gives an account of the composition and size of the typical Paul's Cross audience ("as high as 5,000–6,000") as well as the general social dynamic (it was a busy and noisy place)—crucial information that informs both models. There is also a section touching on the "Preacher," including a biographical sketch of Donne in 1622, the year of the sermon, when Donne was forty-nine. Here the focus is again on contextual matters, chiefly King James's pursuit of the "Spanish Match" and his *Directions for Preachers*, the subject of Donne's first Paul's Cross of that year, on 15 September 1622. This is context for Donne's return to the relationship between king and subject in the Gunpowder plot sermon featured on this site. This section also includes a page on Donne's preaching style, discussing dynamics of oral delivery examined in the audio modelling of the project (more on that below). A section on the "Sermon" includes content on the immediate textual and performative context of the sermon—the procession (though the sermon was not presented outside) and order of service. It also includes a page on the "Development of the Script"—both Donne's and the project's development of the text—as well as a transcript of the sermon text used in performance, complete with stage directions. Another page briefly discusses the two sources for the text, British Library MS Royal 17.B.XX (the base text) and *Fifty Sermons* (1649), with links to pdf facsimiles of each.

The key attractions of the site, and indeed the central artifacts of this edition of the sermon, are the architectural and acoustic models. It should be noted that

what the website presents in this regard are elements of the more integrated and immersive installation of the project in the Teaching and Visualization Lab at North Carolina State University's James B. Hunt Library in November 2013. Most users will be immediately attracted to the architectural "Visual Model," which is informative for anyone interested in the place and function of the physical church in early modern England. This architectural model was developed by Joshua Stephens, a graduate student in architecture under the supervision of David Hill (both NC State University), based largely on historical information provided by John Schofield, Archaeologist of St. Paul's Cathedral and author of *St Paul's Cathedral before Wren* (Chicago, 2011). The expression of this model is in the form of two animation videos of the churchyard: one (5:41) which gives a roughly 300-degree view that rotates around the outdoor preaching station, presenting a black-and-white representation of the houses and shops lining the north and east edges of the churchyard. The animation is augmented with occasional pauses presenting coloured stills that add architectural detail and people to the model, with light and shadows reflecting the grey, overcast weather conditions of the occasion. A second, shorter video (1:25) presents a full-colour, lower-resolution fly-around of the entire northeast corner of the cathedral and churchyard: the first half is a survey focusing on the preaching station (somewhat disorienting because of its rapidity), and the second half is a beautiful bird's eye view that is best appreciated by occasionally pausing to take in the illuminating detail of the model.

As helpful as the visual model is for imagining the space of the sermon and its occasion, the most evocative (and perhaps provocative) aspect of this site is "The Acoustic Model," which gives a representation of the acoustic dynamics of both the physical space and its human and non-human populations, including the ambient noise of the social space of Paul's Cross. This model was created by professional acoustic engineers Ben Markham and Matthew Azevedo. While the site provides a good discussion of the environmental factors considered in the model, users will have to seek out the two published articles to find a technical discussion of the modelling process. The full audio version of the sermon comes in two options delivered as embedded video hosted on YouTube, one that situates the listener in the churchyard and another that places the listener among the more privileged classes in the "sermon house," the seating area along the northeast wall of the church. With a basic home computer set-up (even with headphones), the differing qualities of the two recordings are hard to appreciate.

More immediately evident in these models are some of the challenges a Paul's Cross preacher would have faced in making himself heard in these environs given the significant ambient noise (people murmuring, carriages clattering, seagulls cawing, dogs barking), acoustic dissipation, and relative volume of preacher to the surrounding congregation. There is also the option of hearing a sample from eight different locations in the churchyard in combination with congregation sizes of 500, 1,200, 2,500, and 5,000 people. Again, differences are sometimes difficult to appreciate, as for example between a position in front of the preaching station in a crowd of 1,200 versus one of 5,000.

Perhaps more provocative is the interpretation of how Donne might have preached the sermon to meet these conditions. The recording of Donne's sermon was made by Ben Crystal, a London-based actor specializing in early modern London pronunciation, in collaboration with his father David Crystal, a linguist. As explained elsewhere (in an article on "Recovering Lost Acoustic Spaces: St. Paul's Cathedral and Paul's Churchyard in 1622"), Crystal was given two primary directives: to deliver the sermon as one would in order to be heard in outdoor conditions to a large crowd; and to emulate as much as possible the manner and characteristics contemporaries attributed to Donne's preaching, as elaborated in the site's section on Donne's style.² This involved identifying different modes within the sermon ("expository," "playful," "instructive," "exhortatory," etc.) and how these might have been delivered tonally and stylistically to desired effect. The result is a relatively slow-paced delivery that clocks-in around two hours, the purported length of a Paul's Cross sermon. Audio samples of these different modes and manners of delivery are provided in another page on "Donne Interacting." (These might be better placed in the corresponding section on Donne's style.) This page on Donne's interactions discusses a further consideration of the audio modelling, which was to identify places in the sermon where audience response is encouraged and to imagine how these moments might have worked, such as Donne's "Call to Attention," the recitation of the Lord's prayer at the end of the opening prayer, and the congregational "Amen" at the end of the sermon, with audio samples again provided. The page also discusses Donne's interaction with his churchyard environment, chiefly his accommodation of the ringing of the

2. John Wall, "Recovering Lost Acoustic Spaces: St. Paul's Cathedral and Paul's Churchyard in 1622" *Digital Studies/Le champ numérique* (2014). DOI: doi.org/10.16995/dscn.58.

tower bell, speculating that Donne might have timed the sermon to anticipate these intervals. In consequence, the two audio versions of the sermon proper are presented in approximately fifteen-minute segments timed to the fifteen-minute intervals of the tower bell.

On the one hand, the *VPCP* site in its “Overview” is clear about what cannot be known and what can (based on available historical evidence); on the other, the project states its purpose (in a page titled to that effect) of presenting “a historically faithful interpretation of Donne’s preaching style” and of the experience of a Paul’s Cross sermon. In this context, it is perhaps helpful to return to the idea of a model, a perspective that is somewhat muted on the site itself but nicely elaborated in John Wall’s article on “Recovering Lost Acoustic Spaces.” In short, *VPCP* does splendidly what a good model should: it gives shape to a body of data in a form that enables a new kind of interrogation, raising new questions and lines of enquiry. One question arising is how the slow-paced delivery designed to accommodate the acoustic demands of the crowd and the physical space squares with the historical record of Donne’s dynamic delivery: one struggles in the audio samples of the sermon’s various modes to hear a “variety of tones of voice, styles of delivery, modes of address, and a range of emotional energy and cognitive development” (“Donne’s Preaching Style”). Questions also remain about the structuring and timing of the sermon to meet the intervals of a ringing bell, given that Donne preached from notes and not from a set (and therefore fully predictable) text. A page on “Outcomes” sketches some conclusions on what has been learned in the process of developing the model (again, elaborated more fully in a 2014 article published in *Journal of Digital Humanities*).³ It remains for other scholars to interrogate the model for themselves to see what other avenues of enquiry might emerge.

The project follows standards for “evidence-based restoration” and intellectual transparency as laid out in the *London Charter for the Computer-based Visualisation of Cultural Heritage* (“Purpose” in the “Overview” menu). There is no declaration of terms of use. The site uses common web platforms (php, html, embedded video) and is generally well organized and navigable, although some content seems strangely placed. The two visual models, for example, are difficult to locate, with the links buried at the bottom of a webpage dedicated

3. “Transforming the Object of our Study: The Early Modern Sermon and the Virtual Paul’s Cross Project,” *Journal of Digital Humanities* 3.1 (Spring 2014). journalofdigitalhumanities.org/3-1/transforming-the-object-of-our-study-by-john-n-wall/.

to the “Fly Around” visualization. Any minor limitations of the project and its presentation, however, should not detract from the significant accomplishment of this site in breaking new and fertile ground for the modelling possibilities of these technologies for better interrogating the built spaces and social contexts for historical performances.

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