Mapping Machines: Transformations of the Petersburg Text

Sarah J. Young, John Levin

University College London, School of Slavonic and East European Studies, UK
s.young@ssees.ucl.ac.uk

University of Southampton, Department of History, UK
john@anterotesis.com

This paper outlines the ideas and initial results of the literary cartography project Mapping St Petersburg. It explores the digital impetus behind the current “spatial turn” in the humanities, and the relationship between literature and place, to ask what mapping can say about fictional texts. Examples from Dostoevsky’s Crime and Punishment show the potential of creating maps as thought experiments for analysis.

Keywords: literary cartography / St Petersburg / mapping / Russian literature / Dostoevsky / Crime and Punishment / Gogol / Google maps

In Radiant Textuality, one of the first works to critically examine the implications of the digital for literary analysis, Jerome McGann (127) characterizes textual interpretation as a deformative process that isolates, reorganizes, or adds to a text in order to interpret it. As Stephen Ramsay (16) elaborates, “Any reading … that is not a recapitulation of the text relies on a heuristic of radical transformation. The critic who endeavors to put forth a ‘reading’ puts forth not the text, but a new text in which the data has been paraphrased, elaborated, selected, truncated, and transduced.”

While this may be true on the conceptual level, the degree of deformation apparent in the outcome of this process is often minimal, and literary criticism all too frequently becomes an encounter with the familiar. But it is precisely the familiar that must be distanced and broken down, in order to generate new meanings and new understandings, and to discover what we do not know about literary works. This involves manipulating the text, for example by re-ordering it or changing one of its dimensions (Pope 1–30). The result of this process is not immediate knowledge, but a sense of ostranenie (estrangement) in Formalist terms (Ramsay 3; Shklovskij) that requires a new interpretation. It is precisely this type of defamiliarization through machine reading that we are exploring in Mapping St Petersburg, a project that aims to experiment with digital techniques and potential of
a critical literary cartography by mapping the “Petersburg text” of nineteenth-century Russian literature (see Young and Levin). The purpose of this paper is to outline the development of Mapping St Petersburg, the thinking behind it, and some initial results.¹

The digital tools used in Mapping St Petersburg place it in the mainstream of the current “spatial turn” in the humanities. There have been many similar shifts; Jo Guldi’s article “What is the Spatial Turn?” (see Guldi) examines such developments across so many fields since 1789 that one wonders if geographical considerations have ever been entirely absent from humanities research. But we would argue that the current trend is qualitatively different to those preceding it, and is marked out as a very specific moment, by the new digital technologies that have opened up mapping to popular involvement.

With its launch on 8 February 2005, and even more with the release of an API (Application Programming Interface) a few months later, Google Maps inaugurated an era of “neogeography” (Turner 2). It fuelled the development of a set of technologies defined in opposition to the established digital tools known as “Geographical Information Systems.” Whereas “classical GIS” is specialized, complex, expensive, and so requires a significant investment of time and money, neogeographical technologies have low barriers to entry, are easy to use, often free, flexible, and open to adaptation. Furthermore, as they are web-based, they allow users to draw upon greater computing power than they possess themselves, and interact with other web-based components, whether software or dataset.

The creation of tools that enable popular cartography has encouraged researchers, working both individually and collaboratively, to explore potential uses of mapping technologies for a wide range of humanistic subjects. This has led to the development of numerous mapping projects, many of which employ neogeographical technologies.² Following Ramsay, we can think of these projects as “mapping machines,” transforming texts into data, applying geographic algorithms, and then projecting them onto maps. Once built, the ease, speed, and freedom with which questions may be asked of the data reduces the latency that inhibits experimentation, and introduces a ludic element. Thought games can be played, without delay, on one’s current inspiration. Hunches can be followed, suspicions investigated, at little cost. A process of iteration and reiteration can then develop, focus, and refine these ideas. Our aim with Mapping St Petersburg is to set up a framework capable of supporting such thought games.

But if this technology enables, it also restricts. Its suppositions define its contours, which set limitations to its utility. The central paradigm is one of annotation, placing markers on a map, at a specific location, and
relating text or images to that marker. However, a place is not necessarily one point, nor a collection of points, nor even a clearly demarcated area, and a text, even if it is mappable, may not be dissolvable into the discrete co-ordinates required by the technology.

This is apparent in our mapping of Nikolai Gogol’s short story “Nevsky Prospekt” (1835). Nevsky Prospekt is St Petersburg’s major thoroughfare and a popular venue for both promenading and commerce. Opening the story with an apostrophe to the changing nature of Nevsky Prospekt throughout the day, Gogol’s narrator imparts a strong sense of travelling the fashionable length of the avenue.3 The absence of landmarks problematizes the use of individual markers with precise co-ordinates. Our solution, suggested through being able to define the direction of travel because of the end point (the Police Bridge, now the Green Bridge, across the Moika river: see Gogol 250), was to break up the text and spread it along the route to convey the idea of movement. (See Figure 1 in the Appendix) But this remains an imperfect solution, which indicates not only the difficulties of mapping the “fuzzy data” that constitutes a literary text, but also a fundamental limitation of this software.

An opposite approach can be seen in the “Mapping Medieval Chester” project. It reverses the annotative direction: the map illustrates the text, so for example the place-names in Lucian’s “De Laude Cestrie” (On the Glory of Chester) are illuminated by maps showing their position. (See Figure 2 in the Appendix) This results in a very different view of the places referred to, one less deformative textually, for organization is by text rather than cartography. But while the text is intact, the map is fragmented, suggesting a spatial deformance that the neogeographical annotation model cannot achieve. Comparing these two approaches shows that the digital tools employed influence the form the cartography takes. Technology is neither transparent nor neutral, and critical inquiry must reflect not only upon the cartographic output, but also upon the advantages and limitations of the technical choices made.

The writings we are subjecting to this deformative cartographic process are those that constitute the “Petersburg Text” (Toporov 5–118). The role of the Petersburg setting in Russian literature has been a focus of critical attention since the publication of Antsiferov’s Dusha Peterburga (The Soul of Petersburg) in 1922 (Antsiferov 24–175). Analysis has, following the work of Lotman and Toporov (see Lotman and Toporov, respectively), privileged the founding myth and symbolic aspects of the city. Far less attention has been paid to the spatial dimensions and arrangements, or the material significance of locations, in this literary corpus; even where these have been the subject of discussion, it has tended towards the descriptive

153
and speculative. *Mapping St Petersburg* aims to develop a literary cartography in order to fragment the texts, facilitating examination of different dimensions of the dynamics and uses of social space in Peter the Great’s “abstract and premeditated” city (Dostoevsky, *Notes* 5) and its fictional representations. Maps, as Wood (1, 17–22, 48) has argued, do not objectively represent space, but shape arguments, serve interests, and construct rather than reflect the world. By plotting the specified locations in literary texts in order to visualize the geographic arrangements and connections within and between works, we aim to use maps not as uncritical illustrations, but as critical tools with which to interrogate literature. Thus maps act as a starting point for interpretation and exploration of how geography shapes narrative structure (Moretti 7–8).

The scale and complexity of the metropolis is such that it cannot be seen or occupied in its entirety by a single consciousness, and in considering the question of how the city is therefore known, literary images become as much a form of inquiry as cartographic representations, statistical analyses, or personal experiences of place. The city’s geography should not therefore be seen as an objective, unchanging space to be opposed to the textuality of literature. Rather, it should be viewed as space “produced by the forces that control and define it,” which “is also represented and constructed by the way its people move about it, the connections they make with others, and the routes they create as a result” (Stenton 63–4). Hitchcock’s article on the influence of literary images on public policy in eighteenth-century London shows that the direction of knowledge is not one-way, and that literary works play a significant role in the social production and understanding of space (Hitchcock 83–6). Moreover, the close relationship of literature to place, and the unstable boundaries between the two, are apparent in the existence of literary texts that closely follow the contours of existing places (Joyce’s *Ulysses*), works that include maps, whether of lightly fictionalized versions of real places (Hardy’s Wessex or Faulkner’s Yoknapatawpha County), or of imaginary worlds (Tolkien’s Middle Earth), and works that straddle factual and fictional genres, such as Dostoevsky’s so-called “travelogue” *Winter Notes on Summer Impressions* (1863), and Pogačnik’s gazetteer *The Miracles of Ljubljana* (2011).

For this reason, we argue that the literary representation of a city does not simply create “something other than itself” (Johnson 60), but rather advances a different way of knowing the place, as incomplete, but as valid, as any other. References to existing locations in literary texts invite the reader to consider the relationship between the geographical entity and the written city, and to compare their own perception of the city’s spaces to that
of the text in a process of mental mapping (Wood 14). Using visualizations to translate the text’s understanding of city-space into a third, cartographic, form of knowledge, brings together the experienced, the imagined, and the represented to allow exploration of their intersections and incompletions, emphasizing the permeable boundaries between the city and its representations, both textual and cartographic. Such an approach does not encompass the whole of the text, but, as with other form of analysis, extracts a particular dimension for interpretation. This process foregrounds spatial (and, secondarily, temporal) data in order to elucidate what the text knows about the city, and what the city can tell us about the text.

Contra Moretti, our focus is not on broad movements and sweeping trends across entire continents, but rather on exploring and comparing the spatial dynamics of individual texts within the bounds of a specific city genre. A close reading of the text, to identify and geo-reference its locations, enables transformation of the material into data in the form of a spreadsheet, in itself a radically deformative process that obliges one to look at the text with different eyes. This makes one question how, why and when the space is used, as what should be mapped is neither straightforward nor static; for example, an imagined or projected space, in Piatti’s terms (11–12) can become a zone of action, or vice versa. Reflecting upon the spatial relations, and defining the spatio-temporal rules governing the text, provides the basis for the cartographic experiments undertaken. The aim is to enable distance readings which will facilitate understanding of patterns that are not discernible from a linear reading, and to bring a critical focus to the text’s geography.

The pilot project initially focused on Dostoevsky’s 1866 novel Crime and Punishment for a number of reasons. It is one of the most important texts in establishing Petersburg’s role as a modern city within the literary landscape, and the city acts as a character in the novel in its own right, becoming “an inalienable part of Raskolnikov’s personal drama” (Grossman 368). From the opening pages of the novel, we follow the protagonist as he walks around the poverty-stricken center of the city and attempts to escape it by visiting peripheral areas. He has counted the precise number of steps from his own building to the victim’s (Dostoyevsky, Crime 35), indicating his knowledge of the city and tendency to map it mentally; it is precisely this that encourages the reader to imagine the city and follow in his footsteps, comparing their knowledge to that of the protagonist. The fact that both Raskolnikov’s mental mapping and his dream of reconstructing the city along rational lines (Dostoyevsky, Crime 110) are intrinsically linked with his plan for the murder emphasizes the role of Petersburg in his consciousness (Lindenmeyr 40–2).
The references to Petersburg geography and toponyms in the novel are highly detailed. Most of the key locations in the text can be established, even down to specific buildings. As well as textual evidence that allows the reader to follow Raskolnikov’s movement through the streets and relate one scene spatially to another, the memoirs of Dostoevsky’s wife have been instrumental in identifying the prototypes he used for particular buildings (Dostoevskiaia 66). Subsequent research by Antsiferov (176–257) and Tikhomirov has confirmed precise locations in most cases. There is in fact only one setting, the apartment of the detective Porfiry Petrovich, that cannot be located, and this seems deliberately anonymous: it is described solely as “this grey building” (Dostoyevsky, Crime 298). The very strong connection emphasized between contemporary Petersburg and its representation encourages further exploration, while the level of complexity presented by the place data in the novel generates numerous questions, leading to consideration of the ways in which a text can be mapped, and of what mapping a text entails. It reveals the presence of multiple possibilities that require multiple visualizations. Interrogation is only possible through dynamic maps that present the spatial dimensions in different ways. This also emphasized the need for reusable data and for a ludic platform which to conduct rapid mapping experiments.

Applying thought games to literary works is appropriate because of the fundamental relationship between literature and play. From play within the text, such as the game of wits between Raskolnikov and Porfiry (Foust 7–8), to those the text plays with the reader (Bruss 155), the notion of play as a variation on reality indicates the roots it shares with literature (Ehrmann 34). Ehrmann’s conclusion that “[a]ll reality is caught up in the play of concepts which designate it” (55), can be used to conceptualize the relationship of the city to its literary image. Using maps to elucidate the connections between the real and the imagined city thus transfers the play of the text to a different level and form.

Games also represent uncertainty of outcome, placing them within an “economy of chance” that “utilize[s] the very gratuitousness of play” (Ehrmann 41–4). The investment of time in creating the data to map the texts may be considerable, but because of the light technology used, subsequent expenditure is minimal, and ideas and questions may be tested easily and rapidly. This approach in particular has potential for dealing with a long single work such as Crime and Punishment, as well as multiple works in a large corpus, which can be compared thematically, for example in relation to their use of particular types of institution. Moreover, not all spatial arrangements have deeper significance, so the ability to conduct
quick experiments can reveal the limitations of the geographic dimension and its interpretative possibilities.

Generating the basic geographical data from the text gives rise to questions that govern the form the maps take. Working on *Crime and Punishment*, it quickly became apparent that there are at least two ways of mapping a literary narrative: by place and by event. The critical spatio-temporal dimension of narrative led to the decision to focus primarily on the latter. By defining different categories of events, such as encounters, journeys, and mental activity, and incorporating the narrative dimension by breaking the data down into six maps that correspond to the six parts of the novel, we show that the relationship to space is not constant throughout the text.

In parts one and two (see Figure 3 below in the Appendix), space is expansive; a great deal of incidental interaction with places, and response to the immediate environment, is apparent, as Raskolnikov walks around the city’s center and to its peripheries. In parts three to five, however, space contracts as incidental events are excluded, and emphasis is solely on specific conversations and meetings (see Figure 3 above). Nothing now seems to happen *en route* from one place to another, and there is no movement or action at all outside this central zone. Raskolnikov’s perception of the city has clearly changed. If his walks to the edges of the city at the beginning of the novel indicate that he seeks freedom in the open spaces beyond the stinking center, then there is a strong sense in the later parts that he has become trapped. If he does wander, the reader is no longer told about nor sees where he is; our knowledge of the city appears diminished as his locale shrinks. A further transition takes place in part six, with incidental space over a wider area returning to the foreground, but now this relates not to Raskolnikov’s movements, but to those of the libertine Svidrigailov, creating a spatial connection that intensifies the psychic link between these characters and suggesting that Raskolnikov has been replaced as protagonist. This is paralleled by an earlier spatial link established between the drunkard Marmeladov and the murder victims, as Raskolnikov’s contact with the former always follows his visits to the residence of the latter. This indicates the significance of the spatial dimension as a hitherto unidentified aspect of the theme of Dostoevskian doubling (see Chizhevsky) that merits further exploration.

Breaking the novel down into its constituent parts reveals the changing relationship to space within the narrative structure, but it also leads to questions about other temporal dimensions. Just as *Crime and Punishment* is highly specific in its use of locations, so its references to time are also precise. Although the exact date is never given in the text, scholars have
established through various references that the action begins on 7 July 1865, and ends on 19 July (Tikhomirov 45–6). Within that period, times of day are given, or are possible to define, for all but three recurring events. Thus there is a wealth of temporal material by which to map the novel’s action.

Using this data to create time of day maps, broken down into morning, afternoon, evening, and night, brings the time/space distribution into focus in different ways, and acts as a form of textual filtration that enables us to identify details that otherwise remain invisible. The map of events that take place in the morning (6 a.m. to midday: see Figure 4 in the Appendix) unsurprisingly shows a strong concentration around Raskolnikov’s room (marked with a dot), but other markers are also significant. The circled markers indicate sites of confession: the police bureau where Raskolnikov is summonsed about non-payment of his rent, and where he finally confesses; the prostitute Sonia’s room, where he first admits to the murders; and the police station where his second interrogation takes place, and he is confronted by the religious sectarian Mikolka, who falsely confesses to the crime out of a desire for punishment for his sins. Within this geography of confession, it is notable that the two sites of Raskolnikov’s confession stand between his room and the Haymarket (marked with a cross), the part of the city that affects him most, as both the symbol and center of its poverty and disorder.

On the map of evening events (6 p.m. to midnight: see Figure 5 in the Appendix), other patterns emerge. The first is that Raskolnikov’s room (marked with a dot) is flanked by the lodgings of his mother and sister on one side, and his savior Sonia on the other (circled in black), creating a line of love and protection, however ambivalent those concepts may be for the protagonist. This is separated from most of the rest of the action by the Catherine (now Griboedov) canal, on the other side of which are located the residences of the parasitic pawnbroker Alena (marker 46) and the destitute Marmeladov family (marker 49), as well as the drunks and prostitutes of the Haymarket (markers 14, 107), and the taverns and brothels that populate the area (markers 5, 41), circled in green. It is significant that Stoliarnyi Lane, where Raskolnikov’s room is located, was famous at that time for the eighteen drinking dens that occupied its sixteen buildings (Tikhomirov 135), but none of these appear in the novel; the atmosphere of the tavern remains apparent on the street, but such establishments that are specifically mentioned and visited are located only on the other side of the canal. The southern side of the canal is also associated with ideas about social reorganization (circled in blue): by the Iusupov Gardens Raskolnikov considers rebuilding the city (marker 20), and when
he visits the Crystal Palace tavern (markers 42, 43), we are reminded of the role of Joseph Paxton’s iconic building in the Russian utopian thinking of the 1860s. Thus while the vicinity of Raskolnikov’s room, north of the canal, is connected with emotional influences, the area south of the canal becomes the locus of ideological and social questions, spatializing the tensions within the protagonist’s mind.

Our emphasis at this initial stage of inquiry, however, is not so much on the results as on the possibilities. We generally approach linear narratives in a linear way, adhering to their own temporality and their own form; as McGann (53) states, with the advent of electronic tools, “we no longer have to use books to analyze and study other books or texts.” By visualizing the various temporalities and other aspects of the text spatially, we move to a new order of analysis and open up literary works to different approaches. The maps in themselves neither provide answers, nor purport to be complete in their representations of the text, but rather present deformed and filtered readings that require new interpretations. As the project expands to incorporate other texts, different cartographic paradigms and enhanced search tools, Mapping St Petersburg will enable ludic exploration of the spatial dimensions of a large corpus of Russian literature, and point the way to new understandings of the relationship between text and place.

NOTES

1 We gratefully acknowledge the support of the School of Slavonic and East European Studies, University College London, which provided seed funding to set up the project.

2 As can be seen from the list of Digital Humanities GIS projects compiled by John Levin at Anterotesis (see Levin). Some of these projects listed here are concerned with making tools for mining texts for place names and their collocates, a necessary precondition for textual cartography.

3 However, the direction of travel implied is the opposite to that taken by fashionable promenaders (see Iakovlev).

4 Thacker’s term “critical geography” emphasizes the need for this analytic dimension (see Thacker).

5 While all the other characters are connected with particular locations, Porfiry’s lack of locatedness suggests he is omnipresent, and maintains a view over the city in its entirety that is not accessible to either the other characters, or the reader.

6 Uncertainty as a characteristic of games was initially defined by Roger Caillois (see Caillois).

7 The significance of place is explored on Mapping St Petersburg in a map of Petersburg institutions in the novel, and in one that compares places that appear in the course of the action with those that are referred to by the characters. See http://www.mappingpetersburg.org/site/?page_id=494.

8 Maps of the novel’s events can be explored in more detail at http://www.mappingpetersburg.org/site/?page_id=90.
This connection is heightened by the only spatial anomaly in the novel, when Raskolnikov and Svidrigailov appear to change places as they approach Kokushkin bridge from the wrong directions relative to their previous positions. See marker 4 on “Mapping Ambiguity”: http://www.mappingpetersburg.org/site/?page_id=148.

The Crystal Palace, originally built in Hyde Park in London for the Great Exhibition of 1851, then rebuilt in Sydenham in 1854, appears in Nikolai Chernyshevsky’s 1863 novel What is to be Done? as the utopian image of the rationally organized society (Chernyshevsky 359–79). Dostoevsky’s 1864 novel Notes from Underground polemizes with Chernyshevsky’s ideas, questioning the possibility and desirability of the Crystal Palace (Dostoevsky, Notes 18, 25–6).

WORKS CITED

Kartirajoci stroji: transformacije peterburškega teksta


Referat obravnava metodologije in dosedanje ugotovitve geografskega vizualizacijskega projekta »Mapping St Petersburg«, katerega cilj je eksperimentalna kartografija »peterburškega teksta«, literarnega korpusa, kateregakrovjo je prepleten z razvojem tako Peterburga kakor sodobne ruske kulture kot take. V nasprotnih vzgojel in samoumevnost, pogosto značilnemu za literarno vedo, projekt poskuša peterburške tekste radikalno deformirati (v pomenu Jeroma McGanna). Pretvorba tekstov v prostorske podatke sproži proces potujitve (ostranenie), ki razkrije skrte pomene in razsežnosti. T. i. natančno branje prostora nam omogoča, da tekste kar-

April 2013
Figure 1: Gogol’s “Nevsky Prospekt”
De laude Cestrie - Lucian

Excerpt 4

Non excido memoriæ, nec perit recordationi quod michi ante menses ex ducenti duorum tribulati, tribulati in ciuitate, trivialis contulisti.
post misas in basilica Archangeli Michaelis, decreti uerdum temporulis napposi certitudinem. scilicet, quod poteris meritis.

 précursoris ecclesiæ & Eterni Regis, delectant urbis omnium
imperting. Ede sacra egressus, cum in ato paululum subserere et
facile, quæ puer ibi dudum literas dicere, quæ humanus usseri et
presbytera, praestant pretiosum comparare; tu cum proximo transire et
lucis dulcedinem dissimulantes tendere non paterés, licentiam 4
et clarus agens, salutatione obieta, alacer accessit, hilaritatem
amabiliter sublevasti. dein pueros tuos ubi quod honestum reuens
humilitatem superasti, quod gratiam reddierit. Fecundis, unum debeat qui
plurimum repugnave, quod singularem quod ne claus &

peregrinus & appendet. Quod unius ubi peram optuit, et
plurimum repugnauit; quod nichil adeo demulcens animam,
impensa cartis obsesum.

Fateor de differenter ac urbis temporis tractus effluat: castellum &
set ecclesiae x solatio fuit; in definitione negoxi distuit me turbiditas et superbia

Figure 2: Mapping Medieval Chester
Figure 3: *Crime and Punishment*, parts 2 and 3
Figure 4: Crime and Punishment, morning
Figure 5: *Crime and Punishment*, evening