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Generating a new sense of place in the age of the metaview

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Photography has always played an important role in forming our sense of place. Individual photographs have been crucial in establishing the significance of special places in Australian culture. Now, however, the digital revolution and the online revolution have opened up new possibilities for creating expanded photographic views of Australian places from archival photographs and uploaded personal photographs. These go beyond the conventional single frame into what we call a “metaview”, a coherent view made up of multiple online images. How is this emerging form, hosted by libraries, museums and major websites, affecting the formation of a sense of place in Australia?

Keywords: place; photography; Australia; metadata; internet

Introduction

In the period since its invention, photography has become one of the main means through which we create and maintain our sense of place. Photography has grounded our human evocations of a site's cultural, historical or natural significance to its actual physical location. As Joan M. Schwartz and James R. Ryan put it:

Photographs shape our perceptions of place ... photographic practices—from tourist photography to domestic photography—play a central role in constituting and sustaining both individual and collective notions of landscape and identity. Moreover, photography has long played a central role in giving such social imagery solid purchase as part of the ‘real’.¹

The photograph's reality effect, its indexical connection to its referent, firmly grounds the cultural and historical constructions of the landscape photographer to the geographical specifics of the site they photograph.² For many of us it is our prior understanding of a site's significance through seeing photographs of it that we feel to be so strongly confirmed by our own eventual experience of physically being there. For instance we understand the significance of the Tasmanian wilderness through all the photographs of it by Peter Dombrovskis and Olegas Truchanas. And we process our experience of the sheer physical presence of Uluru through all the thousands of photographs of it we have seen.

Within contemporary visual culture, photographs do most of the work in endowing sites with significance and meaning. If photographs have been turning spaces into places for such a long time, what can be said about that process now after two revolutions, the first being the digitisation of film-based imaging in the 1990s,

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and the second being the explosion of online uploading, archiving, access and distribution of photographs on the Web in the 2000s? How have these revolutions affected the framing, sharing and experiencing of places? The materiality of the frame and print is being replaced by the computer monitor screen and its access to abundant but transient images, and with it the unique authority the single photograph once had to create our sense of what is socially, culturally or environmentally important in a particular place is losing ground to various uses of online databases. This is also drawing the general public, established collecting institutions such as libraries, and new on-line applications such as Google Earth into closer relationships. We contend that these new relationships have the potential to change the ground rules for artists, photographers and institutions within the politics of place, landscape and environment in Australia.

The frame

With the invention of photography the convention of the wooden frame around a painting, which had been developing in the West for a thousand years, became technologised and internalised into the camera itself, first into the glass-plate holder, and then into the viewfinder which punched a rectangular “picture” out of the circular image thrown by the lens. Before photography, frames were wooden artefacts that separated the art from the architecture in order to, in Immanuel Kant’s words, “stimulate representation by their charm, as they excite and sustain the attention directed to the object itself”.³ With the advent of photography, however, framing became a more instrumental act that concentrated and directed the eye of the viewer. In the case of landscape photography this framing act incorporated the conventions already developed in landscape painting. The succeeding planes of mountains and hills, the compositional vectors of valley and rill, led the viewer’s eye into the virtual space of the picture. Many subsequent critiques of European imperialism have also seen this act of scopic framing and penetration as emblematic of the commandeering and domination of the land itself.⁴

In the case of stereo views, the narrativisation of the enframed space seemed to virtually jolt the viewer out of their chair and phenomenologically draw them into the 3D illusion of the picture. As the essayist Oliver Wendell Holmes enthused to his readers in 1859:

The first effect of looking at a good photograph through the stereoscope is a surprise such as no painting has ever produced. The mind feels its way into the very depths of the picture. The scraggy branches of a tree in the foreground run out as if they would scratch our eyes out.⁵

Photography brought to the forefront the frame’s capacity not only for gathering up, concentrating and organising the viewer’s attention, but also for cutting what was inside the frame off from the reality that continued to extend beyond it. By the mid-twentieth century to compose was also to crop. As John Szarkowski remarked in 1966: “The Photographer looked at the world as though it was a scroll painting, unrolled from hand to hand, exhibiting an infinite number of croppings—of compositions—as the frame moved onward”.⁶ Szarkowski’s conventional art-historical analogy is certainly well chosen as a means of acknowledging photography’s close historical

relationship to both Western and Oriental painting traditions, but it misses the full agility of the camera as the photographer swooped the camera up and down and zoomed in and out. The slicing edge of the photograph added a graphic intensity to the spatial drama of the view, boxing spaces up with shapes that were amputated and truncated by the frame. Frames were particularly good at giving monuments and landmarks a graphic iconicity. For instance the conventional postcard framing of Uluru sitting on the horizon has a flag-like recognisability.

Metadata

Photographs have never been just impartial scientific documents of reality: they have always also been individual cultural expressions open to subjective interpretation. Nor were they ever just isolated material artefacts: they have always also been embedded in larger mediating mechanisms of storage and communication. However the complex interplay of media and materiality, always absolutely intrinsic to photographic theory, is now gaining a new significance as the putative “materiality” of the photograph dissolves into the virtual at an increasing rate, and as the speed and the number of photographs circulating in cyberspace accelerates. Photographs are being transformed by the new materiality of computers and networks from “things” to a mediated experience that still evokes the material legacy of the photograph but changes the relationship between the viewer and, for example, a place. There are more photographs, they are more accessible, and there is more information—metadata—easily available to navigate them.

As streaming data replaces the material print as the dominant form of image communication, new social relations linking previously isolated individuals and groups with new dynamics between them emerge. These new relationships allow the communication of perspectives on place that were previously impossible: place is now defined by individuals using social networks rather than professional photographers, curators and publishers.

From the beginning of photography, photographs were packaged into albums to be circulated, or reproduced in books to be published. The digital revolution and the rise of the internet exponentially accelerated this process. Almost five billion images have been uploaded to the photo-sharing site Flickr since it began in 2004.⁷ Over two billion photos go up onto Facebook each month.⁸ The central object of the medium, the photograph as artefact—be it daguerreotype, stereograph, print or book—is disappearing under the weight of the simplicity, accessibility and reach of the new, digital form. New possibilities opened up by the online digital environment have changed the way images communicate and audiences are moving to new virtual environments to experience images. New methods of finding, sorting and viewing images are being developed. Ease of access to these images is creating new technological opportunities to assemble and present transient collections of related images. Such collections can be easily shared so others can experience them, or in their turn actively reorder, expand or limit the images, how they see them, and what meaning they derive from them.

Although algorithmic recognition software, such as face recognition software, is beginning to be developed to search for images by directly matching the features in the images themselves (colour, faces, shapes and so on), the most common way of locating images on the internet remains simple text searches.⁹ To find an image

Figure 1. Panoramio layer on Google Earth showing the presence of geotagged images along the Champs-Élysée.

through a text search, the text a user seeks to match with a photograph must have somehow been previously associated with the image in a way that makes sense to a search engine. Typically, the title of the photograph, its description or text surrounding an image embedded in a web page is used to make the match with search terms. This associated text is metadata: data (text descriptions) about data (the image) that makes access to the image possible through text-based searches. There are other sorts of metadata as well, for example, librarians catalogue photographs with a range of descriptors, while whenever a picture is taken digital cameras automatically save data about such things as the shutter speed, aperture, camera type, lens type, the date and time, and sometimes the location where the exposure was made.

Search engines can use this extended metadata to aid user searches. Specialist sites like Trove, produced by the National Library of Australia (NLA), allow users to search catalogue data to find items that interest them in the collections not only of the NLA itself, but also other institutions across Australia and even beyond: books, newspapers, journals, maps, music, oral history, paintings, photographs and more besides.¹⁰ Items are indexed by Trove to help searchers find items on Australia and Australians. Trove is a portal or metasearch engine, providing access to items using data provided by a range of sources, many of which are external to the National Library and out of its control.

Flickr uses a similar approach in its Commons Project.¹¹ Flickr Commons exposes the photography collections of a number of large institutions, including the Australian War Memorial, State Library of New South Wales and Sydney's Powerhouse Museum. In a process known as crowdsourcing, Flickr encourages its community of users to add their own tags and comments about the photographs they see in the Commons. The tags and comments become part of the public data associated with the photographs, discoverable through searches by other users.

Figure 2. World Heat Map: <http://www.cs.cornell.edu/~crandall/photomap/>, used with permission.

Another type of metadata that can be attached to items like photographs is the location where the photograph was created. With digital photographs, this information can be embedded electronically in the image file itself, along with other standard metadata like the date and time the photograph was taken, any keywords associated with the image, copyright information and so on. As the digital photograph is shared across the internet, so too is the embedded metadata. Digital photographs with location data embedded in them are said to be “geotagged”.

When the Panoramio layer is turned on in Google Earth, small icons, or the images themselves, appear on the surface where geotagged photographs were taken. Clicking the icons or images displays the photograph. Icons also appear for other geotagged photographs that were taken nearby, and can be similarly displayed.

As more and more photographs have location metadata attached, it becomes easier to find different views of a place, or even the same view but taken at different times. Currently about eight million geotagged photographs are uploaded to Flickr every month.¹² These pictures can be searched and reconfigured to create other pictures, for instance in 2009 over 35 million geocoded photographs were harvested from Flickr to create a “heat map” of the world showing where the photographs had been taken.¹³

Metaviews

What is emerging is the possibility of software applications within online environments creating an enhanced sense of a place by using the increasing numbers of photographs available of a particular location. The more photographs there are of a place, the greater the possibility of capturing the events, the structures, and the beauty of the place that provides meaning and defines it as something worth experiencing. Potentially, an even richer sense of place can be further created as associative hyperlinks and comments added by users network different images together.

Before digital photography, snapshot photographs circulated in different spheres to official photographs, and historic photographs were kept in different collections to contemporary photographs, but now they are all just a hyperlink from each other. Different images of the same place taken at different times can help us build up a more complete “picture” of the activities and events that happened there, giving us a new sense of the place that would be impossible to extract from any one image. Traditionally, different photos were looked at individually, on the wall of a gallery, in the pages of an album or book, within a pile of holiday prints back from the chemist, or at a slideshow on a Saturday night. Just as the Renaissance picture frame was remediated into the camera, these old forms of viewing have been remediated into the internet, with its document, page, slide-show and album metaphors. But computers are also capable of generating previously impossible forms of display on the screen or as prints: using software, similar images can be combined, stitched together in panoramas, used to create high dynamic range tone-mapped images, or laid out in an illusion of three-dimensional space so that viewers can navigate through them almost at random.

Through the use of these online technologies viewers now have the opportunity to experience extended views of landscapes that grow beyond the rectangular frames of cameras. These views can be called “metaviews” for several reasons. Firstly because they are not framed by a rectangular boundary cropping a composed scene out of an infinitely extensive reality, rather they are “enframed” by search terms applied to the metadata attached to each picture in an online archive. This sifting of the metadata may gather together pictures that share a common locality established by proximate GPS co-ordinates for instance, or a similar compass direction, or a similar time of the year, or the same key word in the caption. The viewer’s eye composes a sense of a view by travelling through a sequence of photographs that erase the frame. Just as the eye was led through traditional landscapes, or the viewer apparently entered the very depths of the stereographic view, in the metaview the user navigates through a contiguous collection of images.

The experience of the view they get is therefore a second order view, a metaview in a second sense because it is constructed from first order components—photographs. It is not, however, a slide show or a cinematic or paginated sequence because it is not a deliberately authored enunciation, rather it is a technological enframing which in and of itself “excites and sustains” the user’s attention which is directed to the metaview. These enframed views are “meta” in a third sense because they become a virtual place within the space of the web, a place that, often, users can navigate themselves. They are another “site” on top of the website the viewer is using. As William J. Mitchell has noted, increasingly “the places we frequent have IP addresses as well as geographic coordinates”.¹⁴

Computer software allows individual photographs to be stitched together, extending the frame by creating panoramas, or gigapixel images,¹⁵ where the viewer can pull back to see the whole scene or zoom in to any part for fine detail. High Dynamic Range (HDR) images are created using computer software by combining several photographs of the same scene taken with difference exposures, to bring out details in the shadows and the highlighted areas that normally would not be able to be distinguished with a single exposure using film or digital photography. QuickTime VR images¹⁶ are spherical images that can be viewed in a web browser. They can show a full 360 degree view of an object or space, allowing the viewer to choose the

perspective from which they want to see the scene. Google's free SketchUp software¹⁷ is a 3D modelling application that allows users to skin their 3D models with actual photographic images, providing the viewer with more angles to view the subject of the model than would normally be possible using individual images.¹⁸ Microsoft's Photosynth¹⁹ and AutoDesk's Photo Scene²⁰ place photographs taken of the same subject or scene from different perspectives in a three-dimensional space and provide the viewer with tools to navigate through the scene on the computer screen.

Currently, most metaviews are created from the collection of a single photographer, although there are some examples where online communities contribute images of a particular place or event, and the metapicture is created from the contributions of many people.²¹ Unlike the traditional "decisive" moment, these metaviews have the potential to span time, from microseconds to more than a century, giving viewers insights, for example, into the impact of human activity on the environment; insights that would be harder or impossible to achieve with individual photographs. Different points of view may reveal information hidden in the single framed photograph. In his article *Walls of Light – Immaterial Architecture*, Scott McQuire refers to "cumulative knowledge established by the series or set".²² Collections of images related by time and place add a dynamic dimension to the individual photograph, transcending the original frame and allowing us to peer outside it into space the original photographer was unable or unwilling to let us see, giving us a wider perspective and greater insights than would otherwise be possible. Multiple perspectives on the same place or event may provide viewers greater opportunities to be witnesses rather than consumers of packaged stories, allowing them the sense that they are informing themselves and making up their own minds.

A sense of place

If individual photographs of somewhere give us evidence of what happened or exists there, then many photographs, say of different events at that location or of the location through time, might provide more of the resonance that turns space into place. Previously, with some exceptions, the default approach of the landscape photographer was to seek to encapsulate the significance of a view in a single frame. A paradigmatic example in Australia is Peter Dombrovskis' picture of *Rock Island Bend* on the Franklin River, reproduced in full-page colour in Australia's newspapers on election eve 1983 with the slogan "Could you vote for a party that would destroy this?", it was arguably responsible for electing Bob Hawke's Labor government.²³ Other significant parts of Australia, such as Uluru, have become widely experienced through their amenability to iconic, graphic iconicity.

"The Moment", a combination of 200 images created by CNN photographers and 400 images "crowdsourced" from user-contributed photographs, all taken at the moment of the inauguration of President Obama, shows how different perspectives of, in this case, an historical event, can be combined together on a scale that would have been impossible without digital cameras and the internet.²⁴ The resulting metaview, a photosynth that users can experience over the internet, provides a new experience of the event that even people at the actual event could not have had.

The metaview is now available to be used to contribute to the material experience of more places, perhaps those not so immediately amenable to spectacular encapsulation.

The first signs of this movement are beginning to appear in Australia. For example, Picture Australia which was an NLA service that allowed users to search the pictorial collections of many of Australia's collecting institutions.²⁵ Individuals could also contribute photographs to the Picture Australia pool using Flickr: simply by joining a Picture Australia Flickr group, tagging their photos and contributing them to the group, those user-contributed photographs on Flickr with metadata matching a user's search criteria would be returned to other users searching Picture Australia. The NLA also uses the Flickr groups to identify contemporary images that may be added to its own collections. With the sheer deluge of images becoming available on the internet, the utilisation of Flickr contributors' own efforts to tag and nominate photographs that fit the Picture Australia criteria gave the NLA a mechanism to cope with the flood.

A recent project with the Kosciuszko Huts Association (KHA) is an example of how the NLA has been able to harness the power of the internet to augment its limited resources for accessioning images. The NLA had previously accepted over 2,000 photographs, negatives, and slides contributed by KHA members, but the Library was not in a position to accession further photographs. Keen that all these additional images not be lost to the community, the Library suggested to the KHA that its members upload the images to Flickr and contribute them to the Picture Australia "Ourtown" Flickr group. While the number of photographs actually shared by the KHA on the group remained relatively small, projects such as this nonetheless indicate the potential for groups with their own idiosyncratic histories and private collections to form larger searchable archives.

On July 23, 2010, at Whites River Hut in the High Country, a skier threw spirits into a pot-bellied stove to light it, not knowing that there were still glowing embers there. The resulting fire quickly took hold inside the hut, but a party of passing skiers extinguished it before the hut was completely destroyed.²⁶ The KHA sent out a call to its members to contribute photographs of the hut taken before the fire to its photography website so that a 3D model of the hut, outside and in, could be developed using Google's SketchUp application, and plans drawn up to repair the damage. While not quite as spectacular as "The Moment", the metaview afforded by the 3D model allows the viewer to experience something that has been lost, to get a sense of the place as it was, in this case before a destructive event. The purpose is not only to help give viewers an appreciation of the value of the structure in its environment, but to provide the information necessary to support a reconstruction project.²⁷

In this case, despite several years of effort before the fire to collect them online, a sufficient number of photographs of the hut were not immediately available to create the 3D model, but a call-to-action among KHA members immediately after the fire saw sufficient photographs for the 3D model to be contributed to the KHA photo website. Had the photographs scattered across the internet in, for example, KHA members' Flickr accounts, on Panoramio or in the online collections of cultural institutions, contained location metadata, the call-to-action may not have been required. The collection of the images for the construction of the 3D model of Whites River Hut is an early example in Australia of how the metaview can contribute to our sense of place, in this case to reconstruct what may have been lost.

Finding geotagged photographs easily remains difficult. A Google Image Search for Whites River Hut returns 1.35 million results but, in fact, few of the images are

Figure 3. Whites River Hut, Kosciuszko National Park, February 2010. Photo: James Steele.

relevant. If, for instance, these images were geotagged, it could be possible to search just for images within the immediate vicinity of the hut, and building the metaview would have been a much easier project.

It is clear from examples such as these that the technology to search images by location, essential to the creation of a metaview of a particular place, is still nascent. For instance a name-based search for a location on Trove returns not only photographs, but a range of other sources including books, journals, magazine and newspaper articles, oral history recordings and maps, not all of which may relate to the particular location under investigation. What does not yet exist is an effective search engine for images from across the internet that returns results based on the unique location where the image was captured. Online photo collections services Flickr, Panoramio²⁸ and Picasa have map-based interfaces to their own collections that allow visitors to browse for photographs taken in particular locations, but as yet there is no over-arching search engine that would return all the photographs from a particular location across all three services and the rest of the internet at once. Limiting the results of a Google Image Search by location would be an important

feature, but it requires the images to have the necessary and accurate metadata encoded along with the image; an ability for the search engine that located and interpreted the image file to understand the embedded location data; and an interface to allow the user to limit their search to a particular location, or to have the results grouped by location if the searcher was unsure of where the place they were searching for actually was.

Navigating metaviews

Building new means of navigating the found set of co-located images is also a challenge. Microsoft's Photosynth provides a better experience of a place than the scattered icons and picons of Google Earth's Panoramio layer. However, the experience is still one of moving between the flat, framed rectangles of the original photographs that have been digitally stitched together into the synthetic view. In one sense this effect is a salutary, but constant, reminder for the user of the origins of the view as disparate photographs. However, a more seamless, immersive, and perhaps visually exhilarating experience of a place could also be generated by creating real-world environments in 3D with photographs harvested from the internet.

In any case crowdsourced metaviews, as they become more accessible in the future, potentially offer a much richer experience of the place, drawing on different points of view of different visitors at different times. These representations may provide resonances that enrich the viewer's experience of a place beyond the framed, well-executed, single image. Even now, experiencing Uluru via Google Earth allows a far more complex and complicated interaction for the casual viewer than that

Figure 4. Uluru on Panoramio (see Note 28).

available through the iconic but flat picture postcards or Australian picture books. There is the potential through this sense of “virtual fly-through” to provide the user with an exhilarating sense of access to significant places that is a more materially based experience than the iconic image can ever provide. It may even replace the commanding monocular imperial gaze with one that is more engaged and enmeshed in the place.

However, long established landscape conventions still largely define the approaches taken to photography within these applications: iconic views of iconic places still dominate Google Earth’s metaviews. Maps of the distribution and concentration of photographs on Google Earth demonstrate that the Opera House, Bondi Beach and so on are all places where the crowd still gathers to take their own photographs, just as the professionals have stood there before them to make their postcards. However, metaviews which incorporate additional images taken from different perspectives, at different times of the day, showing fleeting visitors or transient events offer at least the possibility of an enriched understanding of these already famous places. Other places, for instance those obscured by difficult terrain, property laws, prohibitive cultural taboos, restrictive licensing regimes and so on may also become accessible through metaviews when enough sufficiently tagged images become available.

The spread of digital cameras to the masses and the wider availability of broadband internet access through price drops and technology advances put powerful tools in the hands of less experienced and less skilled users. Some try to emulate the images of their experience; others use the opportunities of cheap imaging and powerful tools to experiment with new ways of representing the world around them. Determined by conventions, teaching and experience, representation is part of visual culture. When deciding what to photograph and how to compose the shot, photographers will be guided by what they consciously or unconsciously believe is a “good” representation of the place. The work of Crandall et al. provides empirical evidence that digital photographers gravitate to common positions to capture their version of the view of a particular iconic view.²⁹ Snavely et al. show how when photographs of a particular scene or object were analysed, “the viewpoints often cluster along certain paths”.³⁰ It may be common agreement about representation, or it may be lack of opportunity to move elsewhere to make an image.

If they are all similar, there is a chance that increasing numbers of images of a particular place will narrow our sense of it. There is also the prospect that the pressure of sameness will drive some people to create their own unique perspectives and therefore enrich our understanding of a place: as the traditional views become over-represented, artists will seek out unique perspectives to represent the place with their distinct approach.

Limits to metaviews

There are still many factors restricting the scope and scale of geotagged images being collected and navigated. For instance Panoramio, the source for Google Earth’s picture layer, has strictly enforced rules about what can and cannot be contributed to the site, and what will or will not be selected for viewing on Google Earth. People, not algorithms, manage the selection process manually, and the rules exclude (with some exceptions, interpreted by the people making the decisions), among other

things: portraits of people, or photos of people posing; cars, planes or any machine; pets or animals; flowers and details of plants; close-ups, details, inscriptions, or signs; events, such as exhibitions, concerts, and parades; interiors; anything under a roof.³¹ These exclusions prevent many examples of culture from being displayed alongside other images of a place. The excluded images may contain evidence of activities and details that help viewers interpret the place. While Google (which owns Panoramio) has every right to set its rules for users of the site and to control the process by which images are displayed on it, the rules and processes limit the opportunities for the service to enrich viewers' experiences of the place. By restricting what can and cannot be displayed, Google Earth is not a service where place can be explored in sophisticated ways. Evidence of space and location are available, but not the human activity and artefacts that make a space a place.

Another challenge to the traditionally mediated views of iconic places like Uluru, the Sydney Opera House and Bondi Beach is the emerging trend for authorities like local councils and administrative bodies to restrict especially commercial photographers' activities in these places.³² It remains to be seen what impact the reduced opportunities for professional photographers to represent such places, and the increased opportunities for the casual photographer to capture images there with mobile phones and small digital cameras, and to share them widely through the internet, will have on how they are represented to the world.

The metaview has the potential to give us a new sense of place if we can overcome the barriers to images being contributed and made available to the community. Crowds are capturing images with digital cameras and libraries are scanning older images, but we are not yet sharing them easily. Perhaps we are afraid of losing ownership or the images being somehow misused. Metadata is being added to images, but it needs to be more accurate, more extensive, and using generally agreed language and standards. Search engines continue to improve and provide extra dimensions to finding photographs that exist on the internet, but the display of the results largely continues to be limited to outdated and two-dimensional representations, using page, document and book metaphors and logics in their interfaces, rather than image-based or scopic metaphors and logics.

And of course the geopolitics of wealth, religion, culture and class define the geography of the World Wide Web, just as they define our individual perceptions of reality. As is so starkly revealed by the world heat map of photographs uploaded to Flickr, the technologies that are being developed to record the images, store them, share them and display them, and the people with the resources to access the technologies and the skills required to use them, are the affluent and more educated people of the world. It is they that determine the direction of the technologies and the uses to which they are put, defining the perspective we take through the metaview.

Conclusion

It is clear that we are at the threshold of the age of the metaview. In Australia, libraries and individual people in the community are beginning to collaborate in an unprecedented way to allow us an enhanced scopic access to Australian places. What remains to be seen is whether or not these new modes of experience will change the nature of the places we collectively decide to value as our national heritage. Visitors

to these places may choose to become media producers as well as consumers, adding to a collective, frameless “picture” of a landscape with their own images. Applications like Google’s Panoramio may become the means by which established places of significance will be “authentically” experienced remotely. Other places may enter our national imagination through a new sense of online space. Will it continue to be those places that are most amenable to being encapsulated into a single frame as a vista, or will other places, where perhaps multiple layers of experience lie embedded, also now rise to national significance?

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