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WHERE ARE WE?




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The next issue will feature: interpreting the Olympic Games

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FOREWORD: WHERE AM I?

Manage uncertainty. That's what maps help us to do. They enable us to understand our location, to conceptualise where we are in space and even to interpret our surroundings. In doing so they answer some rather fundamental questions: Where am I? Where can I go? How long will it take to get there? What will I see on the way? But to answer these, maps need to be interpreted and some people are more adept at this than others.

Who hasn't been driving with a partner when the dreaded realisation comes and the driver acknowledges s/he is lost. A debate begins about directions, map reading and "Exactly what time are we supposed to be there?" Anxiety mounts and voices are raised. Finally, a decision is taken, the way is found and the journey continues again.

Similarly, every visitor to the sites where we work needs to know where they are and where to go. Sometimes this is intuitive or obvious, sometimes it isn't. Meeting this basic need is a vital component of many interpretive schemes and we strive to do so in an effective and visually pleasing way.

But of course maps are far more than a directional tool. If well conceived and designed they can tell a story. In fact where landscape is concerned, they can be the story. So in this edition of the Journal we have chosen to take a journey into the world of maps.

Our foray begins on page 13 where Aaron Lawton sets the scene and Mick Ashworth gives an overview of contemporary cartography and 'how to make maps work' for visitors.

Carl Atkinson then reports on the important conclusions of a research project into mapping and orientation, whilst on page 9 Paul Davies, one of our new roster of technology correspondents, explores some of the fascinating potential offered by the digital mapping.

Oliver Green digs out his Oyster card to explore the London Underground map, surely the most iconic British map of all time, and discovers some brilliant graphic offshoots. Thereafter, Peter Crane describes how art, cartography and community engagement have come together to interpret the Cairngorms National Park in a truly impressive way. Kim Leslie looks back at the wonderful Parish Maps project, and Stephen Richards-Price explores how the Forestry Commission helps visitors to find their way around.

Guy Dupont describes how Ghent's STAM museum draws on the past, present and future of mapping to create a compelling display in this magnificent new museum. And finally Stuart Spurling explores wayfinding through the senses. Elsewhere we also welcome contributions from Dirk Bennett, Jo Scott and Ewan MacCarthy.

And in answer to the question posed in the title above, I am clearly right here, staring at my map collection – a personal assortment of destinations and experiences that conjure up many happy memories and a desire to go exploring. Now, where did I leave my walking boots…

David Masters
Commissioning Editor

FEATURE NEWS

PUTTING ORCOMBE POINT ON THE MAP

Jo Scott and Ewan McCarthy report on an interpretive scheme that will make Orcombe Point in Devon stand out from its illustrious neighbours.

X MARKS THE SPOT

The distinctive red cliffs at Orcombe Point in Exmouth, Devon, are the oldest part of the Jurassic Coast World Heritage Site. Here you can start an extraordinary 'walk through time' along the Devon and Dorset coasts, discovering 185 million years of geology and evolution. Exmouth's red rocks are the ideal place to start this journey. They are the rusty remnants of an ancient desert where, after a massive extinction 250 million years ago, species began to emerge that would eventually become the great dinosaurs and the first mammals. While the rocks record this hot and windswept landscape, there are few fossil remains here of its early inhabitants.

BELOW:
Orcombe Point's red rocks. These landmark cliffs are the rusty remnants of a Triassic desert and mark the oldest part of the Jurassic Coast World Heritage Site. The Site extends along 95 miles of the stunning East Devon and Dorset coast as far as Old Harry Rocks in Studland Bay.

Today the golden sandy beach is hugely popular with visitors, the cliffs are rich in wildlife and popular with walkers, and this area is a key part of the East Devon Area of Outstanding Natural Beauty.

Orcombe Point is undoubtedly a well-loved local landmark with a world-class USP, and yet it sits in the shadow of its iconic, fossil-filled World Heritage Site neighbours further east, Lulworth Cove and Lyme Regis. With competition like that, how were we going to get Orcombe Point on the map?

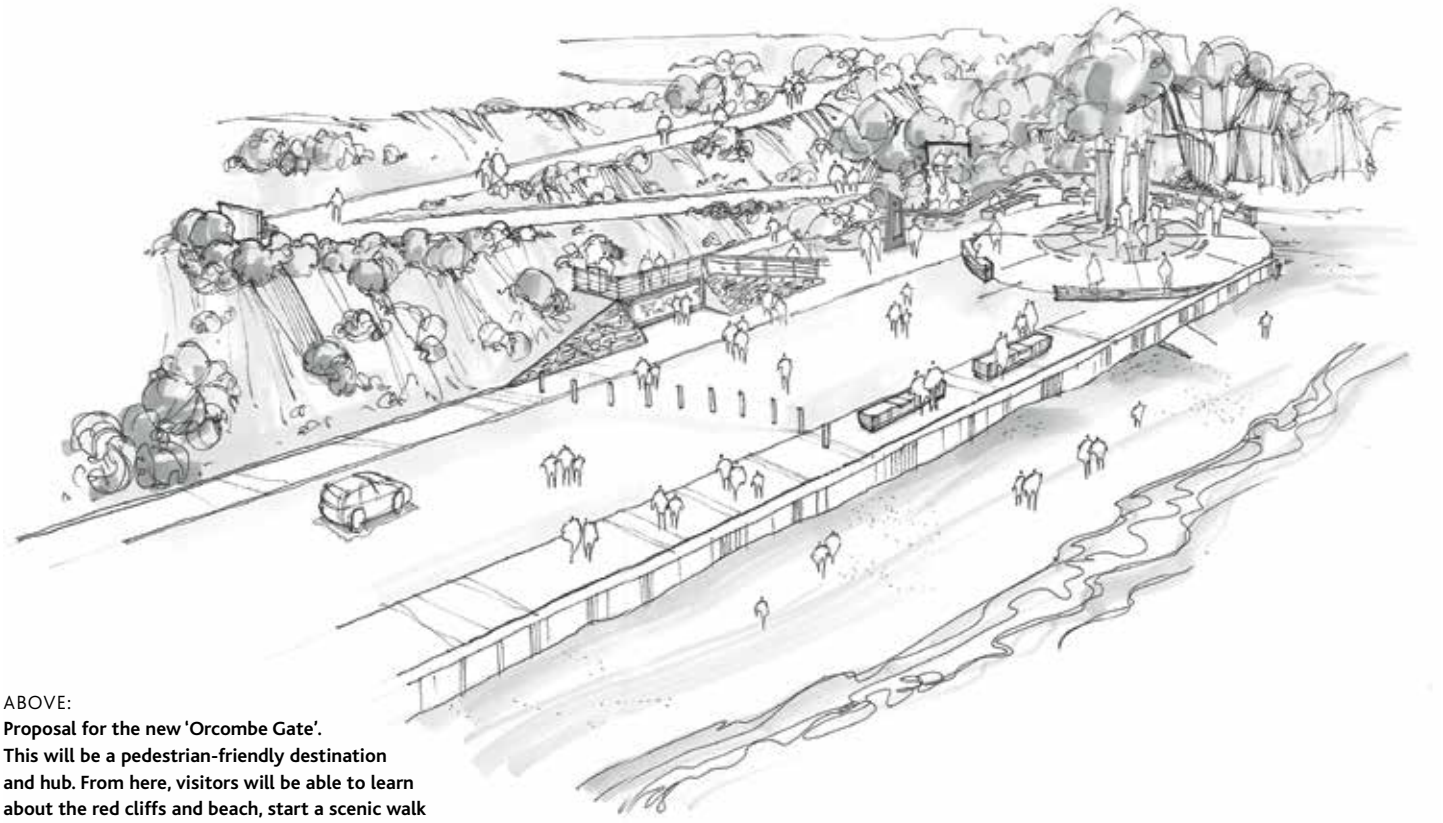
OFF THE BEATEN TRACK

Few local people and visitors appreciate the significance of the red rocks that stand guard over the busy Exmouth beach. There is very little signage on the ground – just some discreet South West Coast Path markers – and a single WHS graphic panel lost amongst the street clutter on the seafront. Queens Drive, which leads along the seafront to the red cliffs, is a dead end, dominated by cars.

ABOVE:
A working draft of the eye-catching welcome and orientation signs. The strapline 'Orcombe Red Rocks' was chosen to give the destination a distinctive character and are using Corten steel supports for the panels, which will weather to a rusty red that complements the iconic cliffs.

There's no encouragement to take the short walk from the promenade to reach the peaceful grassy clifftop above, or to enjoy the spectacular views up and down the coast from the Geoneedle sculpture made from the different Jurassic Coast stones, and there is no longer any interpretation when you get there. This is the preserve of a few local dog walkers, determined Coast Path baggers and the occasional peregrine falcon.

There are good interpretive experiences of the cliffs, coast and wildlife if you know how to find them – themed guided walks and boat trips, community arts events, schools activities – but almost nothing on the ground for the casual visitor or passing local walker. And there are potentially plenty of both: 30,000 Exmouth residents, a big influx of summer tourists and, less than a mile along the cliffs, a further 12,000 holiday park visitors staying every week in high season.



ABOVE:
Proposal for the new 'Orcombe Gate'. This will be a pedestrian-friendly destination and hub. From here, visitors will be able to learn about the red cliffs and beach, start a scenic walk to the clifftop or simply relax and take in the view.

PLOTTING OUR COURSE

The first step in putting Orcombe Point on the map was an interpretation masterplan for the site. The client team is a healthy partnership of the local councils, the WHS team, the National Trust and other landowners and stakeholders, all keen to see the Point celebrated properly, and with project funding from Devon County Council. Our plan, developed with the team and in consultation with the community, was completed in January. It provides a vision for the next ten years and sits comfortably alongside the wider Exmouth Masterplan, a long-term infrastructure development scheme for the whole town and environs.

As the plan developed, we quickly realised that the area at the foot of the red cliffs had the potential to be much more of an attraction in its own right and an important hub. It could draw people along the seafront, inviting gentle exercise and a taste of the World Heritage Site, as well as encouraging holiday park visitors to stroll the cliffs and hopefully go on to Exmouth proper.

Orcombe Point was fast becoming more than just a gateway to the Jurassic Coast; it could welcome visitors to Exmouth and its stories too. To achieve this, one of our first tasks was to identify a series of short, easy, circular walks that linked the Point with the seafront, key car parks and Holiday Park. Eye-catching orientation points were then required at the key junctions, along with appropriate interpretive installations at the foot of the cliff, on the clifftop and perhaps along the trails. The next step was to decide what form these should take.

TAKING OUR BEARINGS

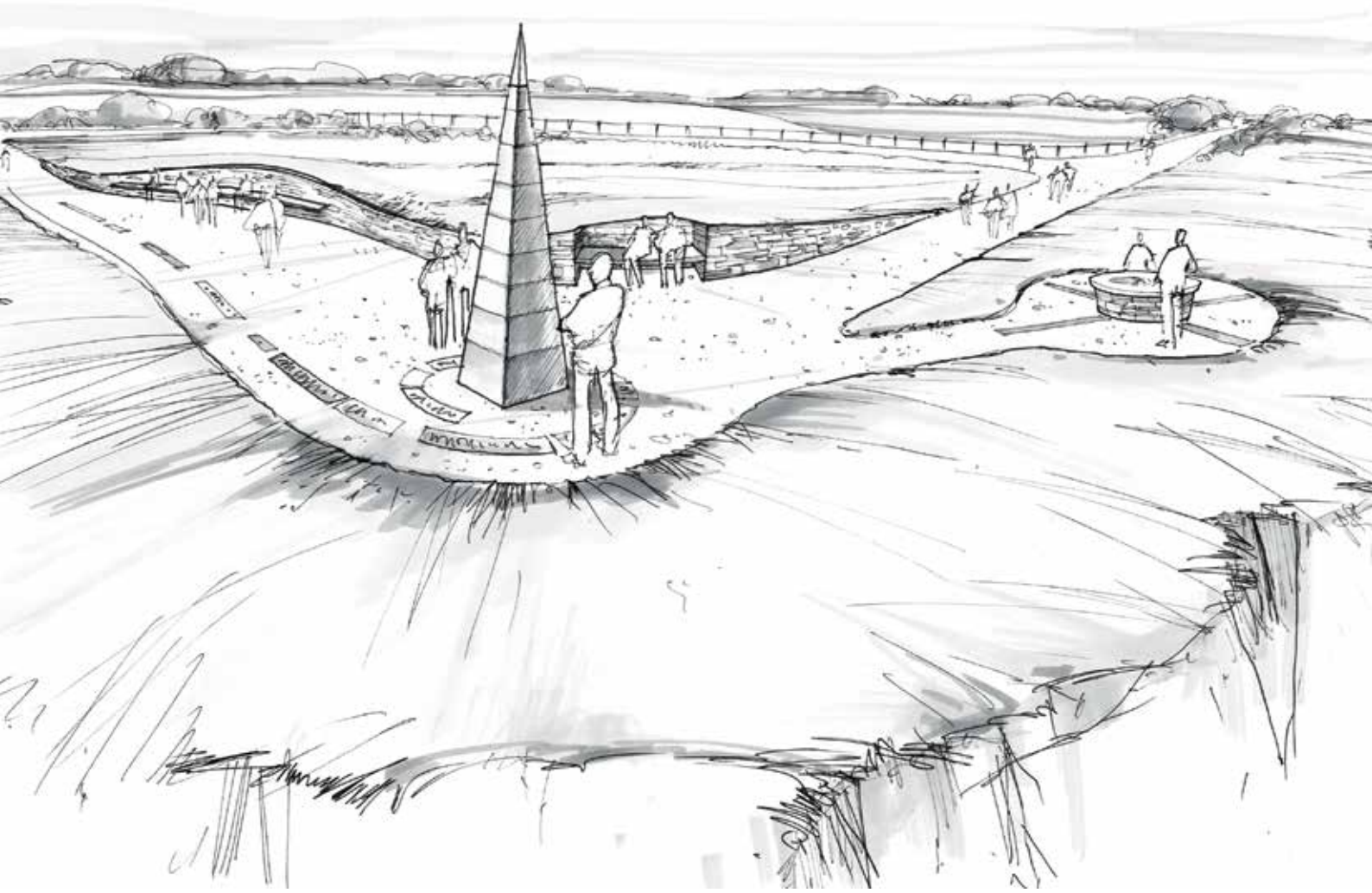
Our design approach is based on a very careful and detailed assessment of the three distinct environments – Queens Drive, the walking trails and the clifftop – to create interpretive proposals that are appropriate to each and which also create a sense of a place that encompasses them all. We have taken a holistic approach, considering current audiences and the different ways they use the site and how we might engage new visitors; we also carefully considered how to manage the different users effectively in ways the partners could sustain.

We developed a family of distinctive totem signs to be located at all the key points around the site. These provide clear orientation and an introduction to the highlights and key stories, all underpinned by the central message that Orcombe Point is significant as the oldest part of the WHS. The signs draw visitors towards the red cliffs from east and west, encouraging easy exploration and discovery, and are particularly aimed at new visitors and those who would not usually venture beyond the beach or their cars. We selected Corten steel as a substrate as its characteristic natural rust finish makes an interesting abstract connection to the cliffs.

TURNING THE TIDE

As a team, we all felt strongly that it was time to reclaim the end of Queens Drive for pedestrians. We proposed pulling the busy turning circle back from the foot of the cliffs and softening the urban feel (which required bringing the planners firmly on board too!). The landscape design for this area was also considered an integral part of the visitor's interpretive experience. The aim is to create a family-friendly interpretive piazza – newly named Orcombe Gate – where visitors can pause, absorb the environment, appreciate its significance and get a taste of its stories, and then carry on with their journey.

This new hub at Orcombe Gate is both a destination in its own right and an added attraction for holidaymakers and water sports enthusiasts whose current focus is the beach. In this more urban environment, we also had



ABOVE:
Interpretation at the Geoneedle. This draft illustration demonstrates the low-key approach to the interpretation on the clifftop. Seating and viewpoints are given priority, with simple messages about geology, wildlife and local history integrated into the seats and stonework.

the freedom to design bolder interpretive elements that would integrate well with hard landscaping and street furniture.

In contrast, the interpretation elements along the walking trails and around the Geoneedle needed to blend more subtly into the landscape, using natural materials and elements such as local stone and drystone walling. We envisaged interpretation that would add value to the experience of being on this remarkable viewpoint for those who wanted it, and which could be easily ignored by those who prefer just to commune with the view. The design team worked hard to create this deceptively simple bank with its 'hidden' inset seats and easy-to-digest messages carved into the different Jurassic Coast stones. There's even a geological hopscotch game to play – if you want to.

MAKING ITS MARK

By the time you read this article, work should have begun on the orientation signage and the landscaping works at the Geoneedle, and the new Orcombe Gate piazza should be completed in the spring. By next summer, we anticipate that the reinvigorated and newly interpreted Orcombe Point will be a Jurassic Coast and East Devon highlight, ready to take its rightful place as a must-do destination on the World Heritage Site map.

Jo Scott is an independent interpretive planning consultant, writer and former committee member of AHI jo@joscott-heritage.co.uk / www.joscott-heritage.co.uk. Ewan McCarthy is Creative Director of interpretive design consultancy, Bright 3D ewan.mccarthy@bright3d.com / www.bright3d.com

RIGHT:
Binham Market Cross, one of the smaller Free Sites, marking the site of an annual fair held from the 1100s to the 1950s.

REPORTING RESEARCH

FREE TO VISIT

Dirk Bennett and Anna Darron report on the Free Sites Project run by English Heritage in cooperation with University College London's Institute of Archaeology.

More than half of English Heritage's sites – 255 out of 409 at the last count – are free to visit for the public. They range from Iron Age hillforts to abandoned medieval villages, from Cistercian monasteries to early industrial sites, and include castles, henges, mausolea and crosses. They differ hugely in size, from the vast Maiden Castle to the solitary Binham Market Cross. Some are hidden in the middle of nowhere, others are to be found in busy city centres.

Free Sites are an extremely visible part of our estate: their presentation a public reflection of English Heritage's values and aspirations. Since April 2005, an ambitious programme has looked at providing new and up-to-date interpretation of these sites, through graphic schemes, downloadable audiotours and online provision. As a result, nearly 80 sites to date have received new interpretation, provided by a small in-house team.

WHO VISITS FREE SITES?

There has always been an assumption that the sites are widely visited, certainly true for some of them, but as they are unstaffed, concrete evidence for the majority is scarce and at best anecdotal. And once you start looking into it, more questions arise: how do visitors find the sites, why are they visiting, what's their background, interest, motivation? Is there a typical profile for a 'Free Sites visitor', or does it vary depending on site type, location or any other criteria? Are people happy with the interpretation on offer, do they engage with it, do they use the online provision, the downloadable tours, and how open are they to modern technologies? And how many people are actually visiting?

BELOW:
One of the new interpretation panels at the Countess's Pillar, Brougham.

Research into Free Sites of any sort, with any organisation, is hard to come by, and the only work that had been carried out by English Heritage was a fairly generic piece several years ago, whose numbers were heavily extrapolated from a small original sample.

DRAFTING IN STUDENTS

Interpretation is for our visitors, and the lack of research in this specific area and for such a number of properties is a real deficit. Good practice requires evaluation, and to measure our interventions against our audiences, so why not for the Free Sites? Budgets are always an issue – and in today's climate more than ever – so we decided to build on our existing relationship with Theano Moussouri's course on Museum and Site Interpretation at University College London's (UCL) Institute of Archaeology, to explore the possibility of a collaboration. The reponse was positive and meetings were held with a group of eight students to discuss the details of the initiative.

THE STUDENTS' TALE

Gathered around a table in the red-bricked offices of English Heritage, eight MA students met to undertake the challenge of answering 'Who are our visitors? Who comes to visit English Heritage Free Sites? How many visitors come? For what reasons? Where do they come from? And – perhaps most importantly – what do they expect?'

The team devised a questionnaire to collect data that would give English Heritage's interpretive team a better understanding of the number, nature and motivation of visitors to the Free Sites, and what they thought of existing interpretation. We chose a flexible, semi-structured interview format that allowed

BELOW:
A small introductory exhibition at the garrison at St Mary's, Isles of Scilly.

questions to be asked in any order and rephrased to best suit the interviewee. This format promoted a natural flow of conversation, which gave greater depth to responses by allowing visitors to elaborate on topics that interested them.

WAITING AROUND

With clipboards in hand and raincoats at the ready, we set out by car, bike, foot and rail to Free Sites across southern England. Hours were spent sitting on cold stones and damp grass near the abbeys, castles, megaliths, burial mounds and many other sites, awaiting visitors. The responses we collected were surprisingly varied, demonstrating a diverse range of visitors and a wide range of motivations. While local residents tend to make repeat visits to Free Sites and cherish them as part of their own local landscape and heritage, many visitors (one who notably scootered over 18 miles of country roads to Sutton Valence Castle) travel long distances to visit particular sites.

While most visitors expressed overall satisfaction with the interpretation, not all visitor expectations were met. Although interpretation at Free Sites provides a clear description of the site's significance and historical background, visitors expressed an interest in learning more about how the history of the site connects with that of the surrounding area and other nearby historical sites. Many were interested in learning more about 'what life was really like' at the site, and seeing associated objects or artefacts. A need for more family-friendly interpretation was noted when observing family groups, as it was common to see children running rampant among ruins while adults mused over text panels.

TAKING FINDINGS FURTHER

The range and volume of data collected through this project provides an ideal opportunity for further research. Several members of our group found ways to incorporate the findings into our MA dissertation theses. Anna Darron compared English Heritage's interpretive approach at Free Sites to that of America's National Park Service, arguing for the use of constructivist learning theory in establishing a framework for successful interpretation. Luke Stempien is using visitor responses to explore the potential of digital interpretation to contribute to traditional interpretation techniques.

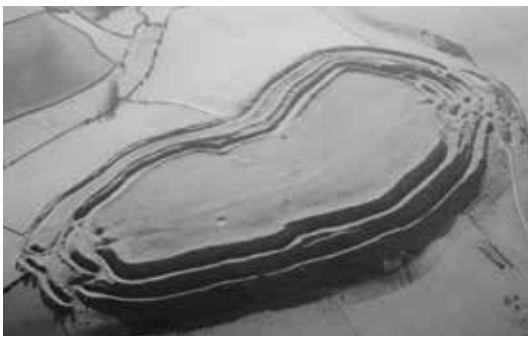
This project provided a glimpse of the many challenges facing heritage interpreters and the impact of their work on visitors. Smaller heritage sites, though often overshadowed by larger and grander structures built and used by wealthier echelons of society, tell the history of everyday people and everyday life, and should be cherished all the more for it. The Free Sites Project is seeking to increase the understanding and appreciation of this part of our history, and we all hope that our contribution will have a positive impact on future interpretation.

SUMMARY

The Free Sites interpretation programme continues, at a steady rate of between 12 and 15 sites per year. And so does the collaboration between English Heritage and UCL. The aspiration is that year on year the body of data will grow, which over time will allow us to see wider trends and patterns, helping us to make the interpretive provision more focused and targeted.

For students it offers a way into the understanding of heritage sites and practical application of their coursework, for English Heritage the ability to respond to the needs of the visitors who come to these sites, and for the discipline as a whole valuable research into a kind of site which went previously under the radar.

Dirk Bennett heads the English Heritage Interpretation Team which looks after more than 400 sites. Anna Darron is a graduate of UCL's Institute of Archaeology.



ABOVE:
Maiden Castle in Dorset covers 4,000 years of history on an area equivalent to 50 football pitches.

FROM OUR OWN CORRESPONDENT

BEYOND GEOGRAPHY: DIGITAL MAPPING

Paul Davies, a Digital Media Manager, reports from the front line of the ever-advancing world of new media and technology.

Maps have always given their makers the power to define history in their terms and write a singular vision onto the landscape. We are now in a new era of digital mapping that allows people to associate more meaning, more significance and to exert more control over the maps we engage with.

The traditional map has migrated away from the confines of its paper platform and is now combining with other data to open up new layers and themes, and it is here that we can start to move beyond mere geographical interpretation. Maps can now be merged with data allowing them to keep pace with changes in the landscape – releasing them from the inertia and inefficiencies of print.

In February 2005 Google introduced the world to Google Maps and immediately people started to plot sets of data to allow the spatial relationship of information to be revealed. At the same time the father of the World Wide Web, Sir Tim Berners Lee, was urging governments, scientists and organisations to release their data to allow people free access to information. Combining this data with digital maps allows us to create something more interesting than the original pieces – it creates meaning from information.

Map 'mash-ups' such as the map of Mark Twain's America (http://bit.ly/m-twain) allow people to discover the life and travels that influenced so much of the writer's work. And it's not just static maps: people are now using

© Historypin

ABOVE:
The arrest of a Suffragette at Buckingham Palace.

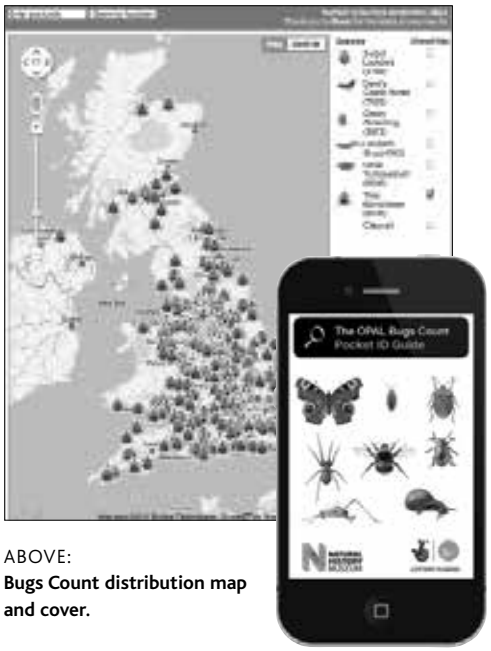
Google Earth to record animated fly-throughs of parks, cities or trails such as the animations created by Exodus Travels (http://bit.ly/exodus-map). Tools such as those offered by Google allow the amateur enthusiast to develop interesting and useful projects that can be used within exhibition environments as well as online.

Historical data can also be merged with maps and in the last year we have seen the launch of Historypin and the Museum of London's Streetmuseum. Both use maps as a base to plot historic images in their geographical setting but take a leap forward by combining this with the latest augmented reality technology to allow people to experience the images as an overlay on the real world. People using these new services get first-hand experience of the relationship the area has to the past and the stories they may walk past every day.

Mobile mapping also allows us to take advantage of collecting data as well as displaying it. The new OPAL Bugs Count mobile app from the Natural History Museum lets people help scientists monitor six particular bugs. Simply taking a photo within the app sends the photo along with its GPS data to an online map where the OPAL scientists can study the patterns and numbers for their research.

Mobile and mapping technologies are now also being linked with the social networks to create maps that not only are real-time and location aware but are also identity aware. Once this takes hold we will no longer be using shared maps but instead ones which are unique to our personal preferences. Visitors will start to expect tours and walks tailored to their individual interests and will want their actions to be fed back into the system to alter the experience for the next person. These real-time, location aware, identity aware and predictive maps are not that far away and will allow the bravest organisations to create a new level of visitor participation – how brave are you feeling?

Paul Davies is Digital Media Manager, Imagemakers Interpretive Design & Consulting.



ABOVE:
Bugs Count distribution map and cover.

WHERE ARE WE?

‘I wisely started with a map and made the story fit... The other way about lands one in confusions and impossibilities.’

J.R.R. Tolkien

YOU ARE HERE

Aaron Lawton introduces the main theme of this issue – the role maps play in interpretation.

Maps are teleporters and time machines. If you have ever planned a trip, reminisced over an old atlas or argued about a set of development proposals, you will understand how they allow us to look beyond our physical horizons and to see things as they were in the past, or as they may be in the future. Maps reveal hidden patterns and show us the nature of objects along with the relationships between them. They help us build a mental model of our environment, orientate ourselves to it and navigate around it. Maps have aesthetic qualities that make them as much works of art as practical tools. They provide meaning as well as direction. At their core, maps help us understand the world around us and our place within it – something that may sound strangely familiar to heritage interpreters.

Maps are powerful tools that bestow on their creators the godlike ability to remake the world as they see it or as they wish it to be seen. Mapping is a social and political act, the results of which are selective and partial. Maps are not the neutral and value-free repositories of truth we often imagine them to be, but instead they tell stories designed to influence us in subtle ways. Maps maintain silences as they speak volumes, they keep secrets as they spread knowledge, they tell lies as they embody truth. Mapmakers have agendas, and map-readers would be wise to keep this in mind.

Maps come in a bewildering variety of types and styles, ranging from simple plan views to panoramic illustrations and three-dimensional models. The interpreter has many and varied uses for maps, from delineating a boundary and helping visitors navigate a route, to transporting them back in time and altering their fundamental perspective on a place. Audiences also vary enormously, from seasoned hill walkers to youngsters with little map-reading experience. Creating the ideal map is not easy, as it depends on the particular place, purpose and audience, and it often involves a trade-off between accuracy and detail on one hand and accessibility on the other.

For most of human history, maps were discrete objects, fixed in time and tied to cave walls, stone tablets, parchment scrolls or paper pages. Today, we are immersed in digital maps with no beginning or end that constantly stream to us through cars, computers, phones and a myriad other devices. We can alter the appearance, scale and content of these maps according to our needs, and they update themselves in real time. Digital maps are linked to databases of information that can be attached to any point on them.

Networked smartphones know who and where we are, what we are interested in, who our friends are and which of them are nearby, what is around us and what we are actually looking at. With the help of digital maps and knowledge databases, smartphones now enable us to directly interrogate the places, objects and even the people around us to learn more about them. Digital maps have revolutionised mapping and they may be about to do the same for delivery of heritage interpretation.

Aaron Lawton is a map geek, immediate past chair of AHI and principal of Aaron Lawton Associates, visitor experience and communication consultants.

HOW PEOPLE USE MAPS

Carl Atkinson reports on research commissioned by the Countryside Council for Wales & Forestry Commission.

So what do we know about how people use maps? A couple of years ago the Countryside Council for Wales & Forestry Commission, together with Aaron Lawton, discussed the issue. Most countryside agencies produce bespoke maps or assume the use of OS maps, for navigation, orientation and interpretation. Other than the suspicion that many people don't find OS maps easy to use, we realised we didn't really know much about how people use maps, or what sort of maps suit what sort of purposes. We decided to commission consultants to look at what practitioners do, to review the evidence from the neurosciences, to review the different kinds of maps available, and to set out a future research programme. This article is based on that report. Bowles Green Ltd. undertook the work and the full report is available on their website at: www.bowlesgreen.co.uk/wp-content/uploads/2010/05/countyside-mapping-bowlesgreen.pdf.

WHAT SORT OF MAPS?

Maps fall into four categories:

- Flat 2D maps e.g. OS maps, schematic maps (London Underground)
- Panoramas and oblique illustrations
- Aerial photographs
- Specialist maps – for particular groups, including orienteers, mountain bikers, climbers, and those with physical or sensory disabilities e.g. tactile maps for those with visual disabilities.

Map depiction of routes, relief and features varies from symbols e.g. OS maps to pictorial illustrations and photographs. Some schematic maps are good at reducing the amount of information/complexity but cannot be used for anything other than what they have been designed for, so they lack the flexibility of an OS map. For example, you cannot use the London Underground map to navigate around London except via the tube!

WHAT SORT OF USERS?

Many, if not most, countryside users are not experienced map users. They need to be able to navigate around a site or route easily without having good map-reading skills. They will rarely bring a map. Serious walkers or cyclists are likely to bring a map and compass and know how to use them. People with disabilities may need specialist mapping e.g. tactile maps, or maps that give particular route information e.g. gradients, surfaces etc. Specialist users will want particular types of information relevant to their activities e.g. mountain bikers.

THE ANECDOTAL EVIDENCE

Practitioners think that men are better than women at using OS maps, and that understanding relief information is particularly difficult for inexperienced users. Flat 2D maps are best for navigation, and oblique views or panoramas are better for interpretation and landscape appreciation. Those anxious about getting lost need more support in terms of waymarking. Interpretive panels with maps are useful for orientation and showing what you can expect on a route, but not for navigation, since most people cannot remember visual map information.

THE NEUROPSYCHOLOGY OF NAVIGATION

The scientific evidence points towards three forms of topographical knowledge which roughly reflect three distinct brain systems:

- Landmark knowledge – is about objects or features in the environment that are important for navigation i.e. they mark junctions or other decision points
- Route knowledge – links landmarks with the decisions needed to create a route, so includes directional information – turn left, go straight ahead etc.
- Survey knowledge – more abstract level of representation much more like a cognitive or internal map, which includes representations of the distances between features and their

directions from each other, independently of the current orientation of the subject. It enables decisions about different routes, changes in perspective etc. This doesn't necessarily mean that it is a higher and more complex brain activity dependent on possessing a cerebral cortex. Some animals are very good at this and can operate as if they had an internal GPS, compass or radar – and it is associated with one of the oldest brain structures, the hippocampus.

DIFFERENT VIEWPOINTS

Gender differences in spatial ability in favour of men are a reliable finding in cognitive psychology, whatever the reasons for these differences. Women tend to make more use of landmark knowledge, and men use survey knowledge. Men tend to be better at tasks involving the mental rotation of an image or object. Women tend to report more anxiety about getting lost and this may well inhibit the kind of exploratory behaviour that builds up survey knowledge. However it is always important to remember that such differences appear reliably only in comparing large groups, and there are considerable overlaps in ability. Spatial abilities change throughout the lifespan, developing in childhood, and deteriorating in old age.

There is plenty of evidence that familiarity and expertise with particular types of information lead to it being processed and represented in different, more efficient ways. Experienced map users can process relief information (e.g. contours) to make decisions much more efficiently than novices.

ALIGNING MAPS

The map alignment phenomenon has been well researched and shows that you-are-here directional maps need to be aligned with forward as up, and features on the left of the map as to the left of the observer. If the map is misaligned with respect to the environment, it requires the observer to try and mentally align or rotate the map. This is hard to do and is likely to introduce errors in orientation and navigation.

Another finding is that oblique aerial views, now readily generated through computer technology, e.g. Google Earth, may not be as easily interpreted as one might intuitively assume. This is because they are generated from a particular perspective, and an observer with a different perspective may have difficulty in mentally manipulating the image, despite its pictorial nature. This is another version of the alignment effect.

The environment itself provides plenty of information in the form of landmarks etc. to support our sense of knowing where we are and where we are headed, and we are all capable of building mental maps based on this information. Clearly, waymarking and the placing of other objects which can act as landmarks will help people find their way, as will natural features, providing they are distinctive enough.

CONCLUSIONS

In general, people use a variety of strategies to navigate and to process mapping information, and these overlap considerably. It is therefore important to supply information in the form of a combination of waymarking/landmarks, written route descriptions, as well as visual maps which should have sufficient information for the task in hand, but avoid information overload/clutter.

Static directional you-are-here maps need to be aligned with the environment and observer with respect to up/forward, and left/right.

Relief information is more difficult for inexperienced map users to interpret, but there is no one correct way to do this – it all depends on what the task is for the user. Shading, colouring, contours and pictorial information may all have a part to play.

New technology will enable an ever wider variety of mapping information to be delivered to users, and will allow them to make more personalised choices about formats. However a note of caution here – it is unlikely they will replace paper maps, particularly where navigation is critical. If you are on a mountain, and your device crashes, the battery is flat, or it gets a soaking, you will need a traditional map to get you out of trouble!

Carl Atkinson is Senior Interpretation Officer at the Countryside Council for Wales.

MAKING MAPS WORK FOR VISITORS

Mick Ashworth explains the use of maps and the role of cartographers in interpretation projects and raises some practical issues involved in producing maps to serve visitors' needs.

In a talk to the Royal Geographical Society in 1914 Rudyard Kipling said, '...as soon as men begin to talk about anything that really matters, someone has to go and get the atlas.' I'm sure he had in mind major geopolitical issues of the day, but the principle could apply to more local matters. It points to the importance of maps in helping to set places and events in their geographical and historical contexts.

ARE MAPS REALLY NECESSARY?

Maps don't always add to the other information provided and while obviously being a great advocate for using maps in interpretation, I believe they should only be used when they have a very clear purpose and illustrate something about a location that words or pictures cannot.

Several factors should be considered when deciding whether to use maps:

- Do visitors need directing to the site in question?
- What is the importance of the site's location or geographical context?
- Is there a need for visitors to navigate specific routes around the site?
- Is there a story to be told that only a map can tell?
- How is the interpretation to be delivered?
- Will one map be sufficient or will maps of different types be needed?

The answers to these questions will determine whether maps have a role to play, and will go some way to identifying the purpose of each map. Once the decision to include a map has been taken, and its purpose is clear, the process and the factors to be considered at each stage are as follows:

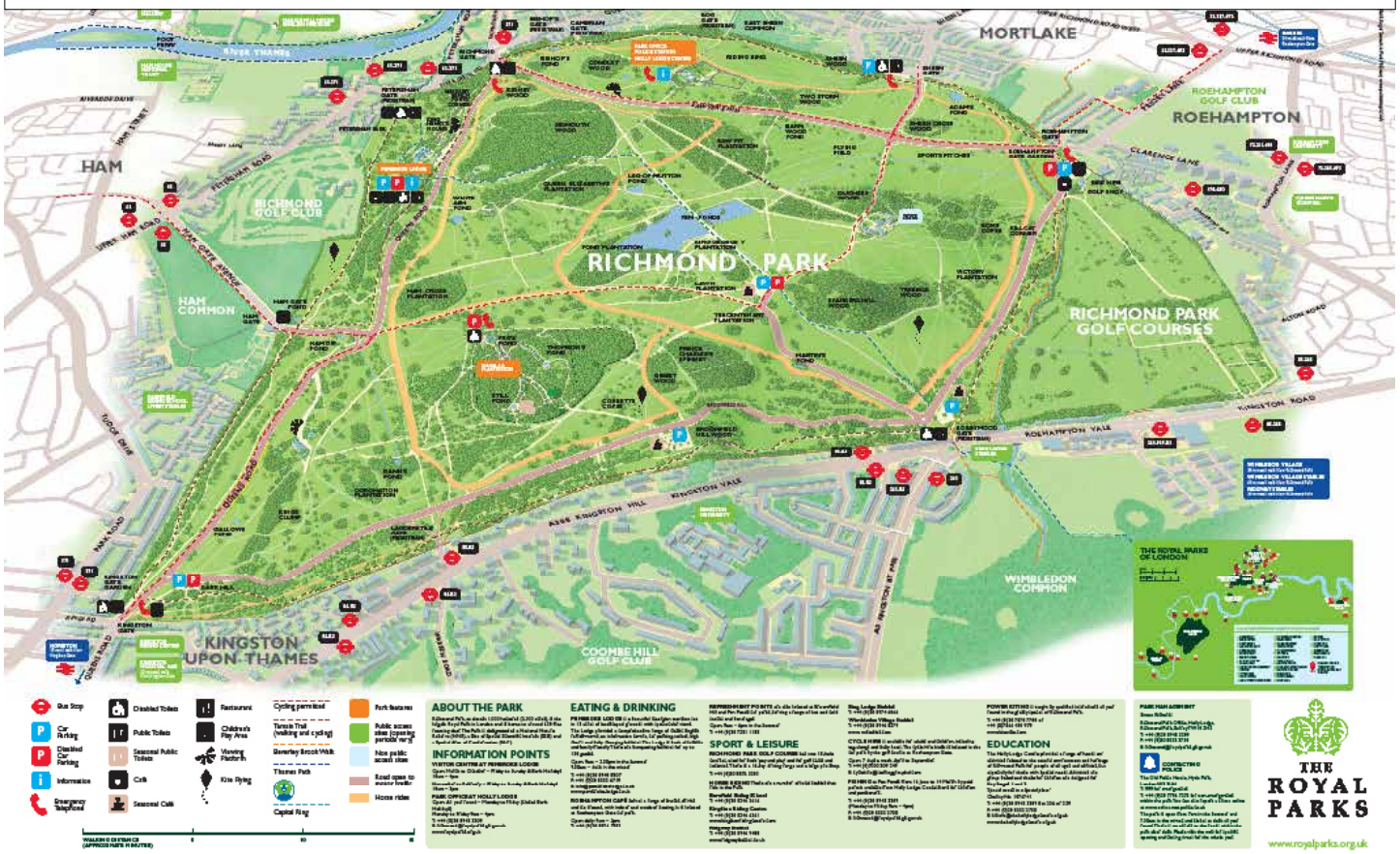
- Select the type of map required
- Identify and obtain the source material
- Choose a style
- Determine the production method
- Ensure integration with other interpretive elements.

TOPOGRAPHY AND THEMES

There are basically two types of map to consider: topographic and thematic. Topographic maps – such as Ordnance Survey (OS) maps – show what is physically on the ground. Towns and villages, roads, railways, rivers, lakes, footpaths, etc. are all shown by means of symbols. The shape of the land is also commonly shown by some means of relief representation.

Thematic maps depict a specific subject or theme. Examples include geological maps, or maps showing the distribution of particular things in an area such as Roman forts or golf courses. They may be created on a topographic base map, but their design should ensure that the theme stands out.

BELOW:
Topographic map of the recently extended Cairngorms National Park designed for use in printed products and on display panels. It uses original manually produced hill-shading and highlights the subject area of the park. ***Reproduced courtesy of CNPA.***



ABOVE:
A perspective, or 'birds-eye', view of Richmond Park, with good representation of transport links, walking routes and places of interest to the user. *Reproduced courtesy of The Royal Parks.*

SOURCE MATERIAL

Much information may be available from the project team about the detail of sites, but unless a suitable base map for this information can be compiled, it will not be shown to the best advantage.

A cartographer will be skilled in knowing the options for source material. It may be possible, within constraints of copyright, to use existing maps directly, but more commonly a new or customised map will need to be created – a more time-consuming and expensive process, but one that should result in a more appropriate map for visitors. The process is likely to involve compilation from various sources – maps, aerial photographs, textual descriptions – which may themselves be subject to copyright restrictions. A site visit to obtain raw data from a ground survey using GPS devices may also be necessary.

It is important to know the copyright situation for all source material and also to be clear whose responsibility it is to obtain (and possibly pay for) any permissions or licences necessary. There is a common misconception that maps available on the web are available to use without restriction. This is rarely the case, and permission will usually need to be sought from the provider.

Use of OS maps, either directly or as a source for map compilation, has often led to confusion over copyright: until recently all OS material was subject to publishing licence fees. OS have now made large amounts of map data available for free and unlimited use – a great resource for cartographers compiling new maps in their own style. However, this OS Open Data does not cover all scales of OS maps and the form in which the data is available demands specialist cartographic knowledge and software to fully exploit it.

MAP STYLE

Questions to address in determining a map style include:

- What will work with the overall design? Maps can be formal and precise, or more artistic and pictorial. The overall style of the interpretation and what it aims to provide will determine the choice.

- Is accuracy important or can the map be distorted? If route-finding and distances are important, then a map should be planimetrically accurate – i.e. its horizontal scale should be uniform across the whole map, with features in their correct relative locations – with a clear indication of its scale and orientation. If a more illustrative approach is required where distances or directions are not critical, then 3-D perspective (or 'bird's eye') views or diagrammatic representations may be more appropriate.

ABOVE:
A thematic map of Argyll highlighting items of interest to the user – coastline, ferry routes, marinas and pontoons. Topographic detail is kept to a minimum.

RIGHT:
While digital hill-shaded images such as this of the USA are striking in themselves, they can also provide good backgrounds for both topographic and thematic maps.
United States Geological Survey.

- What level of detail is required? A huge part of cartographic editorial work is deciding what to include, and perhaps more importantly what to leave out. Keep a clear eye on the map's defined purpose, and on Freeman Tilden's 'last tap' – the temptation to include extra material that isn't needed and can actually be detrimental.

- Can a particular style suggest a 'sense of place'? Aspects of map design can contribute to the message. In particular, careful use of colour and typefaces can reflect the character of a place and the choice of formal or informal map styles may be suggested by the nature of the site itself.

- Is relief important and how should it be shown? There are several ways to represent the relief of an area. 3-D perspective views can do this graphically and artistically, but for planimetric maps (those retaining true horizontal scale) the main methods used are contours, layer colouring and hill-shading. Contours are fairly widely understood, but care should be taken that they are not unnecessarily detailed and complex. Layer colouring – the use of colours for specific height bands (for example the area between the 100m and 500m contours) – is a good method for giving a general impression of relief. The development of good colour sequences for layer colours is a key cartographic skill. Hill-shading presents a visualisation of the relief through use of shadows and highlights, creating a three-dimensional relief effect. It can be highly effective in giving users an immediate impression of an area, but has limited use at very large scales (for small sites) and in predominantly flat areas. It can be created from digital data but the best results are usually achieved manually – a very skilled and artistic task.

LEFT:
In the late nineteenth century, the famous Edinburgh cartographic publisher John Bartholomew & Son pioneered layer colouring as a method for portraying relief – a method still in common use for topographic and atlas maps. ***Reproduced by permission of the Trustees of the National Library of Scotland.***

CARTOGRAPHIC PRODUCTION

A key factor in determining the production method is how the map will be delivered. The same map will only rarely be suitable for different uses – limitations of resolution, screen size, file size, etc. restrict the use of maps on the web, and particularly on mobile devices. Maps designed for printed or panel use will, therefore, commonly need to be reworked for digital delivery.

Maps will be hand-drawn, created digitally or will be a combination of the two, but whichever approach is taken, cartographic principles relating to scale, data sourcing, quality and copyright, symbolisation, generalisation and relief representation will come into play.

It is vital to keep an eye on the final outcome required, not just in terms of the look of the map, but also in relation to the type and resolution of file required. This needs to be determined early to ensure the cartographer adopts the appropriate production method.

INTEGRATION WITH OTHER ELEMENTS

Ideally, maps should not be dealt with completely separately from other elements in a project. Close collaboration between the cartographer and graphic designer involved is important. There is great flexibility within map design, and this should be exploited through discussion of styles, colours, typefaces and formats throughout the process.

Similarly, editorial consistency should be carefully maintained – places mentioned within text should, wherever possible, be included on the map; if more than one map is used, they should relate in style and also be consistent in their detail. For these reasons it is better for the cartographer to be seen as part of the wider team, have sight of other material being used and be willing to feed into the process. Such a collaborative approach will result in maps more clearly meeting visitors' needs and expectations.

Maps can greatly influence the success or otherwise of an interpretive project. But by defining and sticking to a clear purpose, by following key cartographic principles and by ensuring they are integrated well with other material, they can be made to work well for visitors and to be a vital part of any interpretation.

Mick Ashworth Director, Ashworth Maps and Interpretation Ltd
www.ashworthmaps.co.uk

HOW A MAP BECAME AN ICON OF LONDON

Oliver Green describes the story of the London Tube map, one of the most iconic maps in the world.

Without question, the most famous and influential modern map is the London Underground design devised by Harry Beck 80 years ago. Strictly speaking, purists will tell you, it is not a map at all, but a topological diagram. London Underground themselves started calling it the Journey Planner in the 1990s, but the name never caught on. Now it's officially the Tube map again, and in 2006 it was voted the second favourite British design of the 20th century in the BBC's Great British Design Quest. Here is an extraordinary and probably unique example of a map devised for an everyday and purely practical purpose becoming transformed into a popular icon of art and design. The winner of the BBC's design quest, incidentally, was Concorde, certainly iconic but arguably rather less useful for most of us.

The London Underground has been the unlikely origin of two separate but complementary strands in popular mapmaking over the last century, which will be explored in a special exhibition at the London Transport Museum in 2012. When London's impressive network of deep level electric Tubes was completed in the early 1900s, the private company that had built them was facing potential bankruptcy. There seemed little hope of recouping the huge costs of construction through passenger revenue, but a publicity campaign to attract more customers was devised to promote the Underground.

PICK'S PROJECT

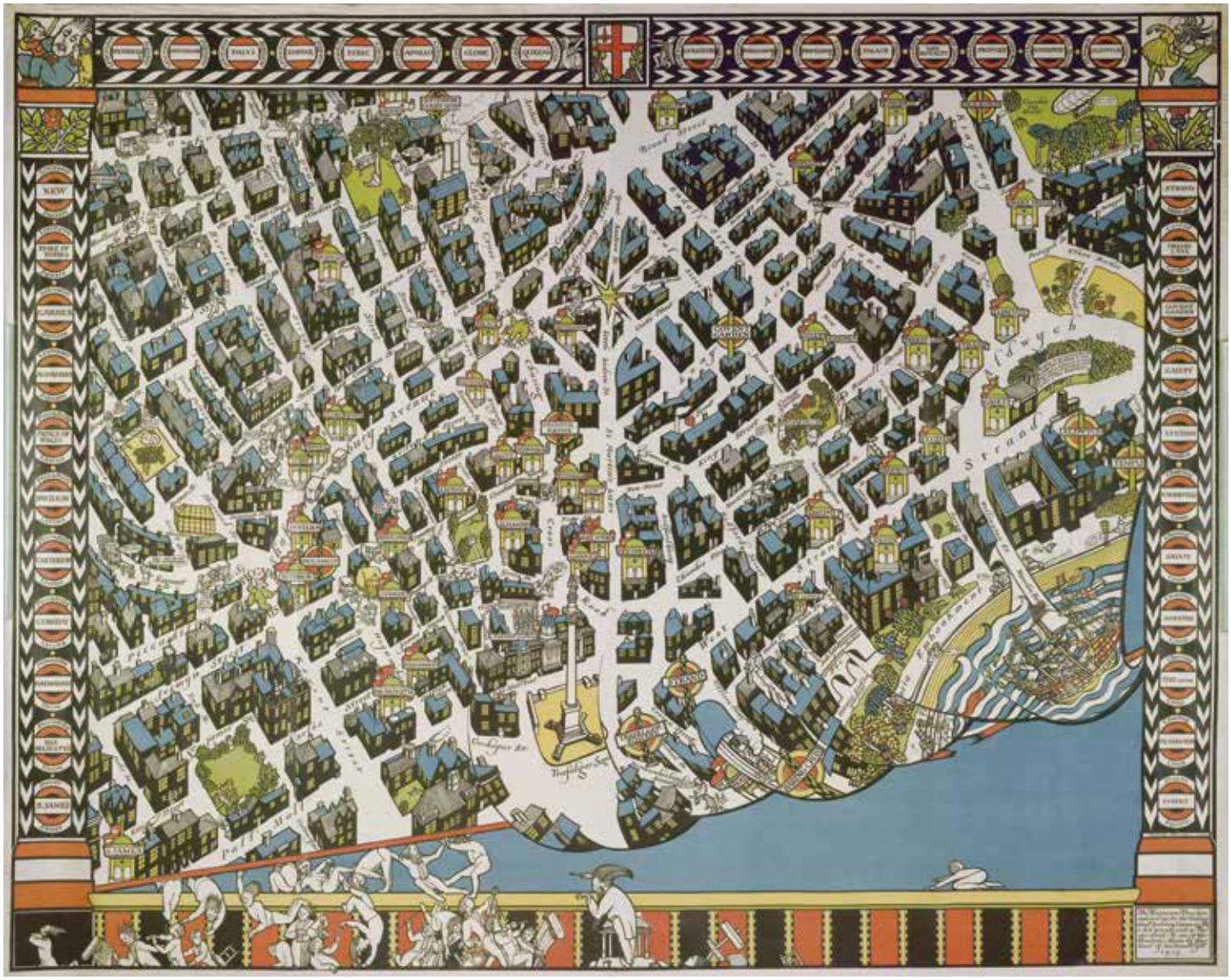
The man responsible for this was Frank Pick, who rose to become Managing Director of the Underground and was later the first chief executive of London Transport when it was created in 1933. Pick was a founder member of the Design & Industries Association (DIA), whose members wanted to encourage commerce and industry to make practical use of good applied art and design. He started doing this before the First World War by commissioning posters and maps for his transport system, which included the bus network as well as the Underground. His philosophy was really the next step on from William Morris, insisting that everything the company used should be decorative, practical and useful. It was the arts and crafts applied to a modern commercial business, applying the DIA's slogan of 'fitness for purpose'.

Attractive pictorial posters promoted travel on the system, particularly off-peak journeys and leisure trips, while simplified maps made it easier for passengers to negotiate the Tube and find their way round London. Good design, Pick believed, was good for business and helped create an image for the Underground as safe and reliable, but also modern and progressive. He was a pioneer in corporate identity and customer service.

ABOVE:
Harry Beck's original artwork that he took to the Underground publicity department in 1931.

RIGHT:
The first free pocket map issued by the Underground, 1908.

BELOW:
Max Gill's Theatreland poster map for the Underground, 1915, intended for sale and display rather than as a travel aid. The decorative detail includes a Zeppelin bombing London at top right.



In 1908 the Underground issued their first free pocket map, showing the new Tube network clearly with colour coded lines. Pick's first publicity poster, designed by John Hassall, also featured the map. Five years later, Pick commissioned the leading calligrapher Edward Johnston to design a special typeface for the Underground's posters and signage. Johnston's sans serif lettering was then incorporated in the bar and circle symbol for use on stations and vehicles. Adapted versions of both the lettering and the logo are still used by London Underground today.

THE WONDERGROUND MAP

Another creative talent that Pick commissioned in 1913 was Macdonald Gill, brother of the sculptor Eric. Max Gill was particularly skilled at devising elaborate illustrated maps, and produced one of central London as a poster for Underground stations. It was intended as attractive promotional advertising rather than to help passengers on their way. Following inventive decorative cameos across the city map was an entertaining diversion while waiting for your train, and you could also buy a copy to frame and display at home or to decorate your office. This was an ingenious bit of artistic marketing.

Gill's 'Wonderground' poster map was hugely popular at the time and he produced another six with different subjects for the Underground over a 20-year period. Illustrated maps became very fashionable in the inter-war years, whether as book illustrations, reproduced as posters or as decorative murals in everything from hotels to ocean liners. Gill's most prestigious creation was a giant map of the Atlantic in the dining room of the Queen Mary, with a moving model showing passengers the ship's position as it crossed the ocean.

BECK'S BRILLIANT IDEA

As the Underground expanded into London's suburbs in the 1920s, it became increasingly difficult to fit the whole system onto a pocket map. Fred Stingemore, the in-house designer, introduced simplified versions, but they were becoming difficult to read. Then in 1931 Harry Beck, a young draughtsman who had no experience either as a designer or a cartographer, took a radical new idea to the publicity department.

Beck realised that a passenger doesn't need a geographically accurate map to negotiate the Tube. He or she just needs a simple diagram which represents a journey from a to b and indicates where to change if necessary. Beck abandoned geographical accuracy for visual clarity, expanding the central area and compressing the outer sections. Each line is straightened out to become vertical, horizontal or diagonal but is still colour coded. The only other reference point is a highly stylised River Thames.

It was too radical at first even for the progressive Underground, but a trial printing in 1933 was an instant success with the travelling public. London Transport, which had just come into being, adopted the Beck design as standard and it has been used, with constant variations, ever since.

By the late 1930s a Beck-style diagram was being used by graphic designers to represent everything from the international routes of Imperial Airways to the suburban railway network of Sydney, Australia. It didn't work everywhere. The Paris Metro rejected Beck's unsolicited proposal to redesign their confusing system map and stuck to their tangled spaghetti. The New York Subway system proved too complicated to scale down into a readable representation. But in London the Beck map, along with the roundel logo and Johnston's lettering has brought visual order to a complex system that could easily look chaotic and intimidating to a prospective passenger.

Over the years the Tube map has become more than a travel aid and is now a popular reference point for designers, advertisers and artists, inspiring imitation, send up and knowing post-modern irony. Who would have thought a simple map could travel so far?

Oliver Green is a curator and historian, and research fellow for the London Transport Museum.

The exhibition Mind the Map: Inspiring Art, Design and Cartography, will open at London Transport Museum from May to November 2012.

A new book linked to the exhibition by museum curator Claire Dobbin will be published by Lund Humphries in association with London Transport Museum.

ABOVE:
Diagrammatic map of the Sydney suburban railway network, in the style of Beck, 1940.

BELOW:
The first Underground poster, commissioned by Frank Pick and designed by John Hassall in 1908.

PANORAMIC PAINTINGS

Peter Crane describes how the Cairngorms National Park Authority (CNPA) wanted to develop a sense of place and give meaning to a new designation. This is the story of how staff came to use the traditional art of panoramic painting to portray the distinct character of the area.

ABOVE:
Technically brilliant but dull combination of aerial photographs and relief mapping.

BELOW RIGHT:
Moving mountains: repainting following consultation.

In 2003, Scotland's second National Park was designated in the Cairngorms, putting a new line on the map. Months of consultation and debate ensured that that this was an area of 'distinct character and coherent identity' yet it is likely that at designation only scientists, mountaineers and a few civil servants would have been able to describe the character of this new National Park.

DEVELOPING A SENSE OF PLACE

Three pieces of early work with partners helped create a sense of place:

- Brand development
- Entry point markers
- An agreed approach to interpretation.

Installation of entry markers provided a sense of arrival to the National Park with a strong visual identity (brand image). We now had the opportunity to develop interpretation at several of these entry points.

INTERPRETIVE OBJECTIVES

We wanted people to know that the Cairngorms National Park:

- Contains mountains like nowhere else in Britain
- Has superb habitats that are a refuge to a quarter of Britain's rare species
- Is home to people who live among the mountains and extensive native woodlands
- Is a landscape of opportunity with a sense of wildness.

And being at entry points, we also wanted to provide orientation and a sense of size and scale, as by UK standards the Cairngorms National Park is vast. These last two objectives steered us towards a map-based solution but we felt that maps wouldn't deliver our interpretive objectives.

INTERPRETIVE DESIGN

Initially we looked at using relief models but at this scale they could only show landform. We then looked at digital solutions using aerial photographs and digital mapping. Macauley Institute did a superb job of draping aerial photos onto a map base to produce relief images and then oblique aerial views but the outputs were dull (left). Computer manipulation simply could not present the landscape in a way that really conveyed the essence of the Cairngorms.

Eventually we decided to use panoramic paintings. These merge cartography and art to produce relief images with a 'relaxed accuracy' that are nevertheless very representative of an area. In the 1970s the US National Park Service commissioned Heinrich Berann to paint four National Parks. These paintings are regarded by many as the finest examples of the art of panoramic painting.

RIGHT:
An unexpected output: a panorama in Grantown Grammar School.

Crucially for our project, Aaron Lawton, the creative design consultant contracted to the project, managed to track down Berann's apprentice Heinz Vielkind and Dr Mike Woods, an Aberdeen University geographer with a special interest in cartography and panoramic paintings.

Panoramic paintings have many advantages:

- Variable projection planes allow the foreground and middle ground to appear more map-like, useful for orientation, while the background appears realistic. This also allows the viewer to see over features that would be hidden from a true aerial view.
- Vertical exaggeration can produce a landscape that approximates to our anthropocentric expectations or as Heinz put it, 'I paint what you think you see'. Vertical exaggeration also allows key landmarks to stand out.
- Horizontal exaggeration can enhance habitats – in our case the mountain core.
- Reality can be rotated so that the viewer can see into key features such as large straths with lochs.
- Use of colour and texture allow the landscape, and particularly key habitats, to be clearly depicted.
- Shading and the use of cast shadows creates a three-dimensional effect to the paintings that appears to instantly engage people.

Computers aren't yet capable of 'playing' with the landscape to this extent and still produce a credible image.

We had a project that could meet many of our interpretive aims but we still needed to make sure our partners could use the outputs.

MOVING MOUNTAINS

Instead of the traditional approach of selecting the 'best' or the 'most seen' view of an area, we commissioned five paintings of the Cairngorms so that every community would be in the foreground of at least one painting. This would ensure that no one was relegated to the back, and the paintings could be used throughout the National Park.

Instead of relying on the expertise of the artist, guided by a project team, to produce high quality paintings we decided to consult widely with partners. Andy Ford, Senior Outdoor Access Officer spent hours with land managers, visitor centre staff, rangers, mountaineers etc. 'truthing' the paintings. Communities needed to see that their local landmark was accurate, mountaineers that their route could be traced.

Feedback and corrections were relayed to the artist in Austria. Here we appreciated Heinz's skill and patience: he really could move mountains. This consultation resulted in paintings that were more accurate and more useful for partners. Consultation also encouraged local ownership.

USE AND ENGAGEMENT

Only when we had produced final designs for the paintings 'framed' in a surround, with the National Park boundary and place names digitally added, did we fully appreciate that we had developed a tool that could be used in many applications beyond entry points.

Currently panoramic paintings are used:

- At entry points
- In publications
- At conferences and exhibitions
- On community notice boards
- In schools
- In visitor centres:-
- to show Site Boundaries and National Nature Reserves
- to show ancient routes through the area
- or simply to provide context to the National Park.

We don't have survey data on the impact of the panoramas but we do have a growing body of evidence that indicates they are a very successful way of interpreting the National Park.

Partners want to use the panoramas to present their work in the National Park and they are now being sold as souvenir posters. Visitors gather around the images and fingers often point to the painting. Dwell times are much longer than that required to read the 150 words alongside the paintings. They provoke discussion: people tell us 'this is the wrong view', or 'an unusual view' or ask 'where is north?' People see the area in a different way, they didn't realise that 'Kingussie is so close to Braemar', or 'we have so many forests'. No one has told us that the 'relaxed accuracy' of the paintings is a misrepresentation. Heinz really has painted 'what we think we see'.

The tradition of using panoramic paintings to interpret a mountain area combined with a modern approach to partnership working has produced an interpretive tool that is now used throughout the Cairngorms National Park. The paintings continue to have uses beyond anything we first envisaged.

Peter Crane is Programme Manager for the Cairngorms National Park Authority.

A MAP OF OUR OWN

Kim Leslie describes the West Sussex Parish Maps Project, started in 1998 to encourage communities to make a permanent record of themselves for the millennium celebrations. It was so successful that the project continues, with now well over a hundred maps covering the county.

These are no ordinary, conventional maps, but maps full of pictures and text showing towns and villages *seen through the eyes of local people*. This is what makes them so significant today. In the past maps were devised for administration and government: the Tudors and Stuarts made estate maps for plotting ownership and managing the land; mapping by the Ordnance Survey originated as a military survey for national defence. Theirs was the world of maps dominated by specialists, of maps as instruments of power and control, the world seen through the eyes of the official.

COMMUNITY MAPS

But with community mapping we have something completely different. Quite unlike earlier maps for officialdom, these are democratic maps, expressions of what people think about the places where they live. They are about people's impressions about their locality, giving a bottom-up, rather than top-down, view of the local world. Importantly what the project offers is involvement in a community enterprise, an opportunity for non-specialists to make a map of the place they know best, literally their homeland.

In West Sussex we've been making these maps for some 14 years, with over 2,000 volunteers coming together in one of the most remarkable community heritage projects ever undertaken in the county. Many maps have been drawn and painted, others woven, knitted or embroidered, some made as photographic collages or ceramic tiles, one spectacularly cast in bronze, one even made in the shape of a public garden, its colours changing with the seasons. Clearly these are no ordinary maps.

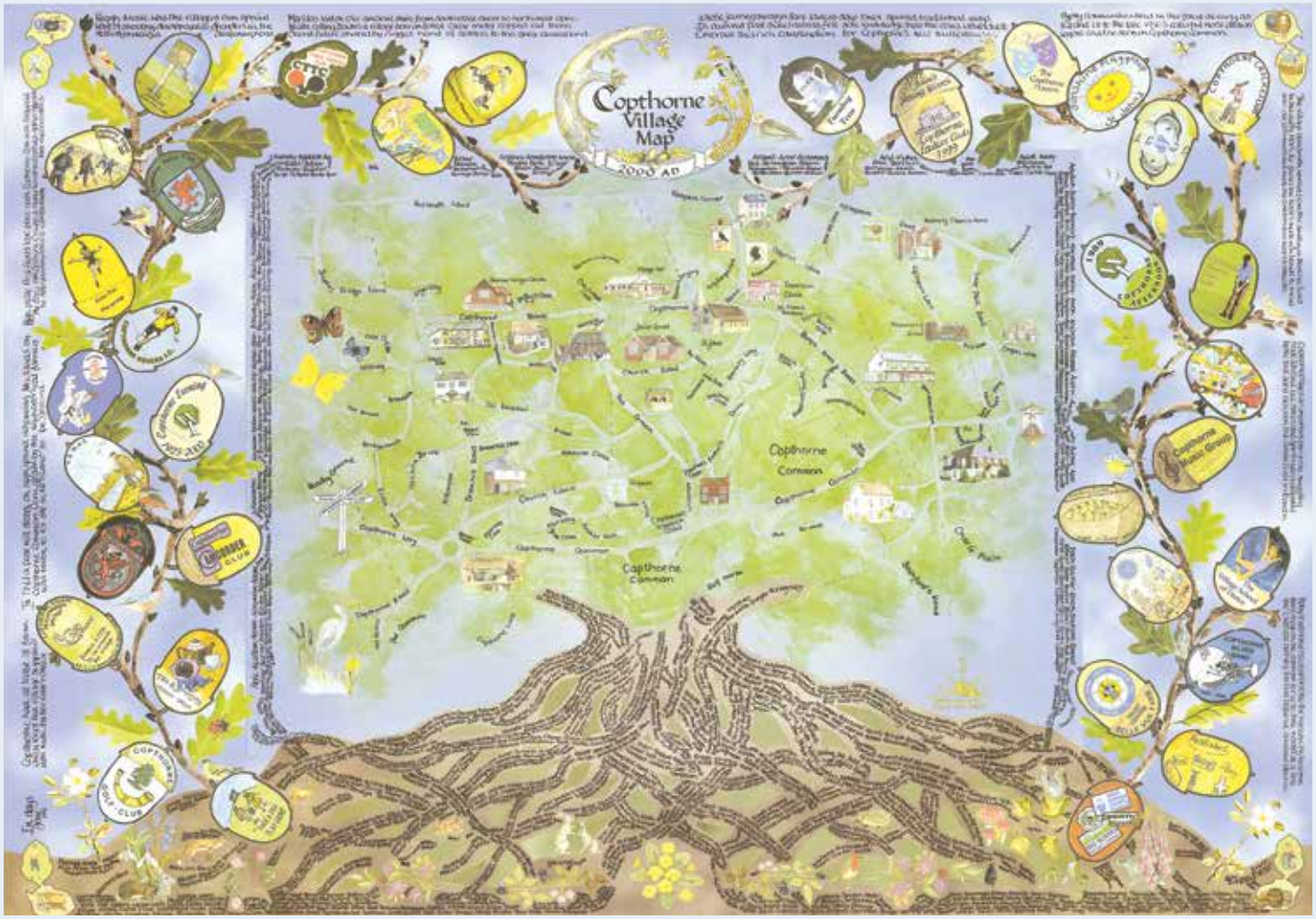
LOCAL IDENTITY

West Sussex is now covered by well over a hundred of these community-made maps, part of a nationwide project initiated by the environmental organisation Common Ground. Since the 1980s it has been encouraging community groups to create maps of their towns and villages as a way of showing what makes a particular place different and special from elsewhere. The map-making process encourages people to consider what it is that gives a place its own special *identity* and *distinctiveness* – two key words in Common Ground's vocabulary – features that can be highlighted on a map.

Local identity is made up of so many diverse elements. There is the unique geographic setting in a place's surroundings and its landscape; the natural environment and the teeming wildlife it supports; the jumble of roads and buildings, historic and modern; the myriad everyday features that make a place a definite 'somewhere' rather than just a bland 'nowhere'. These are key elements that go into these maps.

BELOW:
Turners Hill parish map. Cars, vans and lorries drive their endless nose-to-tail journeys around the border of the map, symbols of their relentless grip on village life.

BELOW:
Copthorne's parish map – a brilliant conception. The tangled winding roots beneath the tree feature the family names of everyone in the village.



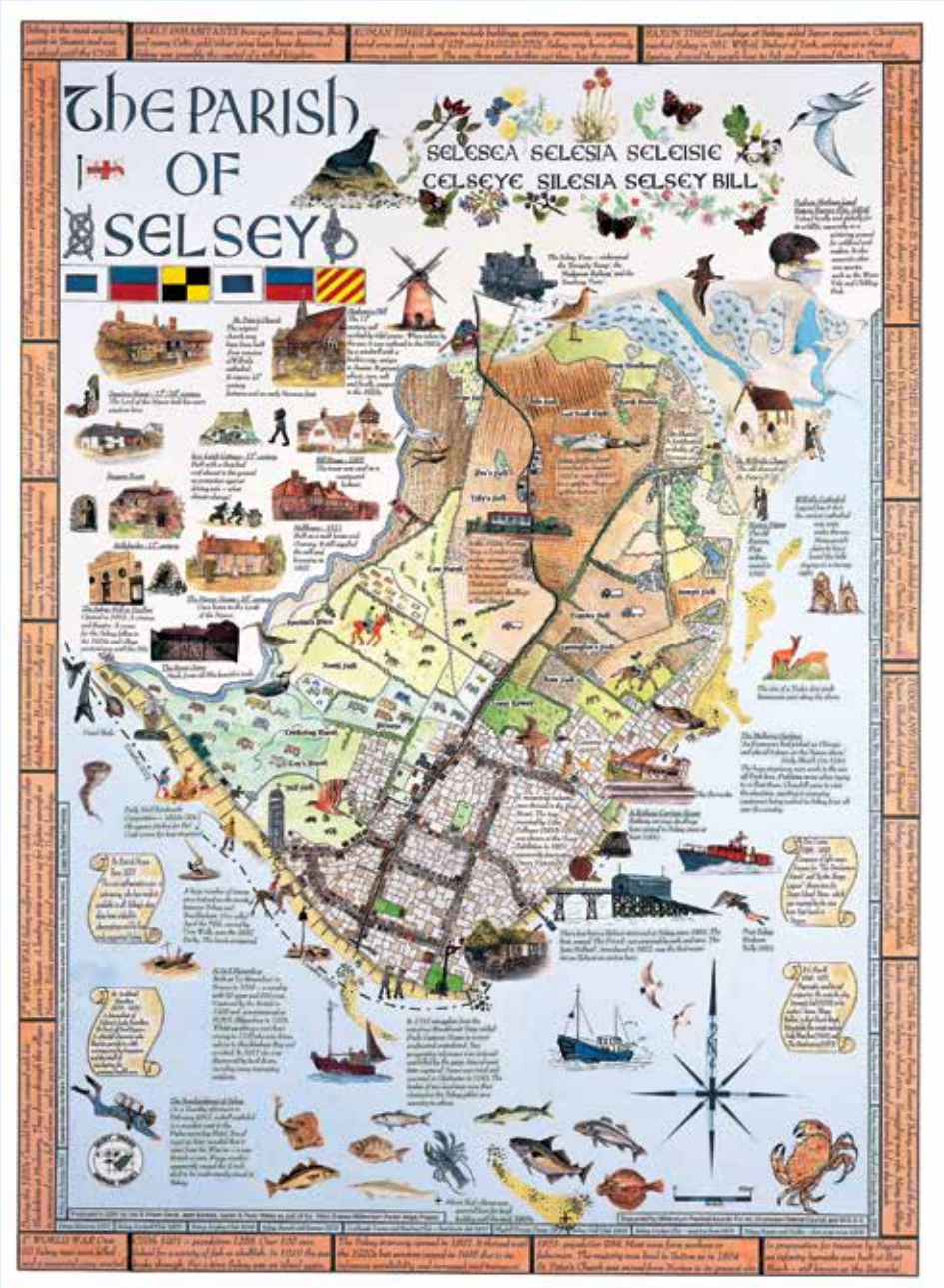
What they clearly affirm is the importance people attach to living in one very special place, a place with distinct boundaries and separation from elsewhere, where ideas of 'local' can be nurtured and flourish. Making these maps raises issues about separation and *difference*, with people becoming much more acutely aware of the forces that challenge the places they love with unsympathetic change, creating a 'xeroxed' landscape where all places look alike, where places become placeless, where the spirits that give a place its soul, its *genius loci*, have fled in a frenzy of bricks and mortar without any regard for local forms and local feelings.

INSIDER KNOWLEDGE

Certainly never before have so many people got together to map the landscape in such personal, human terms. And these are non-professional map-makers, from schoolchildren to those in retirement. Their value is that they know about living in their community, they know about its details and its everyday life, which no outsider can rival.

The area covered by these maps is usually the parish, but it doesn't have to be. The territory may be an ancient ecclesiastical parish or a more recent civil parish, it may even be more localised and concentrate on the centre of a place, perhaps a single neighbourhood, or even just a single street. As Sue Clifford of Common Ground, puts it, the essence is

> '…to focus on locality, the smallest arena in which life is played out. The territory to which you feel loyalty, which has meaning to you, about which you share some knowledge … the neighbourhood of which you have the measure, which in some way helps to shape you… It is in this sense of a well-defined small territory, that Common Ground has offered the word parish, implying people and place together…'



LEFT:
Selsey's past and present is brought together in this colourful community-made map.

HOMELAND MAPS

And thus 'parish maps' has been used generically as a convenient handle for maps covering a wide variety of territory. They are really 'homeland' maps in the sense that they embody not only physical locality but also more personal feelings deriving from familiarity, identification and belonging: where people feel *of* rather than merely *at* a particular place, encapsulating the idea of attachment to an area called home. They thus express some powerful emotions.

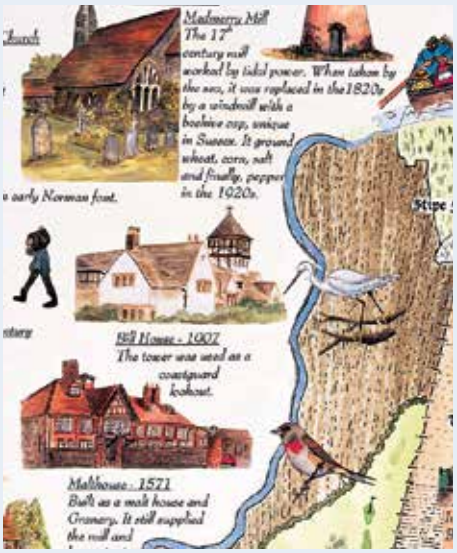
The parish map of Turners Hill was made entirely by primary schoolchildren. Their little village, at the junction of two busy roads, is overrun with traffic and so their pictorial map is totally surrounded by a frieze of cars, vans and lorries, driving their endless nose-to-tail journeys around the perimeter of the map, symbols of their relentless grip on this crossroads village. These young people feel dwarfed by this menace on their doorstep which is why their parish map shows – with some feeling – more wheels than buildings.

Copthorne's map makes a tree a metaphor for the community – the mighty oak symbolising the strength of community spirit, the shape of the tree creating the map itself, the village held in its branches. The tangled roots beneath the tree feature family names, all 1,400 of them, so that just as its roots nurture growth so the people themselves make the community. And as the tree brings forth its fruit as acorns, so these fruits encase the harvest of talent in the form of badges and names of clubs and societies. This is a brilliant conception of community life in pictorial map form, vividly illustrating something of the creativity inspired by this imaginatively powerful community project.

Kim Leslie was formerly Education Officer of West Sussex Record Office and Director of the West Sussex Parish Maps Project.

Recommended reading:
Sue Clifford & Angela King (eds.), *from place to PLACE: maps and Parish Maps* (Common Ground, 1996). ISBN 1-87036-416-3. £10. The basic text on parish mapping.
Kim Leslie, *A Sense of Place: West Sussex Parish Maps* (West Sussex County Council, 2006). ISBN 0-86260-564-4. £35. The only book on a county's mapping project.

BELOW:
Detail from Selsey parish map.



EXCUSE ME, WHERE DOES THE TRAIL START?

Steven Richards-Price describes the different ways in which Forestry Commission Wales have marked their trails.

ABOVE:
Forestry Commission England have combined wayfinding aids in this dramatic waymarker at Beechenhurst, Forest of Dean.

There's nothing more frustrating than having arrived at a site, picked up a leaflet, chosen a walk, then not being able to find where it starts. A visitor experience that started so promisingly has suddenly nose-dived. There are ways of making this easier for people, but as you go further down the levels of 'wayfinding aids' the costs start to mount.

WAYMARKERS

What's the best way to get people to go on a trail and follow it? At the very least, countryside bodies that offer waymarked routes provide some form of waymarker designed to reassure people they are on the correct route and to direct them around it.

Where there is more than one route the usual approach is to colour coordinate them – but avoid calling them by their colours at all costs! We in Forestry Commission Wales (FCW) used to like naming trails after colours. You could arrive at a site and do a red trail, a white trail or even a blue trail. As I like blue I would probably have chosen that one, but does a blue trail give me any clue as to what to expect, or convey a connection to the landscape or a feature I might encounter? Sadly not. Mr Tilden would not be impressed. No 'provoking' the visitor to explore, no 'relating' the trail's special qualities, and not much enticement to allow it to 'reveal' its secrets such as an amazing view, waterfall or archaeological feature.

Some years ago I went on a mission around Wales to rid us of trails named by colour, replacing them with distinctive names that raised anticipation and captured their essence (the 'provoke' bit of Tilden's principles). This anticipation would then hopefully be rewarded by the actual experience (the 'reveal' bit). Thus a 'white trail' at our Arch woodland in Ceredigion became the 'Ancient Beech Trail' relating to the 200-year-old beech trees planted by Wales's foremost forester Thomas Johnes. A 'red trail' became the 'Panorama Trail' – the walk's reward at the top of the hill. Experience not colour!

SIGNS AND PANELS

In order to get people to follow the right waymarkers we provide a trailhead sign at the start of each trail with some basic details on time and distance.

The next level of 'wayfinding aid' is to provide a trailhead orientation panel answering the question – 'is this trail right for me?'

RIGHT:
A simple waymarker.

RIGHT:
This trailhead sculpture reinforces the theme: 'this area was used for shoeing cattle before the long drove over the mountains'. The trailhead sculpture is used as the waymarker symbol for this trail.

This includes a map of the route, route description and level of difficulty involved. On a trail panel we often show an aerial photo or 3D view of the route for landscape appreciation and as an aid to choosing a route – not as a navigational aid. On leaflets we show simplified OS maps, which are a navigational aid, but only for reassurance as the trail is waymarked so no map reading is required. We are hoping to get some evidence-based research done in this area to make sure we are providing the most helpful maps for the purposes intended. The panel should also depict the waymarker and symbol that visitors are being asked to follow, and both the trailhead sign and first waymarker should be within site of the panel.

TRAILHEAD SCULPTURES

For special trails, including ones with interpretive significance, there are more imaginative ways of enticing people on to them. This is where trailhead features can reinforce interpretive themes, as can the name of the trail itself.

We used to have a trail called 'Llwybr Ger y Llyn/Lakeside Walk', but the red kites were the highlight, so we changed the name to Llwybr y Barcud/Barcud Trail. Interpretation along the route tells people that Barcud is the Welsh for red kite. Interpretive artists Creu-ad came up with a suitable design, and Roger Newman produced the kite trailhead sculpture. We then added our trailhead sign, which gives people the basics of the walk. A nearby orientation panel gives full details including a map.

BELOW:
A trailhead sculpture reinforces interpretive theme of red kites brought back from the brink of extinction on the Barcud Trail.

NAMING TRAILS

We in Forestry Commission Wales used to be keen on naming mountain bike trails in honour of their sponsors, rather than the experience the trail provides. At Coed y Brenin, we needed to come up with a new name for the 'Red Bull' trail after the sponsors pulled out. The new start of the trail (the 'trailhead') was at 'Dôlgefeiliau', which means 'field of the smithies'. Originally, a smithy put shoes on cattle before drovers took them on the journey across the mountains to market in England. This historical link meant we could still use what had been a coincidental bull reference with authority, so we renamed it the 'Tarw' trail – 'Tarw' being the Welsh for bull. To signal the start of the routes we engaged Creu-ad to design a fitting sculptural trailhead – copper bull's horns made by Gideon Petersen. Copper was mined locally – another 'sense of place' link. So, to get visitors onto your trail, name it with something distinctive that provokes the visitor, raises anticipation and captures its essence, and reinforce the name with an interpretive trailhead feature. And don't forget the key 'wayfinding aids' – waymarkers, trailhead sign, and orientation panel!

Steven Richards-Price is Visitor Experience Manager, Recreation Team, Forestry Commission Wales

MAPPING GHENT

A team from Ghent explain how STAM, a new museum in Ghent, Belgium, uses multimedia maps to engage visitors.

On 9 October 2010 STAM, the new Ghent city museum, was opened to the public. When ideas for the permanent display were taking form, the exhibition designers (Tijdsbeeld & Pièce Montée) together with the STAM team made some decisive choices. First of all, they opted to have the present-day city as the main starting point. The story of Ghent is presented chronologically, under the strap-line 'from the present to the past and back again'. Wherever possible, this overview is illustrated with authentic objects, documents, paintings, manuscripts, relics and illustrations. It was also decided to include several interactive multimedia applications. By introducing user-friendly applications in the exhibition rooms, STAM wants to actively involve visitors in the story of the city. STAM aims to be a dynamic city museum, that inspires fascination for Ghent and for cities worldwide.

GETTING ACQUAINTED WITH GHENT

Visitors begin by getting acquainted with the present-day city. The floor of the introductory area is covered with a gigantic aerial photograph of the entire conurbation, including all the suburbs and the port area. Made on a scale of 1/1000, the photo is lit from below. It is extraordinarily clear, which means that streets, squares, monuments, factories, parks, even individual houses, can be easily identified. At the centre of the photograph is a scale model of the historical centre. A short film that cleverly mixes images of the past and the present completes the introduction.

The floor photograph is a real eye-catcher. Visitors who live in Ghent immediately get down on their knees and start looking for their house. Other visitors, who used to live in the city or know it a little, look for buildings and neighbourhoods they remember. Even those who are not familiar with the city are intrigued and try to identify landmarks they have heard of.

MAPPING CHANGES

In the introductory area, visitors also see the multimedia presentation 'Views of Ghent'. This project focuses on two panoramic views of Ghent dating from 1534 and 1641, a map dating from 1912 and the present-day aerial photograph. The views, map and photograph have been digitised and are made accessible through a user-friendly multimedia application. A few mouse clicks suffice to identify streets, buildings, parks etc. A short text gives more information about the chosen location, chronologically ordered images show how this location changed over time. In all, over 3,500 locations have been identified and described. However, cities change constantly so this application is open-ended. Whenever a street, a square, a building or a monument is given a new purpose or is altered significantly, the text and the images can be edited.

In order to visualise the locations and changes they went through, STAM has made use of the huge iconographic collections of the Ghent heritage institutions: paintings, sketches maps, photographs, and leaflets. Through 'Views of Ghent', visitors become acquainted with the richness and the variety of these collections, preserved at various museums, libraries and archives in Ghent. Finally, the application looks at the city and the city's history from the

BELOW:
The aerial photograph of the Ghent conurbation in the introductory area.

© Phile Deprez

© Philip Dadzard

RIGHT:
The multimedia application 'Views of Ghent' displaying the city map of 1641 focussing on the Friar Minors Monastery, today the location of the Palace of Justice.

inhabitants' point of view. If possible, we have chosen pictures that show how the inhabitants lived, where they worked, what their living conditions were and how they spent their leisure time.

OLD GHENT

The project 'Views of Ghent' connects the different rooms of the permanent circuit. In the introductory area, visitors discover the four stills. In the room where the medieval city is presented, the painting 'Panoramic View of Ghent' from 1534 draws special attention. With a population of over 60,000 inhabitants in 1358 – 59, Ghent was the largest city in north west Europe after Paris. A high number of streets and squares in the centre can still easily be identified in the picture. After the Ghent revolt of 1539 – 40, emperor Charles V settled scores with his rebellious birthplace. The larger part of St Bavo's Abbey and the surrounding village were torn down and replaced by a fortress known as the Spaniards' Castle, whose cannons were aimed at the heart of Ghent.

In the next room, the map of 1641 shows Ghent in the 17th century. The revolt against Spain and the religious troubles of the years 1560 – 84 had taken a heavy toll. By the end of the 16th century, Ghent had less than 30,000 inhabitants. What stands out on this map is the triangular shape of the city. It is no longer 'open' but has taken refuge within its own walls, whose vulnerable places were strengthened with bulwarks and bastions. The military fortress built by Charles V had been integrated into the city walls. But the city within the walls, with its medieval street pattern and open spaces, was largely unchanged.

A MODERN INDUSTRIALISED CITY

From 1641 to 1912 is a huge leap in time. In 1912 Ghent had become a modern industrialised city, which was often nicknamed the 'Manchester of the continent'. The population grew spectacularly from 55,000 in 1800 to 106,000 in 1855 and 166,000 in 1910. After the abolition of the urban custom duties in 1860, the city walls and gates, which had lost their protective function a long time before, now also lost their economic function. Their demolition gave way to the construction of a ring road and facilitated the city's further expansion into the suburbs and some adjacent municipalities. The map shows clearly how the industrialisation and the population increase dramatically transformed Ghent. The medieval city had become a modern industrial city with factories and slums but also with three railway stations, a university, a number of schools and basic public utilities. Large workers' neighbourhoods sprang up around the city centre. The harbour area takes up a large section of the map, with the initial section of the 19th century Ghent-Terneuzen Canal and the industrial activity alongside it.

The room that focuses on the period after the Second World War, is set up as a lounge, where visitors can actively choose what film footage they wish to see. Two multi-touch tables contain short film fragments about Ghent. The visitors can watch and choose fragments of their own choice: the Liberation in September 1944, the Peace Parade in March 1945, the Joyous Entry of King Baudouin in 1952, the student protests against a higher university admission fee in the academic year 1978 – 79, the construction of the first underground parking lot on the Vrijdagmarkt in 1982, several sports spectacles, and so on. In this way, they compose their own film, which can be projected on a big screen.

THE FUTURE

Finally, in the last room, STAM wants to give visitors a preview of the future of Ghent. Together with the city's Department for Spatial Planning and Development, new projects are presented to the public. Certain projects are already in full swing, others are still in the planning stage. At the opening of STAM, the focus was on the project at the Old Docks. Over the coming years, the huge former docklands area, only a 15-minute walk away from the city centre, will be turned into a new residential area. Water will still be the dominant feature: new living accommodation will be built overlooking the water, while both sides of the docks will be connected by new bridges for pedestrians and bikers. Another multi-touch table allows visitors to explore the Global Urban Plan for Ghent and to find out all about the City's strategic and operational plans regarding housing, jobs, mobility and the environment.

Maria De Waele, Lars De Jaegher, Wout De Vuyst, Véronique Van Goethem, STAM Ghent City Museum; Guy Dupont, heritage expert for the EU funded PORTICO-project, City of Ghent, Department of Strategy and Coordination.

PORTICO

STAM
Ghent City Museum

SENSING THE WAY

Stuart Spurling describes sensory mapping as a technique for analysing and enhancing visitor experiences.

"As I squelch along the wide paths in Kings Wood I am waiting for a mounted Tudor nobleman to come thundering through trailed by hounds in pursuit of a not too distant deer. As my boots pull in the mud I cannot see any houses, hear any planes nor smell any cars. The quiet is broken by cawing crows and my own sucking bootsteps. My sight is crowded by age-old trees in every direction and leaves lie rotting on the grounds giving off a deeply familiar, cold and comforting smell. In my mind that dog barking on its post-lunch walk becomes a hunting hound and the wind carries the smoke from a manor house fire. In the moment these woods look, smell, sound and feel positively medieval."

SMELLS, SOUNDS AND TOUCH

These are some of the sensory experiences that build my attachment to Kings Wood, the smells, the sounds, the feel of the ground underfoot. Experiences such as these are the key to anyone's emotional response to a place, and they build our connection to our natural and historic environments. These are the experiences that we want to explore, share and, to a certain extent, exploit and are at the heart of the work of the Sensory Trust.

MAPPING THE SENSES

Sensory mapping is a simple, flexible technique that identifies sensory highlights with a view to creating inclusive and engaging visitor experiences. It essentially consists of individuals or small groups exploring a location and mapping where they encounter particularly strong sensory stimuli, including, but not limited to, sights, sounds, smells, textures and tastes. Mapping can also make note of other things people experience in response to these sensory experiences, such as emotions, feelings and memories.

The Sensory Trust has always explored the experiences of visitors of all abilities. We look beyond physical access and advise how engaging the senses is a fantastic way to create a more inclusive as well as a more engaging visitor experience. We often talk about accessibility being about achieving an equality of experience; ensuring that the features, facilities, stories and qualities that create the sense of a place are available to all visitors and give everyone the same opportunity to experience and connect with an environment. It is how sensory experiences and emotional responses create an experience, how they influence people's connection to a place or a story and how they create lasting memories that is so fascinating. As Malnar and Vodvarka explain in *Sensory Design*[1], 'It is sensation – mediated by experience and culture – that shapes our responses to spaces.'

ENGAGING THE SENSES

There is a well-established link between sensory engagement and learning with much known about different styles of learning and the effectiveness of multi-sensory techniques in education. A common response to this is to simply deliver the same information to a different sense, to use an audioguide instead of an interpretation board for example. However, there is also evidence of the effect that emotional connection and engagement have on learning, which would suggest a value in a more creative, emotionally engaging approach. *'Emotion appears to increase the salience of information much like a highlighter increases the salience of text. In short, emotion makes memory better'*. [2]

Mapping sensory highlights and low points combined with exploring the associations, memories and emotions people experience will help you to understand your site and where and how it connects emotionally with your visitors – how it makes them feel during their visit and what they remember after they return home. Understanding your site in this way will supply you with a new collection of features, qualities and experiences to draw on in your work.

ABOVE:
A plan for access improvements or the beginnings of a sensory trail.

1. *Sensory Design*, University of Minnesota Press, 2004
2. *Social Cognition*, Levine, L. and Pizarro, D. (2004) Emotion and memory research: a grumpy overview. Social Cognition Vol. 22, no. 5: 530-55)

While it is possible to map on your own the best results often come when people who are not intimately familiar with a place are invited to explore and discover. Staff and volunteers should always take part – it's a great way to experience somewhere they think they know so well and at the same time share in other people's experiences. We have mapped with farmers, adults with learning disabilities, children with sensory impairments, conference delegates, park rangers, as well as staff and volunteers from organisations and sites as diverse as Forestry Commission and the Eden Project. A consistent piece of feedback is how effective sensory mapping is at encouraging people to 'see' their site in new ways and from that to identify new opportunities they hadn't previously considered.

GETTING IN THE MOOD

It is worth taking time to get mappers in the mood. Taking people to a location that is particularly sensory-rich, using props or a sensory warm-up exercise can get people to focus on their senses. We sometimes invite people to think about their favourite, sight, sound, taste, texture and smell from nature and, if comfortable, share these memories and associations. The idea is to avoid trying to map too large an area at any one time – it is important for people to take their time and not rush. Mapping can be focused, on textures or sounds for example, or concentrated on certain areas or specific environments. Focus groups can explore the experiences of different user groups, such as people with sensory impairments or families with children with complex needs.

BELOW:
Sensory mapping makes for a great community day out for people of all abilities.

Recording the results can be done in any number of ways – on individual or group maps, with sticky dots and stars or by planting flags on site. As the sensory highlights will change with the seasons and the weather, it is useful if time permits to repeat the mapping at different times of the year.

USING THE SENSES

So now you have a map of all of the smells that attracted or repulsed people, the sounds that intrigued or distracted, the sights that demanded a closer look, the textures they wanted to take home in their pockets and if they were brave enough the tastes they savoured or suffered. You might also have found out where brought back memories of hiding in trees or discovered where they felt calm and relaxed or uncomfortable and unnerved. What can you do with all that?

A traditional response would be to develop a sensory trail; however we have used sensory mapping to plan routes and trails, to prioritise access improvements, to develop content for promotional material, to plan seating, shelter and information provision. If a particular area is shown to be a hive of sensory activity it is obviously somewhere to encourage people to spend time and an opportunity exists to connect them and their sensory experiences in that spot to the heritage that surrounds them.

BELOW:
Sensory mapping can reawaken a sense of wonder in people so used to a place they have forgotten what makes it so special.

How much – or more likely how little – do their sensory experiences differ from those of the generations that lived, worked and played in that place? What stories can be told that make use of the smell of rotting leaves, the creak of a floorboard or the gloom of the half light? As well as hotspots you may also discover areas where there was nothing to grab their interest. They might even be areas with significant heritage interest. Here the objective is to explore ways to add sensory interest. What could you do to hold their interest and stir their imagination?

Sensory mapping is a proven technique we continue to develop and evolve with professionals, staff and volunteers in a range of environments and settings. It has been shown to reawaken a sense of wonder in people so used to a place they had forgotten what makes it so special. At the same time it consistently offers visitors of all abilities the opportunity to discover new things. Ultimately, engaging the senses can change the way people explore and connect with their surroundings and its stories.

Stuart Spurling is Assistant Director of the Sensory Trust

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