

New Literary Drawing Method: Geographical and Spatial Construction in "A Passage in India"

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Abstract: In the study, how to use ArcGIS digital mapping technology to visualize the fictional spaces in literary works will be explored. Taking E.M. Forster's *A Passage to India* as an example, historical maps will be selected as base maps, and geographical information from the text will be collected and categorized. Maps of key scenes, such as Chandrapore, will be created in ArcGIS. Literary cartography can visually present the spatial layout and character movement trajectories in a literary work, providing a new perspective for text interpretation and helping to deepen the understanding of the themes and relationships between characters.

Keywords: New Literary Drawing Method; *A Passage to India*; ArcGIS.

1. Introduction

Literary maps turn the fictional world into a specific geographical space, and this helps people understand characters, plots, and settings more directly; unlike traditional text analysis and language interpretation, these maps use geographic information technology, so they add a spatial aspect to the works; with modern surveying tech and digital mapping tools, the new literary drawing method changes abstract concepts and spatial elements into visible pictures, and this allows the fictional world to be shown through maps in a realistic way; this method goes beyond the limits of old literary research on spatial description, and it also gives scholars new ways to explore geographic relations in literary works; literary research is no longer just about text, it now includes multi-dimensional spaces and visual experiences, which offer more complete research materials and tools. "...The artistic nature of literary maps is precisely their strength. They lie between objective reality and artistic fiction, serving both to guide the map and to highlight the unique value of literary imagination, thus should still be highly advocated"[1]

In modern literary studies, geographical descriptions are often used by many works to strengthen themes or push the plot forward, and space is quite important in literature; but traditional research methods usually depend on interpreting texts, and they do not have a direct way to show space visually; even though some scholars have tried to mark certain places in literary works, traditional maps often only give simple labels, and they cannot show the spatial layout or the complicated structure of the fictional world; with new technology, especially the growth of GIS, literary researchers can now use better tools like ArcGIS to draw and examine geographic space details carefully, and this helps them get past the limits of older methods. As for the significance of geographic elements, it has been noted that "For each writer, each of their works, and the literary circles, movements, trends, and theoretical perspectives formed within a particular country and era, geographic or regional elements are critical and significant"[2].

ArcGIS is a strong computer system for handling geographic information, and it has an important part in the

new methods of literary map-making; it allows for high-precision map production, and it can also do data analysis, spatial modeling, and image processing, so it can meet the needs of making complex maps; with ArcGIS, scholars get more accurate and scientific ways for literary research, and it helps them show the geographic space and environment in fictional works clearly; the main strength of ArcGIS is its strong data processing power and its flexible visualization choices; users can bring in existing map templates, change the data, or design a whole new map from the beginning; unlike traditional hand-drawn maps or basic image editing software, ArcGIS uses advanced digital templates and automated tools, and this makes sure the map production is accurate; users can add legends, scales, symbols, and text easily, and this makes the map both useful and nice-looking; also, ArcGIS allows dynamic adjustment, so users can keep changing map parts based on actual needs, and this makes the map-making process more flexible and makes sure the final result fits the research's specific needs; this flexibility is very important in literary geographic mapping because the spatial structure in literature is often abstract and always changing, and the adjustable feature of ArcGIS gives researchers a lot of creative freedom; this paper will use ArcGIS software to analyze and draw the geographic space of Chandrapore in "A Passage to India".

2. Geographical Situation in A Passage to India

Based on the text analysis and existing research, it is clear that the story of *A Passage to India* is set in India, as the title of the novel clearly indicates. As for the specific background, in the Shanghai Translation Publishing House edition of the novel, translator Feng Tao notes: "The Chandrapore in the text geographically corresponds to Bankipore, a residential area in Patna, the capital of Bihar in northeastern India, located on the banks of the Ganges River"[3]. In addition, existing studies can also serve as evidence. Peter Child, in his research, wrote: "In India, Forster visited the Barabar Caves near Gaya (the model for the Marabar Caves), Bankipore (Chandrapore), and the princely state of Chhatarpur"[4].

Forster visited India twice, and he undoubtedly had a close

connection with the country, understanding it deeply. Many of the environments and events in *A Passage to India* can be traced back to real-life inspirations found in his biography. On January 15, 1913, he wrote to his mother about his observations of Bankipore: "It consists of a street 14 miles long edged with hovels, from which it is impossible to escape because the Ganges stops you on one side and rice fields on the other. I wouldn't believe it until I took a bicycle ride and tried." From Masood's roof, however, as he discovered, the city appeared trans-formed, miraculously, into a palm and lemon grove." [5]. He depicted similar details when describing Chandrapore in the novel. In another letter to his mother, he described the Barabar Mountains and the echoes within the caves: "It ends in a huge thumb shaped stone on the top of which stood a little one balanced so well that a crow could swing on it.....The nephews also tried to wake the echoes, but whatever was said and in whatever voice the cave only returned a dignified roar.....". These descriptions were similarly included in the novel. India's terrain is diverse and complex, and the original text contains numerous depictions of various geographical features, such as plains, plateaus, mountains, and rivers.

3. Process

Once the geographical prototypes of the novel have been identified, preparations can be made to draw a map.

3.1. Selecting the Base Map

Although the location of Chandrapore in the novel is fictional, it is based on the real-life Bankipore residential area in India, as mentioned earlier. The topographic map of India can be brought into ArcGIS directly as the base map, but when choosing that base map, there are a few rules one should follow; first, the source must be reliable and widely trusted in the field, because that helps make sure the literary map is accurate; second, the map has to match the area in space, since the main location of *A Passage to India* is Bihar in India, so an India map is needed for correct drawing; third, the time should also match, and although the novel does not give exact years, Forster first visited India in 1912-1913 and began writing the book at that time, but because of World War I and other things he stopped, and it was not until his second visit in 1921 that he started again, and the novel finally came out in 1924, so the background is close to that writing period, so a map from that time is more suitable; based on these points, the maps chosen for this study are the Burrard India (Political) 1915 and the Burrard India (Physical) 1917 as the base maps.

3.2. Data Collection and Analysis

Making maps needs data as its base, and according to the count, there are 45 geographic place names in *A Passage to India* in total; more specifically, 22 of them are linked to Chandrapore, and 16 are about the Marabar Caves; even though the main focus of this study is on mapping Chandrapore, the rest of the data are still useful for creating the map; when these numbers are combined with other information, they can help identify where the characters move around and also assist with further analysis; there are 7 more geographic points that refer to other places, for example, Asirgarh which Mrs. Moore passed through when leaving India, and Dayadin which was her destination; since these points do not directly tell us about the geographic space of Chandrapore, they are left out of this study; so in the end, 38

data points are kept for analysis.

The 38 data points that we kept need to be sorted and put into groups, and this helps make everything clear and sets a good base for making the map; Piatti and his team divided the spatial structure of the text into five functions, which are setting, zone of action, projected space, marker, and route[6], but this grouping does not fit *A Passage to India* completely; to begin with, projected space means places where characters are not actually there, but they are thinking about, remembering, or wishing for those places, and most of these are not connected to the analysis of Chandrapore's geographic space, unless the places that characters mention are located within the city itself; in the same way, marker, even though it is mentioned frequently in the original text—for example, when Mrs. Moore and Adela cross the Mediterranean and go across the deserts of Egypt to reach the port of Mumbai—does not have a role in building the spatial structure of Chandrapore; so in our study, we put projected space and marker together into one single category; additionally, setting refers to the places where actions happen, and these are also described in great detail in the novel, for instance, the author spends a lot of time describing the mosque at the beginning, but those descriptions are very detailed and the mosque's layout is not relevant to constructing the geographic map of Chandrapore; since this data is not included in our count, we place setting after zone of action in our study, and treat it as extra data.

In the end, the data in this study are sorted into four groups; they are zone of action, setting, projected space, and routes.

3.3. Drawing

Data gathering and examination are done first; then we can use graphical displays to study geographic conditions, and by also considering the novel's story, we can find the main places.

(1) Location

Before making the map, one should first find out the main places and set a clear location; but Chandrapore's location in the novel is made up, so its positioning can only be based on hints from the original text and the marks on the base map; the author sometimes changes the coordinate directions for storytelling purposes; for example, Bankipore's administrative area is not actually on the high ground south of the railway, instead it is in the low area between the railway and the Ganges; this means the map maker has to collect as much useful information as possible during preparation, so that accuracy is ensured; also, Forster does not always clearly point out where a building is in his writing, so readers cannot directly get exact locations from the text; because of this, the map maker needs to get hints from other details, guess the approximate places, and then use those as references for drawing the map.

First, according to the original text, Chandrapore can be divided into two areas: the Eurasian residential area and the Indian residential area. The novel describes the Eurasian residential area as the "inland," with "houses belonging to Eurasians stand on the high ground by the railway station." For the Indian residential area, the description states: "When the Ganges comes down it might be expected to wash the excrescence back into the soil. Houses do fall, people are drowned and left rotting, but the general outline of the town persists, swelling here, shrinking there, like some low but indestructible form of life." From this, we can infer that the Eurasian residential area is located inland and has a relatively high terrain, while the Indian residential area is close to the

Ganges River and is in a low-lying area that floods when the Ganges rises. Using the topographic map, Bankipore can be roughly divided into two parts to reflect these areas.

Next, some locations in the novel are based on real life prototypes. For example, the "club" mentioned in the text may refer to the real-life "Bankipore Club." According to the club's website, "Bankipore Club was founded in 1865, during the British colonial period. It was established to serve as a social and recreational center for British officers and the elite class in the region. Legendary writer E.M. Forster who stayed here gave a shadow reference to it in his famous novel *A Passage to India* as Chandrapore Club. Using the map, the exact location of the club can be pinpointed. Furthermore, the "oval Maidan" and "a long sallow hospital" mentioned in the novel also have real-life counterparts.

Additionally, due to Forster's narrative style, many locations in the novel are not specifically described in a way that directly helps with positioning. Instead, their locations must be inferred from the actions of the characters. For example, when Aziz is asked to go to his superior, Mr. Turton's house, he sets off from his friend Hamidullah's house and rides his bicycle through a crowded street. Hamidullah, as a local Indian resident, can be inferred that his house is located in the low Indian residential area. Moreover, the text describes that "The main road through the bazaars was blocked, and the English were gaining the civil station by by-ways.". This suggests that this crowded street is the main road connecting the civil station with the Indian residential area, with several smaller side streets nearby. Similarly, when Aziz feels unfairly treated and goes for a walk to the mosque to clear his mind, the text states: "At the edge of the civil station he turned into a mosque to rest.". From the later description, "When the mosque, long and domeless, gleamed at the turn of the road, she exclaimed, "Oh, yes—that's where I got to—that's where I've been." There is a depression of some depth together with all of Chandrapore lying between the mosque and Fielding's house, and also, when Fielding leaves the club to have dinner with Aziz, he goes past the mosque, thinking, "'It is no good,' he thought, as he returned past the mosque.....", so from these details we can figure out that the mosque is placed at a road junction on the outskirts of the civil station, and the road from the club to Fielding's residence (the school) goes by the mosque; then using the topographic map, we can find the rough location.

A full and correct geographic map of Chandrapore can be made by combining the geographic data from the original text, the topographic maps, and the hints from the story details, after we find out the locations of the main buildings and save the data for later use; this approach helps map the fictional places in the book and also makes sure that the map fits the geography and history that Forster described.

(2) Graphical representation

After determining the main locations, the next step is to analyze the map using graphical representation.

Starting with launching ArcMap and choosing a new blank map, the process loads the two topographic maps, Burrard India (Political) 1915 and Burrard India (Physical) 1917, through the "Add Data" option; then the "Mosaic" operation merges the topographic maps; under the Catalog, two Shapefile files—a polygon file and a point file for Bankipore—are created in the corresponding folder; right-clicking on the polygon file and selecting "Edit Features" then "Create Features" outlines the Bankipore area; opening ArcToolbox and selecting "Clip" inputs the mosaicked map

and the clip tool cuts it; finally, modifying the clipped map's color, border line styles, and removing unrelated spatial elements makes it more visually attractive and simple.

After finishing the base map, import the location data; then use the Field Calculator to give names to important landmarks from *A Passage to India*, for instance, the administrative district, the club, the mosque, and the railway station; next, pick "name" from the Text String Label Field and change the map text's size, color, font, and other features; once those adjustments are done, click "OK"; at this point, the flat map of Chandrapore becomes complete.

(3) Adjustment

Literary map-making has to balance visual appeal, clearness, and the highlighting of important details, and at the same time it should make sure that labels are easy to tell apart; then the cartographer needs to do some adjustments so that the map's form matches the text, and this helps the map look nice and stand out; after everything is satisfactory, clicking "File" and choosing "Export Map" saves the file in a suitable format, and that produces "the map for *A Passage to India*."

4. The Significance of Literary Cartography

The new literary drawing method, which is a new way of doing research, has deep meaning and value; it changes the way we read and interpret literary works, and it also adds a new angle for analyzing literature; from narrative levels to how characters are built, and from spatial structure to the deeper reading of the text, literary mapping uses maps to make abstract spaces, character movements, and the geographic background of events more concrete; this process makes those elements that are not easy to see directly become more solid and simpler to understand; so literary cartography helps readers gain a deeper understanding of the story and the people in it, and it also helps them get a better grasp of the main ideas that are hidden in the text.

Using literary maps on the narrative level makes complex narrative structures and spatial relationships easier to see; the space in literary works often has many dimensions, layers, and complications, especially in stories that cover long time periods or many different places, where the movement of space is tied closely to how characters move around; but in traditional reading, it is hard for readers to grasp the space exactly because there is no visual map, and this is where literary maps become useful; by drawing a map, the narrative structure and the paths that characters take become more solid and three-dimensional; for example, in *A Passage to India*, Forster shows the social conditions and cultural conflicts in India through the movements and interactions of various characters, and with a detailed literary map, readers can see clearly where the characters go in the novel and understand their trips from one place to another; the map helps readers not only with the routes but also with the relative positions of different locations, and it helps us see how these changes in space push the plot forward; every time a character moves, it is not just a physical journey, but it also stands for changes in their psychology, emotions, and thinking.

Second, literary maps play a special role in shaping characters; Forster builds several complicated characters in *A Passage to India*, and each one has their own background, motives, and feelings; the mental changes of these characters are tied tightly to the changing geographic spaces; with literary maps, readers can see better how these characters

meet and interact in different places, and this helps them understand the characters more deeply; for instance, the novel describes the surroundings to show the unbridgeable gaps and clashes between the Indian residential area and the Eurasian residential area.

Also, literary maps serve a very useful purpose when it comes to interpreting texts; many readers often do not pay enough attention to the geographical terms in literary works, and they just treat place names as background descriptions and do not give them much thought; but every geographical reference in the text might hold the author's deep intentions, and these references can affect the work's structure and themes; if readers have a map, they can learn the geographical background before reading, and this helps them notice the significance of those geographical terms more carefully as they read; for example, in *A Passage to India*, when Aziz, Adela, and Mrs. Moore go to the Marabar Caves, the places they are at, the hills they see, and the murals they come across do not just describe the physical space, they also reflect the characters' inner worlds, and they also push the characters' thinking and the plot forward to some extent; with a literary map, readers can get ready before reading, and they can see the role and symbolic meaning of these spatial parts in the story, so they can understand the work in a deeper way.

In addition, literary maps can help us see the overall spatial layout of the story; space in a literary work is not just a background for what happens, but it can also act as an important part that forms the plot and the characters; for instance, in *A Passage to India*, the gaps between the British and Indian communities, both in physical and cultural terms, are shown not only through talking and interacting between characters but also through the spaces that each group lives in; the British characters stay in places that are separated from the Indian surroundings, and these spaces are more organized and more familiar to them, while the Indian characters move around in areas that are messier, harder to predict, and not well known to the British; these differences in space show the bigger ideas of cultural clash and misunderstanding that run through the novel.

Literary maps also help readers get a more complete picture of the story; traditional reading might pay attention to details in the text, but a map can show the story's different parts in a visual way, and this lets readers see how places, events, and characters are linked; take *A Passage to India* for instance, the map can show how the mosque, the club, and the railway station are related, and this makes it simpler for readers to follow the story and see how the characters' moves through these places affect what happens; also, the map can help with a more careful look at what space means symbolically; Forster's use of the Marabar Caves and the mosque is not just about showing places, they have symbolic meanings that are deeper; these places are not only where characters move around physically, they also act as spaces that push against the characters' beliefs, views, and sense of who they are.

5. Conclusion

"Geography and poetry are two reflections of each other;

geography contains the logic of poetic language, while poetry constructs its own form using the features of geography." [7] Literary mapping tools, for example GIS systems like ArcGIS, make the geographic settings in books visible, and these tools give researchers in literary studies some new ways to look at the texts; if we compare this with traditional ways of doing criticism, this new form of mapping brings in thinking from different subject areas, and it handles the space-related parts of literary works with data, so that these parts become more direct and more organized; this method helps connect the imaginary worlds in books with real geographic spaces, and it also lets researchers see the structure and themes of literary works more deeply, since they can sort the data carefully and examine the spaces; as this happens, the geographic data, the paths of character movement, and the direction of the plot all become clearer and more visual, and this gives us a different way to interpret literary works; take Forster's *A Passage to India* as an example, traditional literary analysis tends to rely on the language, plot, and character growth that are inside the text, but the newer mapping approach pushes that interpretation to a more detailed and specific level.

The new literary cartography method also has a good point; it is not only suitable for non-fiction writing, but it can also be used for stories that are half-true or totally imagined; take *A Passage to India* as an example, the novel is based on a real historical period, but the characters, the places, and the events are still a mix of what the author saw and what he made up; through literary cartography, the geographic information from the book can be combined with the fictional happenings and the characters' routes; in this way, a geographic space can be built that fits the plot and also carries a sense of being real.

Literary cartography helps in understanding the characters' actions, the spatial layout, and the narrative structure in the story, and it also strengthens the presentation of the work's themes, which makes the deeper meaning more apparent; through this, it moves past the limitations of traditional reading, and it shows the spatial dimensions and thematic ideas of literary works in a more lively and diverse way.

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