

'Talk to people, understand them, persuade them if necessary; instead of patronising them by playing the expert. Maintain an open and reasoned dialogue'
(Shanks and Tilley 1995, 20).

Introduction to the critical analysis.

This critical analysis offers a detailed study of the interpretation planning process for a mobile application as a new interpretative tool for the Neolithic complex of the Rollright Stones, Oxfordshire.

Conceived as a guided tour, the mobile application provides supporting interpretative information to the one currently available on site. It offers visitors additional valuable information about the archaeology and folklore of the Rollright Stones. It also highlights the broad range of meanings that visitors attribute to the site. It is structured upon multi-layers of data in order to provide users with the freedom to engage with the interpretation in the modality and depth that best suits them.

This paper develops step by step the process of creating the interpretation plan for the site. It conceptualizes 'interpretation' by assimilating definitions from various heritage scholars and interpretation organizations, with insights into the academic debates on 'good interpretation' and the growing application of digital technology of mobile apps as interpretative tools.

To establish the parameters of the project, I initially interviewed visitors of the site to establish what kind of information they wished to obtain from the interpretation, and when and how they would use it. Their responses contributed to the initial design stages of the app.

Next I created a working model of the app, capable of overcoming the main specific challenges of the physicality of the site and its multiple valence of meaning, as well as getting under control possible hardware issues strictly related to the operation of the app (e.g. mobile signal). The third stage trialed the app to gauge response, to see if it met visitors' expectations and, most importantly, whether they would use it.

CHAPTER 1. Use of digital enhancement for interpreting archaeological sites. The case study of the Rollright Stones.

1.1 Conceptualising a working definition of ‘interpretation’.

As defined by the Association for Heritage Interpretation (UK), interpretation is primarily a communication process that helps people make sense of, and better understand a site. A good interpretation means a visitor-friendly method of presentation/communication with the purpose of *learning* (conveying symbolic meanings), *provoking* (facilitating attitudinal or behavioural change), and *satisfying* (enhancing enjoyment of the place).

The study of heritage interpretation consists of a long tradition of scholars who for centuries have debated the main criteria for a “good interpretation” for heritage sites. Among academics, interpretation has always been considered to be an effective learning, communicating, and management tool that increases visitors’ awareness and empathy to the site and artefacts. Interpretation is, therefore, a tool which opens a window on the past (Uzzell and Ballantyne 1998), presenting a story of a site in a stimulating, informative and entertaining way (Beck and Cable 2002; Harrison 1994).

The difficult relationship between the archaeology and heritage industry has been long debated and many authors have examined the rise of the heritage industry and its impact on academic and official interpretation at archaeological sites (Wickham-Jones 1988, Hewison 1987, Walsh 1992). Archaeologists have been blamed for appearing too inaccessible to the public and keen on preservation rather than interpretation (Binks 1986) passing the concern of public interpretation to non professional figures, such as managers and consultants in the heritage industry (Walsh 1992). The discipline-building agenda of archaeology with its emphasis on science and professionalism, resulted in the exclusion of other voices and discouraged direct public engagement with the discipline itself (Briggs 2008; Bronner 2006; Stetkert 1986; Hawkes 1968).

Archaeology’s fear of engaging with the non-academic disciplines have led to debunking or removal of a substantial body of archaeological data on public engagement, life-histories and meaning. This is especially true for all those heritage complexes –like the Rollright Stones- in which the authenticity of the archaeology is somehow disrupted by ‘the circulation of different meanings at sites and attractions drawn from the wider tourism

literature' (Robb 1998, 580). Although some interpreters fear a multivocal interpretation as kaleidoscope of depthless surface (Jameson 2004, Walsh 1992), nevertheless 'isolating or eliminating the mystical opinion from the scientific and archaeological understanding of the monument is to remove much of the relevance to today's society' (Stones and MacKenzie 1989, 119). For instance, a detailed study of the various folk narratives about a site reveals the motivation and engagement of the reproducers of such narratives, placing the site within its wider social, political and cultural contexts (Paphitis, 2013).

Tilden defined interpretation as *an educational activity which aims to reveal meanings and relationships through the use of original objects by first-hand experience and by illustrative media, rather than simply to communicate factual information*" (1977, 8). However, as post-processualists such as Hodder, Shanks, and Miller have argued, the educational purpose will be achieved only if the interpretation is properly understood and not simply explained. As Shanks and Tilley stated:

"No matter how complete our sources of evidences (are), we can only make them comprehensible through an active process of writing the past" (1987,19).

Such a level of comprehension implies an active participation on the part of the visitors in the act of interpreting the past to allow them to reflect on the message of the interpretation itself (Hodder, 2004). Every interpretation of the past reflects current ideologies and motivations, so archaeology can be a form of socio-political action in the present (Tilley, 1989). Therefore, what is utterly fundamental for a successful educational interpretation is the way in which the message is narrated. The act itself of storytelling should be easily comprehended by the users. The target of a good interpretation is therefore an immediate identification of the audience and an even more accurate selection of the modality through which contents are delivered to the audience in order to readily engage it. To do so, the interpretation should be developed with the cultural background of its users in mind. Over the last decades, new technologies have reached the public and everyday life has become increasingly digitalized in every aspect. In addition, for archaeology and cultural heritage, there are now seemingly infinite possibilities, which only a few years ago could not even be imagined. The impact of digital technologies for cultural heritage affects both opportunities for professionals and access for users. The new portable devices, like tablets and smartphones, are nowadays equipped with integrated GPS, quad-core processors and very powerful video cards, and, for the first time ever, they provide extra visual contents to the archaeological sites. They are actually electronic tour guides, always ready to

use and customize, which can be enriched and implemented with digital material, such as pictures, videos, e-books or games. Therefore, it is easy and reasonably inexpensive to have digital interpretative tools for archaeological and cultural heritage sites. Ultimately, as already explained above, the real challenge lies in the storytelling; finding the best format for disseminating data, in order to make open and understandable to everybody materials which previously were showcased in the museum or handed down orally but now are accessible through such innovative devices as smartphones and tablets.

Recently the topic of digital heritage expanded beyond the boundaries of the specialists' field to reach the popular audience thanks to an affirmation of Dan Snow, acclaimed British television presenter and developer of an app about the history of the First World War. In an interview conducted on 18th August 2014 in the newspaper *The Guardian*, Snow, explained:¹

*'an app is the entire text of a book with loads of stuff added into it: all the images, video, and geolocation. So clearly, an app is better than a book for history.'*²

Actually, apps can provide a proper encyclopaedic version of a topic thanks to their intrinsic versatility of supporting multimedia contents, data otherwise impossible to enjoy with a normal guidebook.

The potential of apps as a different way of exploring the past has also recently begun to be appreciated thanks to apps created for many important British heritage sites, in collaboration with authoritative institutions for the conservation of the cultural heritage in UK³. Locally, the use of such digital interpretive tools is skyrocketing because regional museums and communities are starting to realize that apps provide rich contents. A good example is the *Romans* app created by the Corinium Museum of Cirencester, the UK's second largest Roman settlement after London, nowadays known as the capital of the Cotswold region. The creators' idea was to provide the users with an enhanced tour around Roman Cirencester and the museum itself. The Museum and the town are blessed with an unrivalled collection of Roman artefacts, so the creation of an app was a logical step to combine the needs of the museum and its rich content⁴. Users have recognised *Romans* app as a suitable and sustainable stream for the future,

¹In this article of 19th April 2012, Snow observed 'that apps are better than books for history', statement that, at the time, got 'some people very upset'; <http://www.theguardian.com/tv-and-radio/appsblog/2012/apr/19/dan-snow-apps-history-schools>

² <http://www.theguardian.com/technology/2014/aug/18/dan-snow-app-history/>

³ For instance, the various mobile guided tours for the city of London, like "Streetmuseum Londinium"; the "Augmented Reality Roman Leicester" of Leicester; the app "Callewa" of Silchester and the "Roman Walk" at Caerwent. For more heritage apps, <http://digitaldigging.net/archaeology-apps-heritage-apps/>

⁴The Museum launched the app in March 2013 following a successful pitch for funds with Cotswold District Council to create it in September 2012. It includes an enhanced Museum Tour, a Town Tour and a Learning

although the app gave rise to some criticisms due to the decision to charge a fee to download it. Although the *Romans* app has been developed within different technical and logistical premises from my case study (like access to network coverage and indoor supervised structure), it responds to similar objectives to the one of the Rollright Stones (for instance, the need to make the heritage more widely available and accessible) and consequently provides a positive local model for my prototype of app.

1.2 The case study. The Rollright Stones, their history and management.

In order to ensure a better understanding of my project and its main specific challenges in relation to the physicality of the Rollright Stones and its type of management, it is helpful to provide a brief description of the site, its history, and the management strategies currently applied.

The Rollright Stones is a megalithic complex that lies on a narrow ridge of the Cotswold escarpment, straddling the Oxfordshire/Warwickshire border in southern England (Hughes et al., 1986)(Fig.1).



Fig.1 Satellite image of the site (from Google Earth).

The site consists of three megalithic monuments dating from different periods (Fig.2). The most ancient is an early Neolithic portal dolmen (burial chamber), the “Whispering Knights,”

Zone. Since the museum is a key destination for schools in the local area, the app also offers a learning zone with a quiz, to fulfil the requirements of key stages 2 and 3 of the educational curriculum. <http://coriniummuseum.org/romans-app/>

which dates from c. 4,000-3,500 BC (Fig.3). The second is a late Neolithic ceremonial stone circle, “The King’s Men,” from c. 2,500-2,000 BC (Fig.4). The third is a solitary, Bronze Age standing stone, “The King’s Stone,” which marks a cemetery and dates from c. 1,800-1,500 BC (Fig.5). Apart from the Stones themselves, the complex includes various other archaeological features, mainly still underground, spanning the Neolithic to Saxon periods (Lambrick, 2013; Lambrick, 1988).

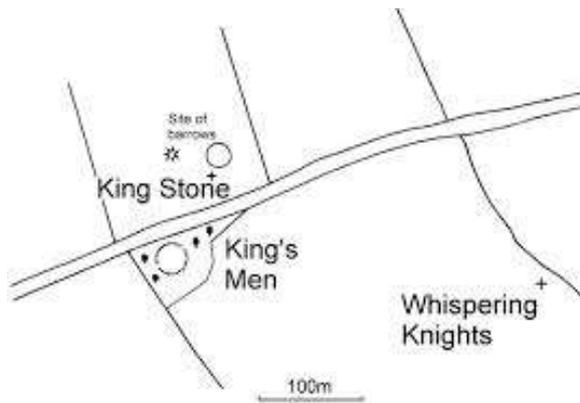


Fig.2 Plan of the Rollright Stones.



Fig.3 The Whispering Knights



Fig.3 The King's Men.



Fig.4 The King Stone.

The Rollright Stones have been the subject of much antiquarian interest since at least the fourteenth century (Lambrick, 1988) and have accumulated a remarkably rich variety of folklore (Lambrick 1988; Grinsell, 1977; Grinsell, 1976; Ravenhill, 1926). As a result the site

acquired a national fame which even in the 1890's seemed somewhat out of proportion to its physical remains (Evans, 1895). The significance of the Rollright Stones was first recognised in medieval times. The earliest mention of the Rollright Stones is part of a 14th century account of the *Wonders of Britain* in Latin (Lambrick, 1988). Since that moment, the Rollright Stones have been attracting many famous scholars who offered different interpretation of the site. William Camden, in his major account of British antiquities, *Britannia* (1586), attributed the Stones to the Danes. A century later, John Aubrey, comparing the Stones with similar megaliths in Wiltshire, suggested that they might be pre-Roman and attributable to the Druids. William Stukeley, the leading antiquary of his day (Wallace, 2004), who visited Rollright in 1710 and 1724, enthusiastically took up this connection (Lambrick, 1986). Obsessed by Druids, he suggested the King Stone was where the Archdruid conducted ceremonies and that the long mound was his burial place (Ravenhill, 1926). Despite the initial erroneous ascription to the Druids, from now on, the Stones were firmly considered prehistoric.

The Rollright Stones are associated with a rich variety of folklore traditions, some over 400 years old. The very first scholar showing interest for the folklore of the Rollright Stones was Sir Arthur Evans, who, reflecting the preoccupations of his day, compiled in 1865 a detailed review of the folkloristic tradition of the site (Lambrick, 1986).

All the myths and legend reflect the fear and curiosity of people in the past for the megaliths and related Neolithic features in the landscape (Grinsell, 1976, Grinsell 1977, Edmonds, 1999). They include a petrification and witchcraft legend, the stones being uncountable, certain stones going down the hill to drink, fortune telling and several bad luck stories.

The Rollright Stones flank a rather busy road, however, directional signage is minimal and it would not be difficult to drive past the layby designated for parking. A gate next to the layby leads onto a path, which is bordered by an information board providing information about the Stones and some basic regulations for using the site (Fig.6). There is a semi-permanent notice informing visitors of the entrance fees, yet there are no constantly members of staff to collect this; when no volunteers are on site, fees are collected via an honesty box, placed next to the main entrance gate.



Fig.6 Information board.

A permanent interpretation board is situated on the site (Fig.7), which provides information on the archaeology and associated folklore of the King's Men, the stone circle, main attraction of the site. Another interpretation boards are available for the Whispering Knights (Fig.8) and for the King's Stone. Unfortunately the latter, due to vandalism, is no longer a permanent features, though it is displayed and available for consultation whenever volunteers are at the site.



Fig. 7 The King's Men interpretation board.



Fig.8 The Whispering Knights interpretation board

The King's Men are situated to the right of the path coming from the main entrance. Visitors are able to touch the stones as they are not fenced off. A path has been trodden around the grass of the inside of the circle that encourages a circular tour around the stones.

A permanent path has been laid between the King's Men and the Whispering Knights to guarantee a neat and disable visitors-friendly route between the two monuments. The dolmen lies a few hundred metres to the south east and it is encircled by an iron fence. Across the road from the parking spaces available in the layby, a gate leads to the field containing the King's Stone. No marked path is laid from the gate to the stone, so visitors can move freely through the field. This standing stone is also encircled by an iron fence.

As Chairman of the Rollright Trust, George Lambrick suggested, the management history of the Rollright Stones can be seen as

“a transition from passive care, through positive protection, to the beginning of a more flexible and wider ranging approach of active management more in line with modern ideas” (1986, 109).

The Rollright Stones are protected by a law dating from 1882 when they were listed in the schedule of the first Ancient Monument Act and they have been taken into state Guardianship ever since, a role now exercised by the English Heritage. The site itself was privately owned until recently, although it has always been open to unrestricted public access.

Since 1997, the Rollright Trust, a small registered charity, has managed the Stones. The Trust owns the King's Men and the Whispering Knights, while leasing the King Stone and other land around the Stones. The Trust's board includes professional archaeologists as well as local groups of different interests, like druids, astronomers and dowzers (Rollright Trust, 2000).

The Management and Conservation Plan was redacted in 2000 by le Roux in collaboration with the Trust Members, and since then, it has only been officially updated with the following improvements of the site: Between 2005 and 2007 the Trust made major improvements at the Stones; among them, two interpretation boards were located respectively at the entrance of the Stones and nearby the Whispering Knights. The interpretation boards were funded by three associations (Living Spaces, Trust for Oxfordshire's Environment and West Oxfordshire District Council) and put in place by volunteers of the Cotswold Warden Service.

As Lacey suggested, the management strategy at Rollright is successful because “it does not attempt to promote certain ways of thinking about the stones as more valuable than others” (2013, 1). Instead, it is built upon a philosophy that aims to allow the site to continue

to be meaningful through living practices to a heterogeneous audience who represent many different value systems⁶.

1.3 Interpretative challenges. Evaluating the best interpretative media for the case study.

Despite their relatively modest dimensions, the Rollright Stones are, after Stonehenge and Avebury, amongst the best known and most visited prehistoric monuments in Britain. Nevertheless, as revealed by the previous surveys by le Roux and Lacey (Lacey, 2013; le Roux, 2008), the state of the current interpretation is unsatisfactory and this has led to consider a new form of engagement for the visitors, with respect to the physical and moral values of the Stones. After a personal conversation about it with George Lambrick, I was persuaded of the potential of a mobile app as screen media interpretation for the site, given its main specific challenges. As previously discussed, among the several interpretation media available for heritage sites, guided tour mobile apps are the most recent and popular invention for screen media device users. But, the reasons why a mobile app has been determined to be the most appropriate tool for the interpretation of the Rollright Stones lay in the challenging physical and managerial nature of the site itself as well as in its tightly woven network of cultural and spiritual values.

In its Management Plan, the Rollright Trust anticipates that any new interpretation facilitate inclusive physical and intellectual access for the public in a sustainable manner that does not compromise long-term conservation of the site (Rollright Trust 2000). As a matter of fact, the site is currently devoid of store spaces or indoor spaces with basic facilities such as water, electricity, and toilets. In addition, there is no permanent staff and intermittent Trust volunteers provide wardening service in the weekends. These site limitations mean that any interpretation tools that require constant human presence to perform the interpretation such as live interpretation and activity packs, or those that provide selling service of publications cannot be considered to be long-term and sustainable options. The same argument applies to all the other interpretative media that involve the use of high expensive tools - such as permanent screens or interactive displays, which imply high maintenance, especially in consideration of recent vandalism episodes.

⁶ For example, the Trust promotes the site as a location for spiritual events and has a clear policy in place for renting out the Stones (Rollright Trust, 2000). In fact, events are regularly held for the summer and winter solstices and other prehistoric festivals and it also regularly used for private marriage celebrations and naming ceremonies, (Gray, 2011; Rollright Trust, 2000).

Overall, the results of the two visitors' survey clearly state that both occasional visitors and regular users appreciate the understated nature of the Rollright Stones and therefore the use of any physical media on site –like other interpretation panels- could be perceived as intrusive in such an unspoilt landscape. Given these limitations, the only feasible and sustainable interpretation for the site would make use of visitors' own equipment such as mobile phones and tablets. Mobile apps are non-intrusive and are affordable to produce and they accrue moderate maintenance expenses. They avoid the need for permanent and expensive installations in a sensitive landscape but at the same time allow the presentation of a large amount of material in a small physical space.

A multilayered outline of the mobile app intends to engage the users on various levels of participation in order to highlight new stories and different perspectives as well as enable people to learn in ways and settings that suit them. Users will learn about the history of the archaeological research of the Rollright Stones, its documented folklore, how people have engaged with the spiritual and artistic values of the site over the years, as well as the importance of the site in connection with the other archaeological features within the area, mostly underground and therefore unseen.

All these objectives are achieved by accessing digital contents on site, so far available solely online. These digital outputs consist of materials that are “born digital” –such as maps, audio tracks and photographs- and materials that would be copied into a digital format, a scan of old drawings by antiquarians. The guided tour nature of the mobile app aims to enhance the visitors' engagement with the site, stimulating curiosity in the users and helping them to become familiar with the surrounding landscape. As suggested by the Heritage Lottery Fund, people prefer digital experiences that connect with activities in the real world, making them see and explore the physical heritage around them (Heritage Lottery Fund 2011).

Furthermore, the app is one of the few tools, with audio guides, that can help to preserve the many legends related to the Rollright Stones. Among other topics, the app, devotes much attention to the remarkable folklore of the site, ‘drawn on previous cultural background, perceived as accumulated cultural capital’ (del Barrio et als 2012, 235). As suggested in the UNESCO guide⁷, the preservation of folklore is crucial because of its incalculable relevance as an intangible cultural heritage of the site. The ultimate objective of this approach is to enable

⁷ <http://www.unesco.org/culture/ich/index.php?pg=00021>

visitors to reflect about the ways in which people past and present relate themselves to the archaeological remains, with the future hope that this will empower the local community to tell their own stories (Hodder, 2004).

The initial proposal for the project contemplated the use of QR codes within the app as instruments to offer extra insights for the visitors. QR (Quick Response) codes consist of small and square 2D codes containing links to websites. Due to the weak mobile signal, all the contents of the links should have been uploaded onto the application itself. After a consultation with the IT technician of the Trust, I was made aware that the high volume of data contained in the QR codes likely compromised the ease with which the app was downloaded. Therefore the original proposal of an app with QR codes has been abandoned in favour of an all-inclusive data application.

CHAPTER 2. Creation of the prototype for the app. Development process of the mobile app.

2.1 Defining the audience for the new interpretation. The visitors' survey.

The key criteria for a successful interpretation is clearly identify the audience that is going to use it and target the approach to what they would like to see and do and what they dislike. Therefore, the first step of the conceptual development of the prototype of app has been the study of the visitors of the Rollright Stones.

In order to gather information about the attitude of the visitors toward the current interpretation and their suggestion for its improvements, I conducted a survey at the Rollright Stones over two days during the weekend of 25-26 May 2014.

The method I adopted was a semi-structured interview, using a questionnaire form to be completed by the researcher. I conceived the survey as a solo work. I was the only researcher carrying out the interviews for the duration of the survey session. I designed the questionnaire with only nine questions so that the interview could be completed in less than five minutes by a subject who answered all the questions in a straightforward way. My survey approach is similar to the method adopted by Nathan Le Roux, in the survey he and his assistant carried out in the spring of 2008 (le Roux 2008). The timesaving nature of his survey helped me to overcome some obstacles, like the initial reluctance of many visitors to take part in the survey and the absence of indoor structures in case of bad weather.

However, with regard to the number of people questioned, the sample of visitors that I ended up interviewing was fairly haphazard since I could not reasonably expect people who had finished their visit to hang around while I was completing another interview. Over the course of the two days, I stopped visitors at the main entrance of the site and enquired if they were willing to participate to the survey after their visit. I provided those visitors happy to undertake the interview with basic information about the academic nature of the survey. I asked the interviewees to respond verbally to my questions which I then recorded.

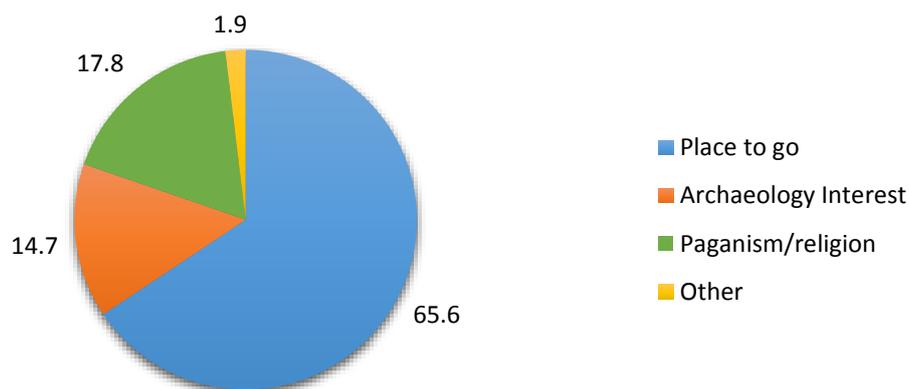
My questions aimed to gather information about visitors on three different levels. An initial set of simple factual questions aimed at constructing a visitor's profile and simultaneously putting the respondents at ease; the second group intended to collect data about

the visitor's attitude toward the current interpretation; and the final enquiries asked the respondents to offer suggestions to enhance the interpretation on site.

Therefore, the time required to undertake the interviews played a crucial role in visitors' willingness to participate in the survey. In fact, there are no indoor spaces at the Rollright Stones, so all the interviews were conducted outdoor.

2.2 Preliminary interpretation of the result and related selection of the contents for the prototype of app.

According to the results of the survey, it is now possible to define an average profile of the Rollright Stones visitors and their attitude toward the current interpretation, as well as their disposition and suggestion towards an enhancement of it⁸. The audience for the new digital interpretation is to be identified mainly as young couples and families residing or staying for holiday in the surrounding areas and visiting the Rollright Stones as one stop within a larger itinerary. This reflects the typical profile of tourists that annually arrive in the Cotswold region, especially during the warm season. Nevertheless, a good component of respondents indicated paganism/earth mysteries as the main reason for their visit, highlighting the human aspect of the site and its social relevance.



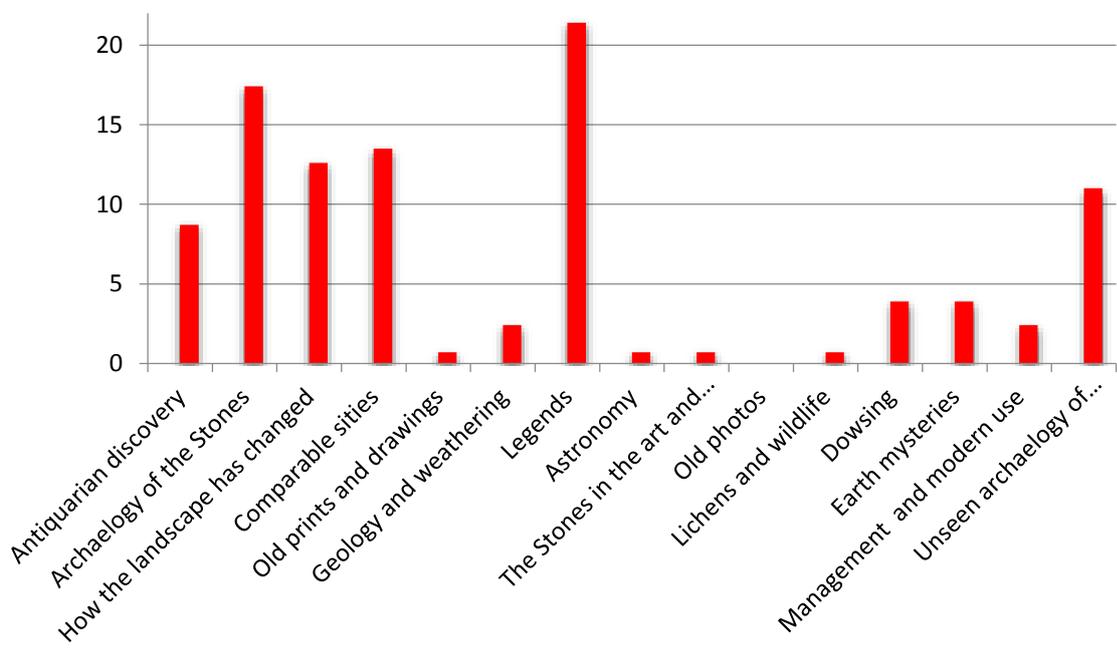
Considering the results concerning the attitude toward the current interpretation and its possible digital enhancement, it is possible to define the level of interest of the average visitor toward the Rollright Stones itself. Respondents declared to be keen on knowing more about the

⁸ See Visitors' Survey Report in Appendix.

archaeology and the folklore of the site, especially in a digital format, although this extra information should be provided in a discreet and sensible way, in order to preserve the understated nature of the site and to respect the variety of interests shown at the site.

Given the results of the visitors’ survey concerning the topics of digital extra information and the modality to be provided, the first objective for my mobile tour guide aims to fill, as much as possible, the interpretative gaps identified by those interviewed⁹.

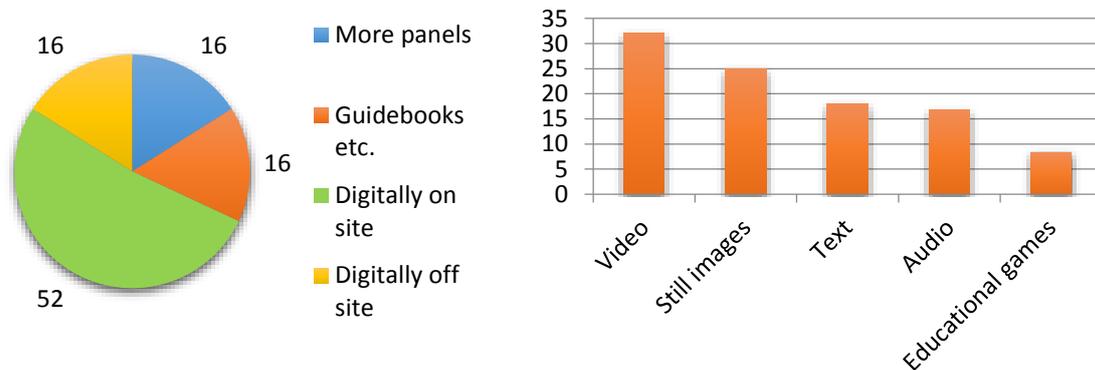
In accordance with the survey outcomes, I decided to choose as main topics for the prototype of app the folklore and the archaeology of the Rollright Stones. As a matter of fact, the intrinsic value of the Rollright Stones is defined on two different layers strictly entangled, its remarkable archaeological importance that is complementary and essential to the human significance attributed to the stones by the folklore throughout the ages. Nevertheless, with respect to the variety of interest shown by the visitors in the survey, the most requested areas of interest have been discussed even if not in the same detailed way. Those topics in descending order are: comparable sites, how landscape has changes, unseen archaeology of the surroundings and antiquarian discoveries. For each of these topics, attention has been given through visual reference to it.



Although the respondent’s favourite modality to deliver information appeared to be videos, due to network coverage issues in the area in which the Neolithic complex stands, I decided not to incorporate any motion-picture format data that might have negatively influenced the size of

⁹ See Data Flow of the Prototype in Production Portfolio.

the app itself with consequences on the easiness of the download on site. Therefore, at this stage of the production, the app is mostly textual, with some visual data related to the written contents and an audio guide with tracks for each monument, plus an extra one about the folklore.



All the written parts are original re-elaborations of different academic publications about the Rollright Stones¹⁰. In order to guarantee the widest accessibility of users to the interpretation, all the texts have been written using -as far as possible- an “easy read” language and the length has been limited to no more than two pages for each topic.

With regard to the visual data, their main purpose is to enrich the written section, providing the users with figurative references to the textual information to offer users useful and straightforward insights for a better comprehension¹¹. The visual apparatus consists of a map of the site elaborated to provide users with indication of the unseen archaeological features in the area of the Rollright Stones; photographs of the excavation of the site; drawing of finds; a comparative plan of similar archaeological sites and antiquarian drawings of the King’s Men¹².

In order to offer further support to the users in the understanding and appreciation of the archaeology and folklore of the site, I decided to enhance the app with an audio tour for the Rollright Stones¹³. Audio contents create an atmosphere in the app, especially when delivered by archaeologists that would best communicate, in some cases, the very personal stories of the discoveries made during the excavations. Moreover, the possibility of including an audio

¹⁰ See Script of the Prototype App in the Production Portfolio.

¹¹ At the time of creation of the visual portfolio, not all the figurative material I wanted to include was available due to some logistic problems: in particular, a photo gallery of the finds from the excavation, stored at the Ashmolean Museum in Oxford.

¹² See List of Metadata in Production Portfolio.

¹³ See Audio Track Folder in appended DVD.

description into the app also ensured accessibility for disabled people to the main contents of the digital interpretation, in particular visual-impaired visitors, in accomplishment with the Equality Act 2010¹⁴. The audio tracks included in the prototype are edited versions of the original audio guide commissioned almost ten years ago by the Trust and recorded in a local studio. The main narrator is George Lambrick, archaeologist that led the excavation at the Rollright Stones. In the petrification legend track, instead, a female volunteer of the Trust is the voice narrator. Some further adjustments of the tracks have been made to improve the quality of the sound. The original tracks are rather long and too time consuming given the average time visitors spend at the site. I therefore edited the tracks, cutting down the total time, to a maximum of 15 minutes for the longest track.

2.3 The creation of a working model of the app with the software AppFurnace.

The working model of the smartphone app has been developed using the software AppFurnace, created by *Calvium*, a Bristol-based app developers company. It is a free online platform that enables users to design, build and edit their own mobile device apps¹⁵. The software is easy-to-use and provides users with a wide variety of drag and drop widgets or using JavaScript, that allows more complex apps to be written. It runs in a browser on both Windows and Mac and supports the native iPhone, iPad and Android.

Thanks to the 'preview online' option, it is possible to check how the app would look on different kind of devices in order to establish any alteration in the design of the app in relation with different operating system and screen facilities¹⁶. The 'preview on phone' option allows users to preview on their own mobile or tablet the contents of the app to check the smooth run of the application. To test the app prototype on a personal device it is necessary to download the AppFurnace Player, a free moderation tool, from Google Play and Apple Store. Although this is an inevitable step, nevertheless the test-on-device modality offers an accurate preview of the app, just as the users would on their device. Once you download the trial version of the app, updates go live within 60 seconds of submitting a modification. Furthermore, the AppFurnace platform allows the users to publish their apps on major digital distribution platforms, as Apple Store and Google Play.

¹⁴ <http://www.legislation.gov.uk/ukpga/2010/15/section/6>

¹⁵ <http://www.unesco.org/culture/ich/index.php?pg=00021>

¹⁶ See Screencast 1-2 in appended DVD.

Although a very easy to use software, the free online version of AppFurnace presents several limitations and bugs that slightly hampered the original design of the prototype. First, for each page of the app it is possible to include only one image and one box of text with scroll bar. This meant that for every extra visual data I wanted to include, I had to create an apposite page, increasing automatically the levels of layers within the app and consequently its file size. Furthermore, there is no zoom option for the pictures once they are uploaded onto the software and no automatic rotation of the images with the movement of the device is supported. This implies that only with a bigger screen can a user obtain a better view of the image.

Including tools for the operation of the audio contents has been the most difficult task. After consulting with the technician of the Trust, I became aware that a bug within the free software prevented the same track from containing both a 'pause' and 'stop' button. I resolved this issue by inserting only the 'pause' button and 'play' button, which also contains the function 'resume.' Nevertheless, such adaptation implies that users can start to listen to a track and pause it, but they are not able to reset the track and start from the beginning unless they do not quit the application and restart it. Moreover, originally the prototype was designed to have a track bar for each piece of the audio guide, in order to facilitate the user to understand how much time left they have to listen to. But unfortunately, once tested with online preview, it resulted that the track bar could not be fixed in a determinate position within the screen of different types of devices and, in many cases, the bar itself was covering other contents of the page; so, in the final release of the prototype, it has been deleted.

CHAPTER 3. The test of the prototype of the Rollright Stones app.

3.1 The testing session.

In order to check the functionality of all the parts of the prototype on site and to gather information on how much and which way visitors would have engaged with the new interpretation, I decided to carry out a trial of the prototype on site. Furthermore, the Trust allowed me to create a webpage within their official website to promote the app. The webpage contains a brief introduction to my project, instructions on how to download the prototype from the website of AppFurnace, and a space for online feedback with direct link to my personal email account.

I conducted the test on site over a total of three days (26th-27th July and 3rd August). For this trial, I compiled a Health and Safety Risk Assessment and provided it to the volunteer of the Trust on duty on the site¹⁷. Considering the time required to assist each visitor during the download and in order to gather as many as possible potential users, I decided to carry out the testing session with the help of an assistant. To make ourselves recognizable to the visitors, we both wore high visible jackets for the duration of the test session. To conduct the trial, I utilized a smartphone Sony Xperia E1 with Android operating system and a camera Canon Eos.

To inform the visitors about the test in progress session and possible recording of their experience, warning signs of the performance were affixed with removable plastic cables (Fig. 9) on the rail of the main two entrances of the Rollright Stones, respectively at the gate nearby the layby parking area and at the fence of the access to the field where the King Stone stands. I also displayed posters with the instructions for the download of the app. The collocation of the instruction signage was decided in accordance with the principal routes to access to the site. Nevertheless, in accomplishment with basic Health and Safety standards of guaranteeing access/exit to the site, the area was designated in order to provide sufficient space for people to stall and download the prototype without interfering with the visitors' flow, even in case of quite large groups halting in the spot (Fig.10).

¹⁷ See Risk Assessments section in Production Portfolio.



Fig.9 Warning signs and download instructions.



Fig. 10 Visitors downloading the app on site.

In terms of methodology, the first stage of the test session of the prototype has been the download of the prototype on my own device in order to identify eventual issues with the application. Once the proper running of the prototype was ascertained, I stood alternatively at

the two main gates, mainly at the one accessing the site on the side of the layby, asking all the visitors entering if they would have liked to take part of the testing and trying the new interpretation app. All the visitors happy to try the prototype were provided with brief information concerning the academic nature of the project. They were also made aware of the possible recording of their experience. My assistant and I attempted to aid as many visitors as possible during all the download process and, once the prototype was uploaded, I spent a few minutes explaining the functionality of the application and the type of contents which they could access. Before I let the visitors set off for the test, I asked users to come back and share feedback about their experience. Those visitors who experienced difficulty downloading in the precise spots where instructions were located, so they were provided with hard copies so they could find a better location for mobile signal.

I typically let those visitors not equipped with personal devices but eager to try the prototype use my own device while I shadowed them (Fig.11). I decided to undertake the guided tour with them, so they could have the opportunity to experience the new interpretation without feeling discriminated. Since this constituted a small number of the participants and typically occurred when the inflow of visitors decreased, I was able to record mostly all the users that tried the prototype¹⁸.



Fig.11 Visitors trying the prototype with my own device.

¹⁸ For the photo gallery of the visitors' trail of the prototype see Trial Session folder in appended DVD.

3.2 The visitors' feedback survey. Methodology and preliminary interpretation of the survey.

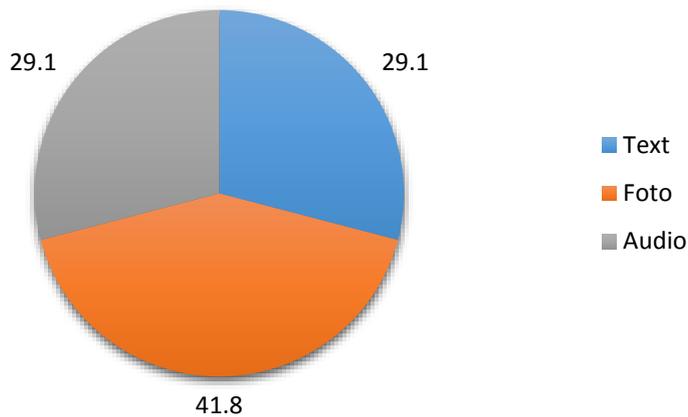
A survey of the visitors about their feedbacks regarding the test of the prototype has been carried out on the 3rd of August 2014. As for the first visitors' survey, the method I adopted was a structured interview, using a questionnaire form to be completed by the researcher with respondents answering verbally to the questions. As for the visitors' survey, this survey was conceived as a solo work and so the questionnaire was designed to be relatively quickly carry out, to optimize both visitors' time and my work in progress, leaving more time and chances of interviewing other users. To make myself recognizable to the visitors, I wore high visible jackets for the duration of the survey.

The principle aim of the survey was to collect feedback from the users of the prototype, in order to evaluate positive features and identify weaknesses. The questionnaire is designed with eleven questions, divided in three main blocks. In terms of contents of the questionnaire, the first three questions intended to gather feedback regard the strict process of download and running of the application on devices. The second part of the interview wanted to investigate the users' utilisation and appreciation of the contents and possible further improvements of them. In the final section, visitors were asked to give an evaluation of their satisfaction with the new interpretation tool for the site in order to have enough data for evaluating possible further improvements of the app.

During the survey I have been collecting thirty-six responses, plus -so far- I received few online feedbacks from the dedicate page on the website of the Trust¹⁹.

From the analysis of the on site result, it is clear to see that visitors warmly welcomed the new mobile interpretation they discovered on site. In fact, visitors have showed large interest for a new interpretive tool on site and reacted enthusiastically to its digital nature. Although some visitors experienced issue in the downloading process, the whole respondents could run the app smoothly. Respondents attested to have used all the contents within the app, even if with a slight preference to the photographs. Furthermore, respondents stated they are likely to use the app again and would recommend it to relatives and acquaintances.

¹⁹ See Visitors' Feedback Survey report in Appendix.



Even more flattering are the comments left by users online. They declared they found the app *‘easy to use, very clear and allowing the user to be as superficial or as involved with the provided information as they wish’*. Another comment stated that *‘having a visual map, plus readable information, and an audio guide really made interactive in a way that I could learn how I wanted to’*. Positive feedbacks were given as well to the choice of topics for the app, with a user affirming that *‘also really loved the two aspects of archaeology and folklore placed side by side for the greater pleasure of visitors’*.

3.3 Suggestions for future improvements and sustainability of the app.

The feedback gathered so far proffers a bright future for the mobile app as a permanent interpretive screen media for the Rollright Stones. Creatively, and from the users' perspective, the app has allowed a new interpretation of the archaeology and folklore of the Rollright Stones, one different but complementary from the one currently available on site.

Although it is not yet possible to check the number of times the prototype has been downloaded as it is not yet published on the main distribution platforms, from my personal experience on site I could estimate at least around sixty downloads for the three day of testing session. This is a very significant number considering the app was a prototype that had not yet been marketed to promote it.

While some issues could not be solved straightforwardly, like the weak mobile signal on site, some minor adjustments are possible in order to achieve the perfect implementation of this project of digital interpretation on site. On the technical side, all the software limitations

listed earlier should be fixed as soon as possible in order to facilitate the users with the proper functioning of the app. The graphic of the app should be polished up to look more professional and less “hand made”. The audio guide should be modified in order to narrow down the narration time of each track to a maximum of 1-2 minutes and the script should be re adapted to facilitate the comprehension to a non-specialist audience. Moreover, an induction loop for hearing impaired visitors should be provided.

With regard to the contents, I believe that a good enhancement could be provided by adding a photo gallery that included the most important pieces of the collection of the Rollright Stones that, I was only able to examine after the prototype had already been tested²⁰. Some of the objects are easy to recognize and very evocative and therefore, their inclusion in the app represents a good opportunity for users to relate themselves with the past. I would further suggest that it would be advisable to broaden the content to include the archaeology of the surrounding area. During my stay I had the opportunity to visit less known archaeological sites in the area of the Rollright Stones. These monuments are, if not all strictly related to the Stones, strongly comparable to the ones under examination here and their appearance in the app side by side would help users to better understand the broader archaeological context of the Rollright Stones.

In sum, if the Trust expressed interest in creating a mobile app as a permanent interpretation feature for the Rollright Stones, I would suggest that the Trust create an appropriate team of professional figures committed to the project that would accomplish all the aforesaid improvements. This would ideally lead to the development of appropriate marketing strategies to undertake promotional campaigns of the mobile app on a larger scale to increase awareness among its potential audience of the new opportunities the app provides. In order to facilitate this process, I strongly recommend to strengthen the links between the app and the official website of the Trust. The app and the website adopt different approaches to discuss the content of the site, but it is precisely this very collaboration between the two interpretative media, with its variety of approaches, that will increase visibility for the Rollright Stones.

²⁰ Despite the academic nature of the project, for copyright issues regarding commercial use of reproductions, photographs of finds have not been included in the working model, although it was possible to reproduce them in the Photo gallery folder in appended DVD.