How to preserve inspirational environments that once surrounded a poet?

Immersive 360° video and the cultural memory of Charles Causley's poetry

Karol Kwiatek

School of Architecture, Design and and Environment
Faculty of Arts
Plymouth University
Plymouth, UK
karol.kwiatek@plymouth.ac.uk
www.charles360.info

Abstract—*Cultural memory of local artists and poets is typically cultivated through festivals devoted to these people usually by way of commemorations on the anniversaries of their deaths, and are held in places in which they lived and worked. These methods, however, are intangible and if not passed to next generations may be lost or forgotten. What is more, they do not help to protect from oblivion the environment which once surrounded an artist and was a source of inspiration for their work. This paper uses a case study of Charles Causley, a Cornish poet, to propose a new method for preserving his memory, as well as his hometown of Launceston where he spent most of his life. As poems written by Causley were loco-descriptive (topographical) and described various objects and places in Launceston, the approach proposed in this research relies on this paradigm. Loco-descriptive poems provide a basis for the spatial exploration of the town with interactive narratives based on traversing multiple trajectories. Causley's inspirational environment was recreated by 360° images taken in his home and in various locations in the town and also 360° videos were recorded between these locations to allow movement along paths which the poet walked on a daily basis. The approach adopted in this project borrows the concept of traversing from surveying and applies it to the movement between different locations in loco-descriptive narrative that has its roots in polychronic narrative and uses Kinoautomat paradigm when presented in the panoramic immersive environment (360° screen). The project described in this paper was presented on multiple screens for a large audience and is also available on-line for a single user (panoramic virtual environment).*

Keywords-panorama; video panorama; 360° video; cultural memory; Kinoautomat; Charles Causley; immersive video; topographical poetry; immersion; panoramic immersive environment; panoramic virtual environment.

I. INTRODUCTION

This paper explores methods of preserving memories related to specific environments that inspired poets and artists. The approach that is presented in the following sections allows the public to contemplate on the space that once surrounded a poet and to understand why these environments were significant to an artist.

A number of studies have been conducted on the preservation, documentation and reconstruction of cultural heritage sites through the application of digital tools such as close range photogrammetry [1], 3D digital survey techniques and total stations (a combined electronic and optical survey instrument) [2], mid- and close-range laser scanning [3], 3D image-based techniques [4] or panoramic photography [5], [6]. These techniques facilitate capturing the current condition of cultural heritage sites. The preservation and documentation of such protected places is a worldwide practice. The above mentioned digital tools provide continuing access for scholars and non-specialists to sites that are under threat. 3D computer reconstructions, animations and films about cultural heritage sites can tell stories that have potential to present the extraordinary wealth of these sites.

The preservation of cultural memory works in-between the cultivation of heritage architecture and cultivation of objects or artifacts. Cultural artifacts, which most often are private items *in situ* that belonged to a particular person or society, are often inaccessible. Museums and monuments cultivate the past using particular buildings or collections of items, but they do not preserve cultural memory which needs to be uncovered in order to be preserved. The author propose the application of loco-descriptive narrative and 360° video to preserve cultural memory of one of the poets - Charles Causley.

Charles Causley (1917-2003) was a Cornish poet from Launceston, UK. Causley was chosen as an example of a 20th century artist who was inspired by the surrounding environment and also items or artifacts that were located within them. He managed to embed these inspirations in his poems (especially ballads). The application of spatial narrative presented using mobile panoramic visualizations (i.e. panoramic immersive video) provides an access to these hidden objects and artifacts *in situ*.

Following the introduction, the second section is devoted to Charles Causley, the place where he lived and worked and also his topographical poetry. The third section begins by looking at cultural memory and methods which are used to preserve these memories. Section IV introduces loco-descriptive narrative and

its topographical approach. The fifth section presents the practical project that is available on-line [7] and was displayed to the audience in Plymouth, UK on a 360° immersive screen. The last section summarizes the project and seeks an answer to the question whether the presented methods could be applied to other 20th century poets.

II. CHARLES CAUSLEY - A POET OF PLACE

A. A poet of place

Causley, apart from short travels, spent his entire life in Launceston, which influenced his works greatly. A number of his poems refer to local buildings and also legends and use various objects both in his house and in the town [8-10], e.g. paintings on the walls of his house, sculptures of eagles in the gate of the Eagle House Hotel (poem: 'Eagle one, eagle two') (Figure 1) or a relief located on a façade of St. Mary Magdalene church in Launceston (poem: 'Mary, Mary Magdalene') (Figure 2) [11].

> Mary, Mary Magdalene
> Lying on the wall
> I throw a pebble on your back
> Will it lie or fall?

This fragment of 'Mary, Mary Magdalene' poem describes a local belief that a stone lodged on the relief's back will bring good luck [8].

Figure 1 Two sculptures of eagles in the gate of the Eagle House Hotel.
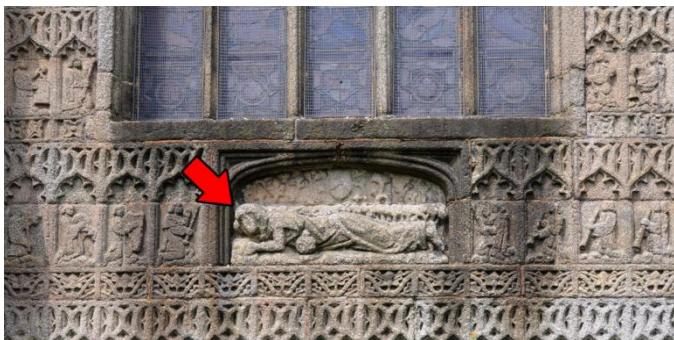

Figure 2 A relief of St. Mary Magdalene located on a façade of St. Mary Magdalene church in Launceston.

This paper does not focus on critical interpretation or analysis of the poetry but presents rather a new approach to the understanding of the elusive character of inspirational environments. It also attempts to seek methods that enable the preservation of places that once surrounded a poet. Through the re-discovery of Causley's native town (Launceston) in ballads and poems, the audience can explore not only the town but also artifacts which were the inspiration for his poetry. Topographical poetry linked with spatial non-linear narrative enhances preservation of cultural memory.

B. Loco-descriptive poetry

Causley was a "poet of place" and Trewin [12], notes that "[i]n a very real sense, each poem [...] is a 'Launceston poem' ". Philip [13] specifies that Causley's autobiography is encoded in his poems, as his emotional and mental landscape.

The loco-descriptive (topographical) poetry is a genre of poetry that tells, and often praises, a place or a landscape. Stringer [14], who lists Causley as a poet who uses this type of approach to poetry, defines loco-descriptive poetry as "a species of composition [...] of which the fundamental subject is some particular landscape". Initially, topographical poets were scientific observers describing aspects of the city such as buildings, rivers and parks, but in the romantic period they not only moved away from cities to provinces but also rejected the scientific and informative approach. Topographical poems became a "venue for personal, historical and meditative thought" [15]. In this project, loco-descriptive poetry is hidden in different spots of the town and on this basis a number of trajectories are created to uncover them.

Topographical poetry is usually unknown for someone who is coming as a tourist to explore the town. This type of poetry can be uncovered, along with cultural memory it represents. Traversing through the town and uncovering hidden object/memorabilia recalls poems, but this recall can be performed e.g. by reading poems *in situ* as it happens regularly during The Causley Way [10] or The Charles Causley Festival [16], or is visualized on the site using audio and visual devices. The Causley Way is a path along Launceston which visitors have an opportunity to follow. A guide is reciting a collection of Causley's poems about objects and sculptures in various locations in Launceston (Figure 3). However, these events occur very rarely and there is a question of how to support such exploration and how to make the poems available for the international audience.

Figure 3 A guide is reciting 'Mary, Magdalene poem' near the relief of St. Mary Magdalene (indicated by a red arrow).

The loco-descriptive artistic work and spatial exploration of the town with interactive narratives, based on traversing multiple trajectories, determine the sequence of events. The proposed approach differs from the spatial strategy of

following the life of a person indicated by Azaryahu and Foote [17] because there are no choices available and one route of exploration is proposed. The question which arises at this point is how to preserve such spatial environments which surrounded a poet when they got the inspiration for writing a poem, and how to transport the audience to these sites in order to experience a similar discovery and perception of the world. The following section focuses on methods used in preservation of cultural memory, especially those which could transport them to the inspirational environments.

III. PRESERVATION OF CULTURAL MEMORY

A. Cultural memory

Cultural memory is a form of collective memory in that a number of people share cultural memory and in that it conveys to them a collective identity [18]. Following this line of reasoning and the preservation of public memory (monuments, sculptures) which is visible for all people gathered in a public space, it is necessary to find such a space for the preservation of cultural memory which can be shaped by a group, for example, from a particular region. Cultural memory usually has a local dimension as it is about regional artists and activities and can relate to inaccessible locations which are not available for the general public (interior of private houses, ruins, caves) in that area.

Cultural memory reveals itself in history culture and entails rituals and ceremonies at special times such as remembrance days, and at special locations such as ancient monuments, which operate as sites of memory and time marks [19]. Cultural memory is about making significant statements about the earlier periods in a particular cultural background of the present.

The elusive and partisan character of memories needs to be recorded to preserve them from oblivion. The common communication methods (photography, film, television) can only partially visualize locations which evoke memories. They do not present the whole environment, but only a limited field of view that is chosen by a director of a film or an author of a photograph. Panoramic photography and panoramic videography (360° immersive video or 360° video) seem to be the methods that can omit the limitation of the field of view and enable the transportation of the group of people to inspirational environments. They are explored in the following subsections, because they have documentary character and also record dynamics and mutual locations of individual objects in such environment.

B. 360° photography

Photography presents a limited fragment of a world and it does not depict views from behind the camera. Haskins and DeRose [20] notice, however, that photographs do not depict the surrounding context and position of artifacts and their relation to each other (e.g. when located in one room but in diverse positions). What is more, traditional panoramic imaging can be created using various techniques (rotating a camera with fisheye lens on a tripod and taking pictures every few degrees, automatic single line cameras, multiple cameras that take images at the same time). In most cases, the stitching software connects all images together and creates a single panoramic image. When viewing such an image on a computer screen, special software called a panoramic viewer is necessary. The 360° image is wrapped in such a way in which the perspective of all objects looks correct. Using this viewing software the user can navigate all around a cylindrical or a spherical image. This type of navigation is similar to 'window viewing' proposed by Jeffrey Shaw, the pioneer of media art, in a few of his installations in the 1980s (e.g. 'Inverter la Terre') [21]. Here, instead of a rotating platform, a static computer monitor and panoramic viewer enable to explore 360° image and 360° video. This type of environment will be called a panoramic virtual environment, in contrast to a panoramic immersive environment which relates to immersive architecture that surrounds a viewer.

C. 360° videography (360° video)

Champion [22] notices the limitations of 360° panoramic imagery as he claims: "panoramic images available through the Internet may allow us to identify objects, but they are not likely to help us experience inhabiting that place, moving through that place, or understanding the dynamic and ever-changing relationship of people and place". Panoramic videography allows the observer to experience the space and recognize its dynamics. The production of 360° video involves the process of stitching separate videos (pointing in different directions and synchronized). 360° digital filming is still in the experimental stage as the language of immersive film production still has not been established [23].

The traditional methods of filming usually hide some details of the environment or a studio, so the material recorded could be manipulated and directed in a way that does not present some views. However, there are limits on how far the idea of traditional filming can be transformed to 360° film creation, because the 360° camera records all the reality that happens all around it (even the camera operator is recorded) so it is complicated to eliminate some parts of the recording. 360° filming seems to be a more realistic and less manipulated type of recording the world than using a traditional camera.

Two above mentioned approaches to the preservation of cultural memory (panoramic photography and panoramic videography) are used to visualize artifacts in inspirational environments and the movement between these places (traversing). The following subsections indicate the importance of artifacts and traversing in the visualized using panoramas environments.

D. Artifacts in the inspirational surrounding

Schiffer and Miller [24] state that "people spend their lives immersed in the material medium, mostly engaging with innumerable kinds of artifacts and with other people who have been combined with, or modified by, artifacts". A house is a shared and protected place with major cultural significance. Many of Causley's well known poems were written in his house. The Charles Causley Trust policy is to maintain the house with as little change as possible to the original layout. The house has been unoccupied for almost 10 years (Causley died in 2003). The house could become a "time capsule that tells the story of a Twentieth Century poet, his way of life and the people and places that were special to his work" [25].

The panoramic record of the condition of the house, where most of the objects remained in their original position is a starting point for exploration of cultural memory of the poet in the project. Figure 4 illustrates 360° images from the interior of Causley's house and presents mutual positions of artifacts.

Figure 4 360° images of Causley's house indicate the mutual positions of artifacts.

Cyprus Well, the name of Causley's house, remains closed for an ordinary visitor or a tourist. Items that remain in the house are voiceless. Just like objects in museums, they cannot tell stories. The difference between items in a museum and in a closed poet's house is that the former remain visible (if not kept in a store) and are often admired by visitors. But how to make visible a large amount of items that are hidden in a locked building and, for instance, once belonged to an individual who was immersed by this 'material medium'? How to preserve inspirational environments which were used by artists?

Theories of communication have often disregarded the significance of objects in human life. Schiffer and Miller [24] state that artifacts are involved in all modes of human interaction and communication. These items are visual, auditory and tactile. They may be unrecognized but if represented they will become visible and will preserve cultural memory. It is helpful to exploit this potential of artifacts in preserving cultural memory of a person who used them and for whom they were important.

The mutual positions of these objects in Causley's house was presented using panoramic photography which was enriched with interactive elements to convert a set of voiceless items to an environment that could explain their relationship to the individual and also indicate potential sources of inspiration for a poet.

The intention of this project was not to create a bibliographic film or an adventurous game of the artists but to generate an interactive and immersive application with trajectories where the user becomes familiar with key biographical data in Causley's life, and with various places and artifacts that guide him to learn about Causley's poems and encourage them to produce their own poems (inspired through the translocation to the presented places). Every viewer of this project can pursue their own exploration of the life of the poet.

This exploration is available through traversing which has its roots in surveying.

E. Traversing

The concept of traversing is well established in surveying as a science concerned with measurement and recording the details of section of land [26]. The rules of surveying have not been applied to the process of creating narratives and this paper introduces this new approach. Traversing uses various methods of measurements, e.g. linear measurements, angular measurements. Traversing is one of the methods of control surveying that relies on a series of stations where every point is inter-visible with neighboring stations. The process of generating loco-descriptive narratives (proposed in this paper and presented in the next section) based on traversing also contains a series of events which can be chosen in decision points. In surveying, the lines joining control points (stations) are called traverse lines (Figure 5). Similarly, in loco-descriptive storytelling, the lines between decision points are called narrative lines and are used for telling narratives when moving between decision points. The process of surveying occurs at stations and is performed using specialist geodesic equipment (e.g. a total station or a laser scanner). The survey consists of the measurement of length of each line (between stations) and angles or azimuths between successive lines. In this way, a chain with a number of additional chains attached to stations is created. Correspondingly, in loco-descriptive narratives the measurement of directions to inter-visible decision points is performed. What is more, instead of the measurements of lengths of lines between stations, the measurements of time of each linear narrative (between decision points) are compulsory for the design of a non-linear narrative.
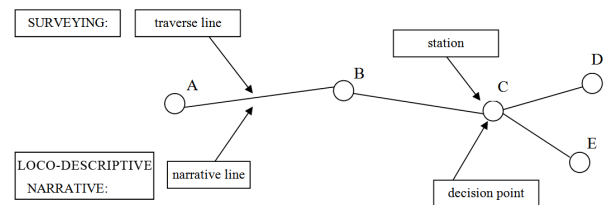

Figure 5 The traverse in surveying and in loco-descriptive narrative. Stations A, B, C, D, E are linked with narrative lines AB, BC, CD, CE.

The aim of traversing in surveying is to establish the position and mutual location of buildings, roads, paths, trees and other objects that are marked on a map. Traversing helps to establish co-ordinates of particular points (the centre of a tree, the edge of the path, the centre of a street) in order to create a detailed map. These points are measured from stations (main points in the traverse) and their positions are determined as accurately as possible. Cartography, which is the process of map creation, relies on the accuracy of these measurements. In order to calculate the positions of all stations, the first two stations have to be previously established. This process may be similar in traversing in loco-descriptive storytelling where the user who is traversing through this type of narrative is taught how to make decisions at the beginning of the traversing. All rules can be presented before the second decision point and

when the user learns these rules, they can apply them to the rest of the narrative.

As Bannister, Raymond and Baker [26] notice, surveying of stations is performed by the application of theodolite (to measure angles) and/or total-stations (to measure lengths of traverse lines). In the case of this project where the panorama is the main tool for the creation of narratives, a panoramic camera and a panoramic video camera is used not for measurements but for spatio-visual recording of space (stations/decision points) and movement between stations (traverse lines).

One of the key aspects in surveying and in loco-descriptive narrative is the choice of stations which are determined by the inter-visibility principle and these points are often located in crossings where a number of new traverse lines can be created. Correspondingly, in traversing, decision points are also located in crossings where a number of new narrative lines can be produced in different directions. The visibility between decision points is achieved by the continuous linkage of decision points and narrative lines. In the case of traversing through Launceston, the town defines positions of particular narrative lines and stations. The narrative design is based on topography of the town. The inter-visibility is assured by the application of the panoramic video camera where the observer or the spectator always has a continuity of the space. The layout of the town most often predefines the positions of decision points.

The preservation of memories and especially of cultural memory occurs when there is a connection between narratives and traversing. The audience of the immersive project decides about further narrative lines and gets an idea about the presented subject without gathering all of the details. The cultural memory is actively constructed in the minds of individuals and depends on their social and mental conditions.

The narrative used for preserving memory has some productive character as apart from the physical pre-scripted choices, users are able to create their own meaningful interpretations. The recollection process is productive as each of the users can produce their own 'picture' of the story based on data provided and choices offered. Thus, in line with Brown, Barker and Del Favero's [27] reasoning my narrative is polychromic. The following section focuses on loco-descriptive (topographical) narrative which is introduced in this paper on the basis of the existing theories of interactive narratives.

IV. LOCO-DESCRIPTIVE NARRATIVE

Loco-descriptive narrative has not been earlier defined in literature, however by analogy to loco-descriptive poetry it can be defined as a type of interactive narrative that presents the narrative during the traversing between decision points (stations). The latest definition of interactive narrative is delineated as a "formulation of old media practices - embodied by the narrative conventions [...] reapplied in the context of new media, with the user positioned as interpreting a meaningful narrative via the navigation of largely pre-scripted paths through data" [27]. Shaw [28] in 'Future Cinema' formulated three interactive modalities that refer to new media practices. Shaw's distinction has been renamed and

reformulated in [27]. These are a) polychronic narrative - re-sequencing narrative events; b) transcriptive narrative - re-assembling data (e.g. assembly of unrelated data into a narrative); c) co-evolutionary narrative - narrative as a shared autonomy. Narrative can emerge and evolve and these processes depend on the relationship between the user and the digital agent. The polychronic narrative is discussed in more detail because it has not been applied for panoramic virtual and panoramic immersive environment whereas transcriptive ('T_Visionarium' [29]) and co-evolutionary ('Scenario' [30]) narratives have been presented on panoramic immersive screens.

A. Polychronic narrative

The above mentioned modalities have been investigated through experimental installations at the University of New South Wales - iCinema Research Centre in Sydney and ALiVE lab at the City University of Hong Kong. Polychronic narrative is located in the context of a social space and a virtual space, which is referred to as dialogic (a concept which was introduced by Mikhail Batkin in 1984 to illustrate how fictional characters are able to speak to the authorial control of their creator) [31]. It is based on the communication between a human user and digitally generated agents (by wearing VR head-mounted displays). The user is able to navigate their own path through prescribed events [27]. Polychronic narrative encodes "temporal structures resistant to linearization ... [and] invokes and subverts reading conventions associated with narrative as a discourse genre" [32]. The sequence of events is not a stable and linear structure but as events are numerous the user can rearrange them and link them together in various ways [27]. The sequencing of events encrypts the 'time-act of reading' or the 'time act of travelling', traversing and interacting. In the polychronic narrative, sequences are anchored in time and space. The narrative does not restrain from time and history but offers a critical reflection upon the temporal and sequential aspects of narrative [31].

In the case of this project, the loco-descriptive narrative which is a sub type of polychronic narrative is a suitable modality of storytelling for this research project about a poet where events of the narrative are told when the user activates different elements (i.e. artifacts) from the sequence of a narrative. As the sequence of events are encrypted by traversing and can change at nodal points, according to the rules applied in surveying, Kinoautomat paradigm as a model for selective interaction is prescribed in the following subsection.

The number of trajectories in Charles Causley's town is generated by recording still panoramas on the stations (decision points) located most often in the middle of cross roads where all traversing lines from all directions meet up, and video panoramas between these stations indicate the transitions between stations. The process of recording video panoramas using a mobility scooter was described in [33, 34]. All trajectories that have been generated comprise the network of connections in Launceston. This network was based on the topography of the terrain of Launceston as trajectories follow main travelling routes. The network of such connections is presented in Figure 6, which uses the map of Launceston as a

background that shows the location of decision points in the town. The positions of decision points are determined by inter-visibility (following the concept used in surveying) and the layout of streets and roads. Decision points are marked as numbers in rounded squares. For example, number 19 relates to the still panorama in front of Causley's house (which is illustrated in the right part of the figure), whereas the traverse line 19-18 indicates video panorama. Cypruss Well is just of the map created by J. Fenn for tourist purposes and which was applied in this project for visualisation purposes. Once the user reaches node 18, they have two options: to follow a trajectory (18-53) to panorama number 53 or to go to number 15 using trajectory (18-15).
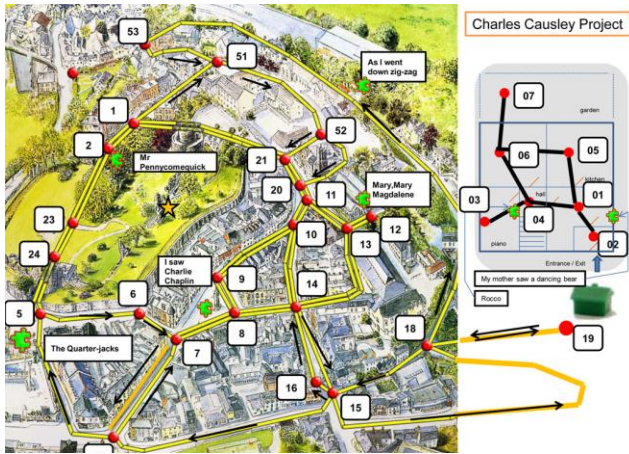

Figure 6 The narrative lines (360° videography) marked as lines and stations (panoramic photography) marked as circles located on the map of Launceston.

Reading topographical poems at specific places which are mentioned in poems is one of the methods of uncovering cultural memory of an artist. For example, the mentioned above poem 'Mary, Mary Magdalene' located near point 12 in Figure 6 should be uncovered on the relief that can be found on the east wall of St Mary Magdalene church in Launceston. The viewer visits multiple locations and uncovers hidden poetry. What is more, to achieve full immersion, the productive interactivity is proposed. The viewer is encouraged to collect itams from the characters from Causley's poetry. For example, Mr Normanton, who is Causley's neighbor in 'My neighbour Mr Normanton' poem, has a book in offer and this item could be collected to a virtual backpack. The process of collecting enhance memories.

In the future, a new poem created by a young person on the basis of a print-out (with collected items through the applied interactivity) from the backpack, could also appear in the on-line version of the application and could be attached to a specific location in Launceston and would be available for other users. New functions of adding/tagging new information to the existing still and video panoramas may be implemented, but these issues need further investigation. The next subsection introduces Kinoautomat paradigm that was applied to loco-descriptive narrative and which allows the decision making process within a large group of people that is interacting within this panoramic immersive environment.

Figure 7 A scene that occurs in a panoramic virtual environment in front of Causley's house where a poem 'My neighbour Mr Normanton' is presented with a task to find Mr Normanton – Causley's neighbour. A book from this character is offered to a viewer and can be put into a backpack.

B. Kinoautomat paradigm

Kinoautomat (1967) was one of the first interactive films where spectators had an opportunity to influence the storyline of the film by voting for up to two possible storylines by pressing buttons that were attached to armchairs. This early form of participation projected results of voting on the screen and the decision was announced to the viewers. It was the first time when viewers were able to change the storyline, which was the privilege of the film producers. [35]. Kinoautomat is an example of representative democracy. The audience stays in a dark room, no one is allowed to go in front of the audience and start a discussion, no one would like to know their decisions or discuss with others why they have made such decisions and finally choices are made in silence and in a seated position. The audience members are informed of the voting results. However, in order to shape cultural memory, the audience need to communicate, change their position and discuss the options available.

It is necessary to find an environment which will allow deliberative democracy during the decision making process, where the audience could discuss and carefully consider their choices before making a decision. This kind of democracy (deliberative democracy) is possible when users can see each other and they should stand rather than sit with the opportunity to speak to each other during the presentation. This process should trigger memories. It seems that 360° panoramic immersive environment can provide such a space as the audience can stand and discuss their decisions when surrounded by the projection images. Interactive films were not considered very successful due to some of the above mentioned limitations and they were articulated as gimmicks, exceptions or art experiments. Kinoautomat was the world's first interactive cinema, where the film enabled the audience to vote by using buttons. Strauven [36] and Shaw [28] emphasize that this type of engaging the audience (branching narrative) is considered as a dead or marginal experiment and they do not consider them in their research. However, the latest examples of interactive films in 2011 and 2012 that appear on the Internet seem to provide a new interest in the interactive film technologies at the moment, but 360° form still has not been

used. For example, 'The Outbreak' [37] streaming multimedia content is presented on the Internet.

This section indicated the application of loco-descriptive narrative and Kinoautomat paradigm in the process of creating interactive films for a large audience. The issue of presenting the project in a panoramic viewer and in panoramic immersive architecture is presented in the following section.

V. PANORAMIC ENVIRONMENTS

A. Panoramic virtual environment

The project was prepared in the interactive form in Lucid Viewer [38] which is a Flash-based application. Interactivity such as: adding actions to buttons, arrows, interface icons, rotating 3D objects and navigating spherical still and video panoramas can be achieved through XML coding which allows the display of the following items in the panoramic virtual environment: 38 video panoramas (created between decision points); 25 still panoramas of Launceston (created in decision points); 8 still panoramas of Causley's house; 9 interface icons; 4 videos of reading poems; 3 collectable objects and 1 three dimensional object (Figure 8).
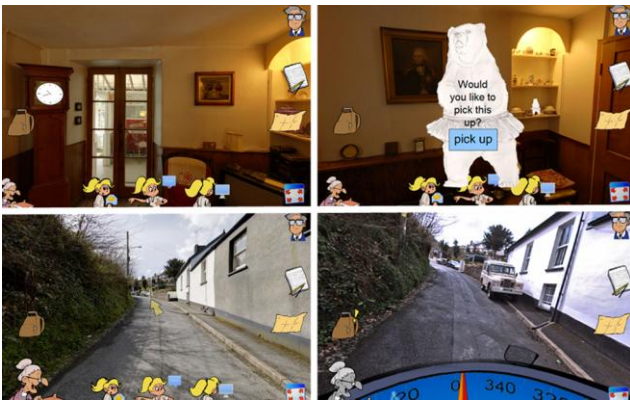

Figure 8 Panoramic virtual environment designed in Lucid Viewer.

This project is available on-line [7] but it is rather an application for a single user. The author plan to develop this project in HTML5 format so it could be viewed on the site using tablet computers to allow recalling memories. Following Halbwachs' [39] line of reasoning that being in a group supports remembering, a 21m in diameter panoramic immersive environment was applied to explore the discussed methods in the preservation of cultural memory.

B. Panoramic immersive environment

This project was firstly tested in a panoramic viewer and then a number of interactive features were transferred to the panoramic screen. The screening of the project occurred in September 2010 in Plymouth. Limited access to the 360-degree screen, affected the number of features of the immersive interactive films that could be successfully implemented on the screen. However, the audience had the possibility to choose routes they wanted to follow and an appropriate video panorama in cylindrical format was displayed (Figure 9). During the traversing there was a possibility to change a position within the immersive screen, but almost all viewers

stayed in the same position during the screening. This is because of the viewer's attachment to a chair and a rectangular screen that is common in cinemas.
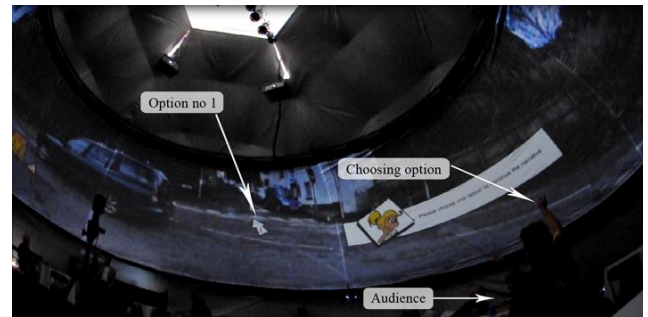

Figure 9 Inside panoramic immersive environment which presents video panorama from Launceston. The audience can choose the next fragment of the loco-descriptive narrative. Option no. 2 is not visible on the presented part of the 360° screen.

The further research should focus on reception of the audience and examination of how they evaluate immersion and interaction and also whether the project can preserve cultural memory of Charles Causley.

VI. SUMMARY

The evidence from this case study suggests that the panoramic approach to preserve cultural memory is worth further investigation, especially in terms of preserving the memory of individuals (artists, poets, writers) who died recently as their objects and artifacts are often still located *in situ*. The method described in this chapter might be applied to other individuals (Dylan Thomas, Charles Dickens, Sigmund Freud etc.) who used to create their work in one location which provided an inspiration for them. I think that my approach is more applicable to case studies of people who are still alive or who died recently because the environment and artifacts that they left could still ne recorded using 360° cameras and might be explored in the future using tablet computers in the future. The lives of Czeslaw Milosz (1980 Polish Noble Prize winner in literature) who died in 2006 in Krakow (Poland) or Wislawa Szymborska (1996 Polish Noble Prize winner also in literature) who died in 2012, also in Krakow provide a potential for applying the above presented methods to preserve their cultural memories inscribed in the Polish city. Both Milosz and Szymborska created poems inspired by artifacts, and very often, places. The recent project °The Milosz Compass° [40] uses some concepts that were described in this paper and presents places of Milosz not only from one town, but from a number of cities in different countries (Poland, Lithuania, France, USA).

Further work needs to be done to establish whether the inspirational environments that once surrounded poets and artists can be preserved efficiently. Tablet computers could provide a new potential for re-discovery of these environments in the future, but they need to be recorded now (when poets are alive or when they died recently) using panoramic video cameras.

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