Chapter 9
TrowelBlazers: Accidentally Crowdsourcing an Archive of Women in Archaeology

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Introduction

The TrowelBlazers project (www.trowelblazers.com) is very much a successful example of a public-led experiment in participatory archaeology. The discussion that follows details the experience of running this kind of digitally based platform for archaeological content and reflects the organic structure and origins of the project. TrowelBlazers was never specifically designed to meet set goals of engagement, outreach, or participation, so its success merits some consideration. The origin of the project actually lies with a shared sense of outrage at the invisibility of women in science, both within the academy and in larger popular culture; the decision to compile a short series of images and biographic details which would push back against this invisibility was made first over Twitter and then through an email exchange fuelled by the very real frustrations of four female early career researchers, namely, the authors of this chapter. Our project does, however, rather coincidentally reflect one of the major concerns of our peer group of online archaeological activists: the use of digital material and social media to develop an engaged and participatory community (Morgan and Eve 2012; Pilaar Birch 2013b; Richardson 2013). The TrowelBlazers project benefitted from an awareness of the principles and interest in the discussion, both online and in person, of the burgeoning field of digital public archaeology (Richardson 2013) but must be considered slightly

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retrograde at inception because we did not intentionally set out to encourage public participation beyond sharing largely image-based content.

What began as a light-hearted commitment to publicising overlooked contributions from women to the trowel-wielding disciplines of archaeology, geology, and palaeontology has led to a level of engagement and participation that has allowed us to build a platform combining community activism and academic research with crowdsourced content. In the space of 4 years, our punning neologism 'TrowelBlazers' has become a recognisable noun and, more importantly, 'trowelblazing' an active verb in use among the wider community made up of students, academics, commercial sector workers, and museum professionals in the earth sciences as well as a much broader group consisting of the interested public. Our original single-author blogging collective has morphed into a public, crowdsourced archive, with guest posts submitted from the students of individual women, from their friends and family, from historians of the earth sciences, from museum and archival professionals, and from others with an interest in some specific aspect of local or individual history. It is the nature of this unexpected participatory element that we want to detail in this chapter. At the time of writing, TrowelBlazers has over 120 biographic posts on the lives and work of women, with several thousand followers on different social media platforms, and is actively participating in both mainstream media and academic dialogues about roles and images of women in archaeology, geology, and palaeontology (e.g. Hassett et al. 2014; Pilaar Birch 2013a). It is partially in deference to our accidental success that this chapter discusses the origins, ethos, and management of the project alongside the challenges and occasional unexpected issues raised in crowdsourcing an archaeological archive.

Origin Stories

TrowelBlazers started life, appropriately, as a conversation on social media (Twitter). Four early career academics who had intermittently worked or corresponded with each other, largely through digital means, found a shared interest in the individual stories we each had to tell about women who had worked in our disciplines and affected our own research but were little known in the standard histories. As an example, one of the authors (VH), who studies island dwarfing in elephant species, was intimately familiar with the work of Dorothea Bate. Dorothea Bate had rather infamously walked into the Natural History Museum at the age of 19 and refused to leave without a position (Scindler 2005); she is one of the few female figures in a sea of starch-collared men in the rows of annual staff photos that line the walls of the palaeontology building of the institution to this day. Though by all accounts a tremendous personality, her research was the reason that she had come to VH's, and by extension our, attention. In recounting her story, VH launched a series of reminiscences of other pioneering women among us all, and the idea for TrowelBlazers was born.

After a goodly amount of back-and-forth between the four authors on Twitter and some rapid-fire, poorly spelled emails, the TrowelBlazers project was launched as a

Tumblr image blog in May of 2013 (http://trowelblazers.tumblr.com/). We began with a simple, celebratory principle and a two-word manifesto: reset imaginations (Herridge 2013a). Our initial idea was to publicise stories of women who we knew of through our own academic or institutional histories, with an emphasis on using their portraits to show them as real people, and real scientists, rather than abstracted female anomalies in the march of male scientific progress. Some consideration was made in the several weeks prior to launch about the type of social media we would use and how we would manage it; we had originally planned for a week's worth of daily posts. Accordingly, alongside the Tumblr blog, we launched a Twitter profile and new email account, which soon prompted the institution of a time-delimited rotating captaincy of our burgeoning anarchic collective. While each of us had several ideas for posts for this new blog, we largely expected that the initial interest in images of women in science past would die down, much as the furore around any Internet craze eventually does, and that we would be left with a slow-burning side project collecting biographies.

The timing of our project was largely fortuitous, though the influence of a rising zeitgeist of interest in women's contributions to science cannot be discounted. One of our first collaborations was post to outline our manifesto on the ScienceGrrl blog (www.sciencegrrl.co.uk), a grass-roots membership organisation that now includes regional chapters and actively campaigns at government level to redress the balance of gender in science education and practice. This set the tone for our future work: highly collaborative and highly proactive in involving ourselves with like-minded organisations and individuals. While TrowelBlazers prides itself on the breadth of its archive, it has always been clear to us that our role is not to be passive purveyors of content. Constant engagement with relevant networks through Twitter, Tumblr, Facebook, email, conference participation, blogging, public talks, and public comments on the issues that matter to us is key to maintaining our audience, our relevance, and our own interest in the project.

First, Do No Harm

While the idea for TrowelBlazers came together organically, some aspects of the project were considered in advance of the launch. First and foremost, we were concerned that our site must meet a 'gold standard' for image attribution and reuse permission, an otherwise frequently amorphous concept on social media (see, e.g., Association of Research Libraries 2012). Our academic work has instilled an appreciation for the importance of attribution of ownership and recognition of previous research, which, while not unheard of in the world of digital content, is not necessarily the standard to which most popular non-commercial sites hold themselves (see, for instance, the issues raised in Wild 2013; this seems to have been fully addressed in 2016). For each image we reproduce, our policy is to identify the image owner and to contact them directly for permission to reproduce the image on our blog. This early decision has proven to be prescient and in fact underpins much of

our success in generating participation from a wider community. By actively establishing lines of communication with archives, institutions, private individuals, and friends and family of featured TrowelBlazers, we have created both a network of active contributors and sources of enormous support and inspiration. The most frequent response to an enquiry to reproduce an image is enthusiasm, which is both gratifying and critical to constructing the visual narrative that our project is dedicated to publicising. Often, collection managers or individuals who we have contacted about a particular woman's work will provide biographic details we would not have uncovered on our own or, as has been the case many times, provide clues to other unsuspected trowelblazing women (Wragg Sykes et al. 2013).

Practicalities of Participation: Why This Sort of Thing Shouldn't Work

One of the most interesting things to come from the experience of starting TrowelBlazers has been a baptism-by-fire approach to learning how to initiate and manage social media engagement. Of our team of four, none is a specialist in the nebulous black arts variously referred to as digital archaeology, public archaeology, or any combination of those terms (Richardson 2013). Certainly none of us has been formally trained in science communication, a term that seems to have taken on formal, institutionalised undertones implying both a designed message, considered delivery, and a target consumer (OST/Wellcome Trust Report 2000), though this appears to be changing in modern practice (e.g. Jasanoff 2014). Our largest failing (from the perspective of skill sets required to run a digital public science communication archive) is that we are in no way professional communicators of science, archival researchers, or experts in public archaeology. In addition, piddling in comparison to these academic and training-related shortcomings are our more personal difficulties with managing multiple social media feeds, archival research, image permission inquiries, writing, and editing, as well as initiating collaborations and special projects *alongside* managing our day jobs and personal lives across three different time zones, and of course, the residual need for sleep. We'll discuss each of these in turn in reference to lessons we have learned along the way and in the order where their importance became apparent to us.

This Is Not Your Job

At the inception of this project, the founding members of TrowelBlazers could easily be described as early career researchers (ECR). For us, this refers to the period following completion of the doctoral thesis but prior to securing a permanent or potentially permanent academic position. However, many organisations have

different criteria for defining ECR status; these are frequently limited by years since completing a PhD; for example, the Leverhulme Trust, which funds ECR postdoctoral fellowships in the UK, has a limit of 5 years. The job of an ECR is largely to continue to be an ECR through constant application to funding bodies, advertised research positions on other investigators' projects, and to eventually gain enough momentum through publication and research to achieve a permanent academic position. All four of us held positions as postdoctoral researchers, two in traditional university departments (Brown and Bordeaux) and two within the research arm of a large public institution, the Natural History Museum of London. While our research interests cover a broad variety of subjects, the main direction of our academic work is in archaeology and palaeontology, with some of our interests converging in the Quaternary Period, in the Neolithic Period, and in teeth (both humans and animals). As full-time employees with necessarily high pressure to produce academic output, the motivation for any side project that was not immediately related to our current research areas had to be sufficiently large. The fact that we all feel personal connections with the women we research and publish about is instrumental; we are driven by passion.

We Are Not Professional Science Communicators

Science communication is a relatively new field that encompasses the public information dissemination aspects of what in archaeology has traditionally been called outreach (c.f. Jameson and Baugher 2007). Science communication is also an increasingly formal practice, codified and set into institutional agendas in order to deliver value, in the form of information about scientific activity, to the public (Jucan and Jucan 2014; Wehrmann and Dijkstra 2014). Despite the relative youth of the field, there is an extensive literature on the methods and pedagogy of how science is best brought to public attention (Bauer 2014; Wehrmann and Dijkstra 2014; Wiegold 2001). From the perspective of the disciplines that three of the TrowelBlazers principles come from (archaeology), there are also established best practices, the method and theory of which largely fall under the heading of public or community archaeology (Merriman 2004; Richardson 2013). It is reasonable to class our initial awareness of these formal structures as fleeting, grading to total obliviousness, with the exception of VH. While we all have experience of presenting our research work to a mixed range of ages and have all been active in exploring digital means of communicating research, VH has previously been employed a professional science communicator and considers herself to be a science communication practitioner. VH has had considerable training in how to spark interest or drive engagement among this wider audience and expertise in science communication as practised in the 'hard' sciences as a general public might understand the category. While each member of our group has a strong record of participation in traditional communication methods such as public talks, none of the authors had extensive training in the archival or historiographic research skills that the TrowelBlazers project depends

on, and while conversant with new avenues for digital communication (Hassett 2011; Pilaar Birch 2013b; Wragg Sykes 2012), we have not necessarily always pursued these in the spirit of critical academic enquiry. In setting up our project, we did not consult the considerable case history of successful outreach and engagement present within archaeology because, in all honesty, we did not intend to *do* outreach.[1]

We Are Not Archivists

While it may be fair to describe the TrowelBlazers principles as academic researchers with a strong interest in disciplinary history, we do not possess the training or expertise in historical collections of professional archivists (or historians of science.) The curation of the information and particularly the images that are so critical to our project is the realm of the specialist. We have not approached the telling of the various TrowelBlazers personal biographies in the same way as would be possible if we held detailed archives for each woman. Creating an in-depth biography for each of the women we feature is unfortunately beyond our time capacity but, more importantly, does not follow our vision of the TrowelBlazers project. We deliberately write and edit biographies to be light-hearted and brief, with emphasis on striking impressions as well as actual visual content. Our project doesn't seek to duplicate the outstanding personal biographies that can be found, for example, in the Breaking Ground project initiated by Barbara Lesko and Martha Joukowsky (http://www.brown.edu/Research/Breaking_Ground/introduction) which highlights women's contributions to 'Old World' archaeology and has also resulted in an important published volume (Cohen and Joukowsky 2004). Instead, we seek to find as many women as possible contributing to the fields of archaeology, geology, and palaeontology and to place their work into the wider networked context of other trowelblazing women.

Why This Totally Works

This Is Not Our Job…This Is Our Passion. And We Are Not Alone

All four members of TrowelBlazers are active users and participants in larger digital networks and communities in their own right. Most of us maintain personal blogs or websites detailing research, and all are active in discussions of both personal and

[1] Such as the Thames Discovery Programme, which offers training to volunteers from the interested public to record and interpret the history of the Thames River (www.thamesdiscovery.org).

professional issues on Twitter. This allows us to be connected with a much wider web of early career researchers, interested individuals, and institutional bodies who actively participate in digital conversations about the issues that we care most about. Being part of these larger conversations on social media means that when we discuss issues that are relevant to us, we are much more likely to be heard and garner a response because we are working within already established networks of linked interests. It has been obvious from the inception of the TrowelBlazers project that our main avenue for sharing our enthusiasm is also the road by which like-minded individuals find us. When we find out about a new TrowelBlazer we might add to the archive, we begin a conversation, either on social media platforms such as Twitter or via email with colleagues or friends or the institution that likely holds relevant archival material.

How Participation Works

TrowelBlazers began as a Tumblr blog. Tumblr is a blog platform that allows limited post formatting and is geared towards visual image sharing. It generally offers less textual context for images than a standard blog, with interaction driven to a large part by readers 'reblogging' images to their own accounts (Rifkin 2013). When we launched on May 10, 2013, our posts featured a single image, followed by roughly 200 word biographies. As of the end of 2014, the TrowelBlazers Tumblr (http://trowelblazers.tumblr.com) had 106 posts and 4342 followers. However, our use of Tumblr as a platform has been unconventional. We did not follow or reblog from other sites but rather used the Tumblr as a standard 'blog', to which traffic can be directed. This to some level reflects the TrowelBlazer team's own varied knowledge and familiarity with different social media platforms. Despite our inexpert use of the format, our page garnered more than 25,000 pageviews in the period from our launch in May 2013 to our move to a full blog (a .com address hosted on WordPress) in November of 2013, with the biggest driver of traffic being Twitter links, followed closely by direct referrals (both at around 2500). In May of 2014, we launched an entirely new website with multiple pages and a more accessible, searchable archive. This has had nearly 32,000 unique pageviews, 12,000 of which were unique visitors. Nearly 30% are return visitors, and people look at more than two pages on average. We still update the Tumblr and have also experimentally opened accounts on Ello, Pinterest, and Instagram. However, activity on Ello remains sporadic and is largely unmaintained, and while the Pinterest and Instagram accounts are updated less frequently, engagement with these is in the very low hundreds (Pinterest averages 180 views per month; Instagram has less than 300 followers).

We also have an increasingly large group of users who come to our content via Facebook. At the time of writing, the TrowelBlazers Facebook page has over 5000 'likes' or followers (www.facebook.com/TrowelBlazers). There has been a sharp uptick in the amount of engagement on Facebook (liking and sharing posts) after an initial rush as people found our page in May and June of 2014, coinciding with the announcement of two commercial products, both toys (Fig. 9.1). Our most shared

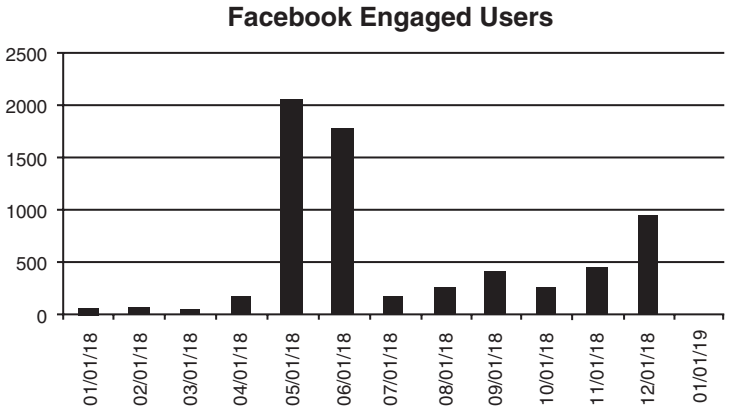

Fig. 9.1 Facebook engagement, including 'likes' and 'shares'. Spikes in May and June come from our initial publicity drive, while interest in later months is driven particularly by toy campaigns. In addition, we have recently begun posting on Pinterest (www.pinterest.com/trowelblazers) and Instagram (http://instagram.com/trowelblazers), both image-based microblogging sites

posts on Facebook are in celebration of the 'Lego Research Institute' figurine set (https://ideas.lego.com/projects/15401), which features female scientists, including a palaeontologist, and the announcement of the release of the new 'Fossil Hunter' Lottie Doll (http://www.lottie.com/) for which TrowelBlazers consulted (without fee or financial incentive). Engagement (sharing, liking, commenting) with our Facebook content is much higher with posts centring on organic campaigns that encourage people to contribute images or support to a particular cause. While our Facebook audience does not actively contribute nearly as many images or as much content to these campaigns, the more active engagement with posts of this type is highly reflective of 'hashtag activism', the prompting of an engaged social media response to a single issue by identifying comments using a single phrase, preceded by the '#' character that acts as a tagging mechanism on platforms such as Twitter and Facebook (Bruns and Burgess 2011). This points to a very interesting trend in our overall engagement in that, even when people do not actively contribute content to our site themselves, they are more likely to engage and share content that has been created as a 'public' or group response to an issue that is important to them. This has been clearly seen with our high levels of engagement for posts celebrating women doing fieldwork, supporting a schoolgirl against gendered marketing of children's shoes, and participation in activist events such as International Women's Day.

Twitter has been and remains the spiritual home of TrowelBlazers (http://twitter.com/trowelblazers), which reflects the conversational nature of our project and our origins. Engagement with our site and with our content tends to follow energetic discussions between our official account, our personal accounts, and followers of either or both (Fig. 9.2). It has certainly been our experience that what begins as a public discussion can easily segue into a more nuanced, longer form of conversation

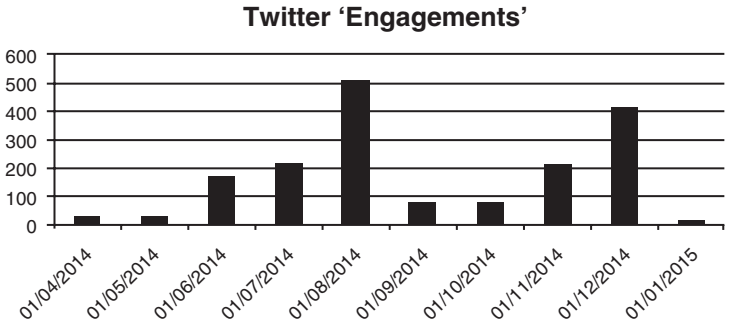

Fig. 9.2 Amount of interaction from the @TrowelBlazers Twitter account with other users, given as 'engagements' which are defined by the Twitter API as direct replies, retweets, or mentions of our username on the Twitter site

that then results in some tangible output – new information, nominations for TrowelBlazer status, or, in the best cases, new guest post submissions. The time dedicated towards this interaction is likely to be the largest single factor in creating a truly crowdsourced archive. At the time of writing, the Twitter account has 3370 followers, with an active core of users who frequently post and respond to our shared content – approximately 15.5% of our tweets are replies to other users or conversations between members of the group. It is interesting to note that although TrowelBlazers is an explicitly feminist project discussing the history of women in science, our followers and contributors are split fairly even by gender, as identified through the limited binary form by Twitter (56% female, 44% male; assessed at the end of the 2014 calendar year).

We Are Not Professional Science Communicators… But We Are Scientists

While we cannot dedicate ourselves to archival research in the same way that a formal academic historian might, we have found that our light-touch approach allows us to work with institutions and archivists who are using this material for more in-depth research, with less danger of overlap. Instead of concentrating on researching individual trowelblazers independently, we have focused on developing working relationships with a wide variety of institutions and archives so that we are able to quickly identify women in these fields, as well as their relationships. One of the most remarkable things about the TrowelBlazers archive is that, by crowdsourcing both nominations of women to feature and guest posts, we are able to springboard from identifying one trowelblazing woman to identifying several within a network as a larger resource of collective memory and awareness is called upon. This allows for a truly participatory public archaeology, as the participating public is integral to

our ability to identify and interrogate trowelblazing women. We work with students, academics, museum professionals, archivists, collections managers, feminists, women's historians, historians of the earth sciences, and most importantly mentees, family, and colleagues of the trowelblazing women themselves to draw in a public which is generally interested in science and women's history but by no means embedded in these professions. There are a great many women that we feature which we would not have known about if it weren't for the active responses to our posts. We also have learned about relationships between women through the archival evidence, where we have gone looking for one woman's story and found several, or through suggestions from Twitter, our website, or even friends and colleagues. By acting as a node for the public to communicate their own interests, we have facilitated connections between different users and managed to identify or at least explore the histories of objects, images, and memories of several otherwise unconnected women (Pilaar Birch 2013a).

These interconnected lives have become the basis for our own increasing interest in these archaeological networks. VH has constructed an impressive visualisation of one such network of women, connected through professional contacts between associates of Dorothy Garrod, the first female professor of archaeology in the UK (Fig. 9.3). Her network contains literally hundreds of names, and we feel that this illustrates an important point often missed in the history of any discipline; while women may have faced particular obstacles that made their full participation in academia impossible or almost impossible in the past, they still made use of social and professional networks comprised of peers and mentors. These networks appear

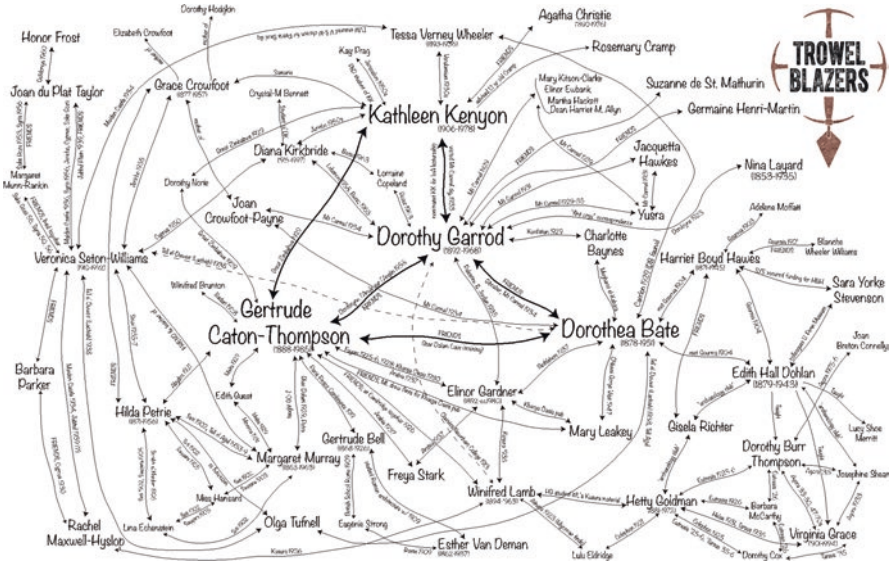

Fig. 9.3 A very incomplete network of early-twentieth-century pioneering women archaeologists (Herridge 2013b)

to have been as critical in the past as they are today, including examples of very early interdisciplinary collaboration (e.g. Caton-Thompson and Gardner 1932), echoed in academic partnerships between ourselves, and we hope to continue to foster awareness of and support for networks of women in the sciences.

We Are Not Archivists... But This Is Not Your Grandmother's Archive

TrowelBlazers is more than an archival project. We take tremendous pride in providing accurate biographies of trowelblazing women and adhere strictly to our policy of least harm in working closely with archival sources and copyright holders to ensure that our site uses images with permission and does not infringe on the work of other researchers or authors. However, the TrowelBlazers project is not limited to our web offering. We are each active in widening participation and outreach activities in our own field and bring a strong drive to campaign for equality in academic opportunity to the project. We very much welcome the opportunity to counter the prevailing visual narrative of archaeology, geology, palaeontology, and indeed most of academia as the preserve of a particular gender or skin colour. To this end TrowelBlazers is active in a number of arenas beyond our notional remit as a collection of inspirational biographies and images of women in old-fashioned hats. We have written articles for and been featured on mainstream media outlets (Herridge 2014; Pilaar Birch 2013a; Wragg Sykes 2013); we have engaged in entertaining and inspirational outreach activities aimed at children (collaborations with Jump! Magazine, performance artist Bryony Kimmings, and the Cambridge Science Festival); we have spoken to wider audiences as diverse as the Sceptics in the Pub and the UK Women's Institute; and of course, we have tried to communicate our experience and learn from our peers through academic conferences and discussion panels.

Conclusion

Compared to better funded efforts, the TrowelBlazers project has been successful in garnering a considerably larger amount of public participation than the amount of time or resources budgeted might be expected to deliver, and all this despite the lack of both formal project planning and training in outreach or public science communication. Though we started out as a 'blog', we have largely avoided the potential pitfalls of subject-specific blogging (see, for instance, the special issue edited by Morgan and Winters 2015) by opening authorship to the wider public and working hard to sustain a two-way communication with our audience and contributors through a variety of platforms. We attribute the success of the archive to our active

engagement with a wide variety of digital media, mainstream media, and real-life formal and informal talks. As individuals, the TrowelBlazers principles participated in a larger digital network linking ECRs, interested individuals, academic and research institutions as well as education and science communication professionals. These networks have been critical for facilitating participation in the TrowelBlazers project beyond amassing 'clicks' or 'likes'. These networks have allowed active engagement with any individual who wishes to contribute to our archive. The unplanned 'backflow' of interest has organically changed our operating model, from a four-author blog on the subject of the history of women in archaeology, geology, and palaeontology to a crowdsourced archive of #TrowelBlazing women with the majority of our content now submitted by members of the public and edited (or 'curated') by us. Our core mission statement of resetting imaginations resonates with a large enough section of the public that, given time and server space, we hope to eventually replace the moustaches and pith helmets of popular imagination with more than just the occasional flash of skirt.

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