



Earth stories: context and narrative in the communication of popular geoscience

Iain S. Stewart^{a,*}, Ted Nield^b

^a Centre for Research in Earth Sciences, School of Geography, Earth, and Environmental Sciences, Plymouth University, Plymouth PL4 8AA, UK

^b The Geological Society of London, Burlington House, Piccadilly, London, UK

ARTICLE INFO

Article history:

Received 2 February 2012

Received in revised form 16 August 2012

Accepted 22 August 2012

Available online 18 September 2012

Keywords:

Science communication

Public engagement

Geological outreach

Mass media

Journalism

Geo-education

ABSTRACT

Geoscientists are increasingly being encouraged to present their work to the wider public, and even to advocate more directly its policy dimensions. For those involved in geoconservation, that often entails communicating geological information to people who have little or no Earth science background. A review of current science communication thinking indicates that improving the geo-literacy of the 'ordinary person in the street' is unlikely to be achieved simply by educating them with basic 'geo-facts'. Instead, genuine and effective public engagement is more likely to come from conveying the deep-seated 'context' of our geological knowledge, and by presenting the wider culture within which Earth scientists work. This inculcation of a popular 'geo-culture' can take its cues from mass-media representations of Earth science ('disasters and dinosaurs') by recasting geological issues, concepts and knowledge in terms of messages that have strong narratives, dramatic incident and human interest. Ultimately, the role of such popular geological story-telling is less about delivering specific information about Earth science issues and more about establishing the credentials of 'brand geoscience' in the public's mind.

© 2012 The Geologists' Association. Published by Elsevier Ltd. All rights reserved.

1. Introduction

Every UK geologist knows that the nation has a natural history that spans over three billion years of Earth's existence. Few supermarket checkout assistants have that appreciation. That its history has left its clues in the rocks underfoot – producing one of the richest and most varied stretches of geological real estates on the planet – is a revelation lost on your postman. Amateur rockhounds may be only too well aware of how that diverse geological underlay shapes the scenic grandeur of our land, but few investment bankers have that familiarity. And those that read the pages of this journal keenly appreciate how our nation's rocks have contributed to a cultural legacy that instilled some of the scientific principles which guide our modern understanding of how the planet works, but such enlightenment is unlikely to be shared by your hairdresser. Even the fact that rocks, courtesy of the minerals within them, powered our country's industrial development is a thought too far for most.

The point is that most ordinary members of the public – even taxi drivers – lack any firm acquaintance with the bedrock on which they live. They are for the most part blissfully unaware that unassuming railway cuttings or riverside bluffs are listed as Regionally Important Geological Sites (RIGS) because they preserve fragile vestiges of our geological inheritance. Or that,

by the same token, the holes in the ground from which our modern urban fabric was once quarried are similarly portals into the past, and hence are protected as Sites of Special Scientific Interest. For those who are not geologically minded, this apparent indifference to terra firma is arguably more an issue of detachment. No one has told them that such places are important. Or at least, no one has told them in a way that makes them care.

For this reason, the central concern of geoconservation – that our rich and at times unique geological diversity is threatened – is a message that has a relatively low priority amongst the public (Prosser et al., 2011). Equally, the related notion that the UK's particular amalgam of rocks, minerals, fossils, soils and landforms (geodiversity) is as valuable a resource base as its much lauded ecological one (biodiversity) is one that still needs to fire the popular imagination (Gordon et al., 2012). Such ideas are, thankfully, increasingly formalised within relatively robust UK regulatory frameworks which ensure a degree of statutory protection (albeit locally augmented by voluntary conservation schemes) (Burek and Prosser, 2008; Prosser et al., 2011), but sustaining such guardianship over the long term needs a broader and deeper public consciousness about both geodiversity and geoconservation. In practice, it depends on local geoscience outreach initiatives that build geological awareness, foster understanding and facilitate involvement and activism among the wider public. Professional geoscientists – academic and industrial – can have an important role in this, by conveying the nature of our science to communities, groups and individuals who thus far have received little enchantment in geology. For the

* Corresponding author. Tel.: +44 1752 584767.

E-mail address: istewart@plymouth.ac.uk (I.S. Stewart).

geoscience community, however, a key challenge in delivering this aspiration is that '...we have yet to develop a still more versatile bridge across the gap between helping users understand that geology is relevant to them and making geological information understandable to all' (Walsby, 2008, p. 86).

In this paper, we explore one bridge between geology and the public – that provided by 'popular geoscience'. We do this as two geologists who are also active Earth science popularisers, one (ISS) an academic who presents geology in mainstream television documentaries and the other (TN) a science journalist who writes popular geology science books and edits a leading geoscience magazine. Since many of the issues are those that underpin public understanding of science more generally we review basic science communication questions, such as what are the messages we want to get across and who are the audiences we want wish to reach. But the main sentiment of the paper is to distinguish communicating 'geo-facts' – geological information and knowledge – from the deeper-seated embedding of 'geo-culture' – the context of Earth science endeavours. In particular, we argue that an essential element of public engagement in geoscience ought to be 'story-telling'; the construction of a compelling narrative spine emerges as a central construct in popular journalism and television documentaries, and is one that can be employed more widely in Earth science outreach.

2. Why communicate?

Today, the notion that scientists should communicate their work beyond the professional community to the wider audience of policy makers and the public seems broadly accepted (e.g. Royal Society, 2006; Burchell et al., 2009). Most research and professional funding agencies now demand a public dissemination component, and so scientists in all fields are coming under increasing pressure to deliver public recognition for their efforts. The cultural 'sea change' has emerged from the higher stakes of research, and from an increased recognition by scientists, stakeholders, and policymakers that scientists need to get their message out (Warren et al., 2007). Most academic and professional geoscientists now incorporate a public engagement element to their work, although often it remains unclear if the underlying motive is to engender a more positive public attitude to research, shape public debate about key science issues, or reflect the potential reputational enhancement of individuals, organisations or sponsors (Royal Society, 2006). By and large, the scientific profession now endorses public outreach as a cornerstone of scientific research and innovation, yet there remain institutional asperities to achieving that aim. For a start, the degree to which individual scientists embrace the public in their work will come down to pragmatic decisions about the degree to which their organisation will prioritise this initiative (Marker, 2008). Public consultation and dissemination are costly and time consuming so time and money must be allocated by managers to support this effort. Likewise, public engagement activities need to be recognised and rewarded in opportunities for promotion and career development.

An additional constraint is that the process by which scientists engage with those beyond the professional arena can be deemed as being potentially hazardous. Public consumption of science is mediated by various agencies (most prominently the media, but also activist organisations, corporations and religious groups) and there is much distrust among some scientists about the capacity or desire of those agencies to represent science information fairly. The main impediments for engaging with the media, for example, include the perceived unpredictability of journalists and the concomitant risk of incorrect quotation. This is part of a wider concern among many scientists that engaging closely with the public will incur a negative reaction from managers and of research

peers, especially because such incursions take time away from valuable R&D, and so could be detrimental to career advancement (Royal Society, 2006). Empirical surveys of actual scientist–media interactions are more encouraging, however, suggesting that dialogues between the two are more frequent and more positive than previously thought (Peters et al., 2008; Bentley and Kyvik, 2011). In fact, those researchers most involved with public engagement tend to have higher levels of scientific publishing and enjoy higher academic rank with leadership roles.

Of course, not all scientists may be able or willing to 'go public'; 6–10% of scientists polled by the Royal Society (2006) felt this way. For some, the whole notion of communicating to the public remains incompatible with the academic culture for unfettered scholarly inquiry or the professional sensitivities of commercial projects. Others will find the challenges of translating or circumventing technical intricacies too arduous, or too far outside of their comfort zone. Indeed, some departmental managers may quake in their boots at the thought of certain of their staff mediating with the public (Burchell et al., 2009).

Not surprisingly, many of those scientists who are keen to undertake public engagement are looking for guidance and training in this new domain. Some practical advice is available for geoscientists (e.g. Forster and Freeborough, 2006) but only a minority had courses in communication as part of their education; only 15% in a recent global survey of geoscientists (Liverman and Jaramillo, 2011) (Fig. 1). Moreover, most graduate training courses in geoscience degree programmes emphasise communication to peers (how to present a paper, write an abstract, prepare a poster etc.) rather than to the public. With little or no formal training in the media, the majority of geoscientists that converse regularly with the public are self-taught, their skills honed through personal experience. Although successful communication is arguably an emotional rather than a technical skill, the most effective communication demands formal instruction. For example, if geoscience is really to inform genuine decision making, then our emerging geoscientists may need training in media relations and how the worlds of political advocacy and science policy work (Schneider, 2008). What most media professionals agree, however, is that the key communication skills *can* be taught, developed and practiced (Somerville and Hassol, 2011, p. 52).

And there are good reasons why scientists in general ought to learn the basics of effective communication. Perhaps the most prominent reason is that scientists, especially those in universities, remain trusted figures by public and media (NSB, 2010; BIS, 2011). In a social landscape where information can be misused by the media or certain activist groups, academic scientists are widely seen as the ones best able to minimise the potential for misinterpretation and to evaluate the significance of their own results (Liverman, 2008). In this context, a scientist that does not accept responsibility for communicating their own work is likely to have that work communicated by someone who understands the science less well. Or worse, it will not be communicated at all.

3. What do the public know about geoscience?

An enduring complaint by scientists of all denominations is the apparent scientific illiteracy of the public (Hartz and Chappell, 1997; Augustine, 1998; Gross, 2006; Mooney and Kirshenbaum, 2009). It reflects a long-held view within the scientific elite that, in order to grasp the technological advances that drive society and take their responsibility in civic society, people need to understand the underpinning values and principles of scientific endeavour (Durant et al., 1989). For many social commentators, such as the UK journalist Andrew Marr, the degree to which the public comprehended science was lamentably deficient:

Download English Version:

<https://daneshyari.com/en/article/4735040>

Download Persian Version:

<https://daneshyari.com/article/4735040>

[Daneshyari.com](https://daneshyari.com)