Interpreting the Signs

How do we orient ourselves amidst the cacophony of noisy advertising, self-promotion, conspiracy theory promulgation, algorithmic opinion delivery and newsfeed, the general barbarousness and communicative violence of social media and the ratings obsessed and ideologically compromised mainstream media? What confidence can we have that our democratic institutions are able to deal with the situation and deliver on policy goals that, until very recently, were nothing like adequate to the situation described by science, and are perhaps not even now? If, lacking any such confidence, we were tempted by authoritarian alternatives, what might that be like in terms of public participation in environmental debate and decision making? If we prefer to stick with democracy then what should we make of the impact of news media, for which truth is not necessarily the bottom line, on the formation of opinion and behavioural intention? How should we understand and take account of people's existing attachments to their environments, their places, their landscapes, at a time when these are threatened?

We could make a start by reflecting on how to pay better attention to the natural and social worlds and their interrelationships.

In the first paper of this issue, Javier Romero and John Dryzek revisit a theme familiar to this journal[1] by seeking to reinforce the grounds for ecological democracy. They do this in the light of developments in democratic theory and in biosemiotics and related fields bearing on the nature and diversity of nonhuman communication. On the one hand, biotic and abiotic communication may be understood through semiotics, biosemiotics and physiosemiotics, so as to 'better appreciate ecological communication and its relation to the ideal procedures of ecological democracy, which involve more effective human listening to the signals pervading the natural world' (p. 408). On the other hand, recent developments in deliberative democratic theory allow new ways of thinking about how these signals can be incorporated politically.

Semiosis, the necessarily interpretive process of things functioning as signs within communication, is not confined to human linguistics, for a sign is anything at all that contributes to the communication of meaning to its 'interpretant'. A howl is a sign of a wolf to the extent that the interpretant (whether human, another wolf or some other organism) takes account of the wolf in virtue of the howl. This formulation is generalisable, and biosemiotics synthesises biology and semiotics to explore semiosis as a fundamental component of all living systems. It applies to 'ecological communication that transcends species boundaries. Creation, modification, or destruction of ecological niches are biotic and abiotic signals within ecosystems – such as the bleaching of corals

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1. See for example papers in the Special Issue, 'Perspectives on Ecological Democracy' (*Environmental Values*, 28.1), especially Schlosberg et al. 2019, Lepori 2019 and Hammond 2019.

in Australia's Great Barrier Reef due to the loss of zooxanthellae' (p. 412). Thus Romero and Dryzek emphasise how the natural world is replete with nonhuman signals, and that anything like an adequate human interpretation of them is subject to a range of preconditions. It requires careful, patient, and persistent attention employing all the senses as well as scientific methods. It requires us to avoid anthropocentric (and biocentric) bias and recognise that agents in nature emit signals that can be interpreted, even though our interpretation of them is often very difficult and complex (sometimes because the signals – infrasonic waves, for example – are impossible to perceive without scientific instruments) and depends on asking the right questions. This calls for humility and careful framing, and already chimes with the familiar epistemic argument for democracy: in the face of complex problems people are usually better reasoners collectively than individually.

Romero and Dryzek also emphasise the 'wild diversity' of bio-communication, which encompasses pheromones and chemical signals as well as an enormous variety of non-linguistic gestures. It occurs across and within cells, organisms, species and ecosystems. Far from being the only meaningful form of communication then, human language is but the tip of a vast iceberg of semiosis. Not that it really is the *tip* if that is intended to suggest biological or evolutionary 'superiority'. Such a suggestion, they point out, would be no less arbitrary or self-serving than would a blue whale's positing of a scale of excellence in terms of capacity for unaided long-distance communication, or a bat or dolphin insisting instead on sonar, or an insect proposing metabolic rate. Nor is the iceberg itself entirely mute, as not all communication is between biotic entities; it occurs also between the biotic and abiotic elements of environments (abiotic communication being non-gestural and including such phenomena as lightning, drought – and the thawing of sea ice). As long as the interpretant is biotic, we can speak of 'abiotic semiosis' when other elements of the process are abiotic (as when a drought is interpreted as a sign of climate change, for example). Indeed the ability to interpret abiotic signs is essential to living beings and systems.

Recognition of all this communication allows a richer conception of ecological rationality. If we could only pay proper attention, nonhuman nature could be 'a potential partner in creating the conditions in which human and nonhuman life alike can flourish, whose signals require careful interpretation', rather than a series of problems or obstacles for humans to deal with (p. 421).

Although current human institutions are hardly well-configured to enable this, Romero and Dryzek argue that developments in democratic theory suggest the necessary openness to communicative diversity is not completely impossible. These are firstly, an awareness that listening and reflection, an active attempt to understand where others are 'coming from', is as important as speaking; secondly, recognition of a wider range of considerations than just reason-giving (personal experience, stories, emotion and empathy rather

than just abstract argument) as legitimate deliberative inputs; thirdly, a 'systemic turn' theorising deliberative democracy as a system of parts, not all of which need satisfy all the deliberative criteria attached to the overall system; fourthly, recognition of the importance of interruptions in deliberative systems, in which non-deliberative acts (protests, ridicule of mendacious leaders, but also non-gestural interruptions such as catastrophic weather events) can have positive outcomes; fifthly, the widely held epistemological argument for deliberative democracy as the best system for the productive integration of knowledge and information from diverse individuals.

Thus, Romero and Dryzek conclude that democracy should be 'deliberative in its human aspect, sensitive to the signs of nature in its ecological aspect, and inclusive when it comes to both human and nonhuman actors and signals' (p. 425). They paint an attractive picture of ecological democracy. It is an idealised picture, of course, and unfortunately there are many obstacles to its realisation, some of them very serious. The remaining papers in this issue may be interpreted as shedding light on some of these obstacles and related issues.

In the second paper Andrea Felicetti discusses the threat posed to democracy by resilient systemic unsustainability (RSU). RSU refers to the 'challenge of making desirable transformations in biophysical and socioeconomic systems that tend to retain characteristic unsustainability despite shocks and efforts to change them in more sustainable directions' (p. 431). Certainly, many scholars have considered more or less radical changes to political institutions to enhance their ecological rationality (Romero and Dryzek's paper being one case in point). Felicetti aims to fill a gap she sees in the literature by considering the threat to democratic legitimacy brought by the resilient unsustainability of democratic systems themselves. Her discussion revolves around a qualitative empirical analysis of the 2017 People's Climate March protest against the Trump administration. Although the focus is the United States, Felicetti's analysis is applicable to all democracies, the perceived legitimacy of any of which may be threatened by their RSU. This threatens a negative feedback loop further hampering democracies' ability to resolve problems adequately. Interviewing activists from a range of environmentalist groups directly involved in the organising committee of the People's March, she found, in addition to hostility to Trump and all his works, widespread scepticism about US democratic institutions' ability to address climate change. This was not because they reject democratic values but because they see unsustainability as entrenched too deeply in US political and economic systems. Trump has gone – sort of, for now. The Biden regime is a large improvement, at least in terms of stated intentions, but in itself this hardly shows the end of RSU. Felicetti reports the activists regarded Trump as merely a dramatic manifestation of the wider RSU of US systems. Hopefully they were wrong. If they were right, then because the perceived legitimacy of political institutions turns largely on their perceived ability to deal with issues, there is a big problem for at least

the 'output legitimacy' of democracy. Because compliance with democratic decisions is at least partly contingent on the perceived output legitimacy of democratic institutions, questions arise about whether or for how long activists will remain committed to democratic norms.[2] As Felicetti notes, we can expect the compliance issue to become more urgent if the negative impact of RSU on perceived output legitimacy spreads from activists to citizens more generally. This looks like a threat to democracy at least as important as the more widely mentioned and studied threat posed by widening inequalities.

Again, this is an issue for all democracies, not just the US, and Felicetti rightly calls for more research into how different sources of legitimacy can be nurtured, perhaps at local and transnational levels, and into the implications of RSU for the development of political regimes if or when perceived output legitimacy is questioned more seriously and widely. Will activists and citizens seek a democratic deepening, perhaps along the lines of the picture painted by Romero and Dryzek? Or will they be attracted by illiberal, authoritarian alternatives,[3] despite the fact, also noted by Felicetti, that such regimes tend to do (even) worse than democracies on environmental and other issues?

An extra twist to this story is that the output of political decisions and policies in terms of moving to a more sustainable overall environment and climate turns on those made by authoritarian regimes, not just democracies. It would be good then to know more about public participation in environmental governance in such regimes, whether or not we end up living under one ourselves. In the third paper of this issue, Neil Munro offers an informative account of the development of participation in environmental governance in China since 2000, investigating who participates and why. The Chinese government has required officials to involve the public in environmental decision making, not as part of a move to ecological democracy, but with the apparent aims of 'closing the enforcement gap' and steering 'public concern into channels enhancing the legitimacy of the Communist Party and reducing societal conflict' (p. 456). Having begun with public consultations on issues such as environmental assessment and water tariffs, and developed through online participation involving public comment and contacting officials on social media and other platforms, 'emerging common practices include public disclosure of environmental pollution information and environmental quality data, public participation in siting decisions for projects and in the identification of polluting enterprises to be shut down, the provision of public complaint lines… and public participation in setting standards'(p. 457). There is some evidence that such participation has improved some environmental outcomes, especially regarding pollution. The main focus of Munro's study, however, is the identity and motivation of participants. Drawing upon data from the 2013 China

2.   See also White 2019, Boscov-Ellen 2020.
3.   For a recent theoretical account of differences between some such alternatives, see Lubarda 2020.

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General Social Survey he finds participation is more common for city dwellers, the more educated, and those with higher incomes and social status, and that their motivations can be significantly explained in terms of two main factors. These are 'instrumentality' (mainly awareness of conservation issues and environmental problems, and perceived effectiveness of local environmental governance) and 'identity' (identification with middle class lifestyle and observance of Western holidays).

Munro points out that confirmation of the instrumental hypothesis does not distinguish the Chinese situation much from participation in western countries, a result that should be surprising only if one assumed that 'participation under authoritarian regimes is always a charade, aimed at legitimising the government and does not really affect outcomes' (p. 470).[4] Indeed, whilst noting that although a limitation of his study is that it does not capture participation on contentious issues, Munro suggests his work contributes to a more nuanced, less stereotypical understanding of participation in an authoritarian setting. Another of his findings is that the perceived seriousness of pollution does not seem to be associated with participation, while the perceived seriousness of conservation is positively correlated with it. Yet Chinese citizens tend to regard pollution as a more serious problem. It seems they trust the government's ability to protect wildlife and habitats more than its ability to deal with polluting industries, and this might explain why their seriousness about conservation is a better predictor of participation than seriousness about pollution. This accords with the instrumental hypothesis and chimes with Felicetti's discussion of output legitimacy in the democratic context.

The Chinese are not so different also when it comes to the effects of media consumption. Munro refers to studies showing a negative relationship between environmental concern and intensity of TV watching in the US. His work corroborates this in the Chinese context: whilst breadth of media consumption has a positive influence in China, TV has a negative influence. Certainly if the aim is a higher quality of deliberation and communicative activity and awareness in anything like Romero and Dryzek's sense, then the mass mediation of the relevant semiotic processes needs to be considered. Does it tend to enhance careful attention to human and nonhuman signs, or not? What role does it play in relation to the resilient systemic unsustainability discussed by Felicetti?

In the fourth paper of this issue, Troy Elias and Jay Hmielowski consider relationships between self-reported news media consumption and environmental behavioural intentions in the US, with particular attention to how these vary by race. They seek to connect work on the Theory of Planned Behaviour (TPB) with media effects research and extend the latter by considering whether consumption of news decreases the gap in environmental orientation among racial or ethnic groups depending on the ideological stance of the news outlet.

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4. For a more comprehensive comparison of environmental attitudes and pro-environmental behaviour in different countries, see Kuo and Fu 2020.

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In doing this they employ the 'mainstreaming hypothesis' (heavy media use leads people with different views on important political and cultural questions to converge). TPB involves three variables: attitudes towards the envisaged behaviour, subjective norms (motivation to conform to the expectations of respected others) and perceived behavioural control (perception of 'self-efficacy' or of the level of difficulty of performing the expected behaviour). Thus Elias and Hmielowski 'examine whether self-reported non-conservative and conservative news media consumption is associated with an enlargement or a reduction in gaps between racial/ethnic groups' environmental attitudes, norms, and perceived behavioural control and, indirectly, their behavioural intentions to contact government officials, attend climate change rallies and volunteer or donate money to climate causes' (p. 480).

They position their investigation against the backdrop of previous empirical research into media use and environmental behaviour and attitudes in the United States. Such work has shown for example that liberal and non-partisan news organisations tend to represent issues in ways closer to the relevant scientific consensus, with conservative outlets, such as Fox News, more likely to emphasise anti-environmental and denialist positions,[5] and that such differences have translated into differentiated public attitudes. It has also found associations between media use and self-efficacy: presentation of catastrophic events as consequences of climate change increase perceptions of seriousness but also feelings of powerlessness; representation of measures taken to address climate change enhance perceptions of efficacy. It also suggests that climate threats and relevant 'positive efficacy information' are both emphasised more in liberal and non-partisan news outlets. Moreover, although it used to be thought that the most environmentally engaged were White, affluent, college-educated, suburban and young and the least engaged were poor, Black and only grade school-educated, subsequent research has changed this picture, showing that: 'African Americans, Hispanics and Asian Americans' environmental attitudes and concerns are either commensurate with or surpass those of non-Hispanic Whites' (p. 483).

Elias and Hmielowski present a range of new findings about direct and indirect relationships between self-reported news media consumption and the three TPB elements. This includes a positive relation between self-reported non-conservative news consumption and all three elements, and a negative relation between conservative news consumption and two of them (environmental attitudes and perceived behavioural control). In terms of mainstreaming, their findings show for example that heavy nonconservative news consumption among Whites is associated with smaller gaps in environmental attitudes

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5.　Should such denialism be permitted in the face of scientific consensus? Elias and Hmielowski do not consider this normative question. For a case for regarding traditional, Millian, arguments for free speech as lacking force in the context of professional denialism see Hodgetts and McGravey 2020.

and perceived behavioural control between them and other racial or ethnic groups. Amongst heavy consumers of conservative news Hispanic perception of behavioural control is closer to that of Whites. Elias and Hmielowski acknowledge limitations of their research. For example, they rely on survey data on self-reported news consumption, which might not match actual consumption. It is also unclear how far the findings can be generalised beyond the specific conditions and race relations of the US. Nevertheless, their discussion of these issues and the findings they present are an important contribution to the story about environmental communication, participation and democracy.

If attention to the health and effectiveness of participatory, institutional and media involvement in environmental communication is important then so is consideration of the *quality* of the attention given to relevant human and non-human signs. In the final paper of this issue, Erin Roberts and her colleagues contribute to the literature on cultural ecosystem services (CES). Accepting the familiar point that quantitative methodologies and economic valuation are ill-suited to assessing CES contribution to human wellbeing, they defend and employ a form of the 'qualitative, participatory and situated approaches – commonly used in place-based research within the humanities and social sciences – that pay heed to the thoughts, feelings, perspectives and experiences of local communities to better understand the cultural values/benefits at stake when it comes to environmental management' (p. 503). Investigating CES then requires one to appreciate the sense of place experienced and prized by those whose lives are lived within the landscape in question. This is best approached through narratives that express the coherence and meaning of those lives and landscapes. Roberts et al draw here upon the work of Alan Holland and John O'Neill (1996), and especially the notion of 'diachronic integrity': the temporal, diachronic contexts of landscapes need to be understood in order to decide how best to take forward their narratives. 'Decisions about the future of socio-ecological systems' should be made in this light.

It is not that all change is to be avoided or somehow prevented but that the quality of changes and their appropriateness to existing narratives should be a central consideration in planning and managing change. There should be no sharp breaks that would replace coherence with 'strangeness and incongruity'. Nor is there usually just the one unifying narrative attached to a place. There can be tensions between cultural and natural narratives and within cultural narratives, which may be dominated by the discourses of the powerful. Essentially, Roberts and her colleagues are calling for deliberative processes that pay attention to the multiplicity of voices articulating the meaning and values associated with their lived landscapes.[6]

They focus on two coastal case study sites in Wales (UK): the Taf and the Mawddach estuaries. These have much in common, despite their distinct histories and geographies. Both are wide, sandy estuaries regarded as important

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6.   See also Hammond 2019.

landscapes of cultural and natural heritage, and communities in both have an uncertain future in the face of rising sea levels and other disruptive coastal processes interpreted as signs of climate change. Using a methodology combining photo-elicitation, 'go-along' interviews on walks along routes of significance to participants and sit-down interviews, the researchers garnered important information about participants' experiences, thoughts and feelings about their interaction with landscape and how this affected their wellbeing.

This includes, for example, the crucial role played by perceptible natural rhythms or cycles. Participants celebrated and aesthetically appreciated their experience of persistent, rhythmic change, and expressed feelings of comfort and connectedness to nature gained through this experience. They appreciated the complexity and variability of their intertidal landscapes as involving a dynamic rather than static form of natural stability. They also viewed interaction with their local cultural heritage (including such industrial relics as disused railways and old cockling paths) as vital to their emplaced sense of wellbeing and narrative of local nature/culture harmony. Discussion of ecological change and future prospects revealed that participants regarded as 'disruptive' those changes they saw as disturbing natural rhythms and thereby negatively affecting their individual and shared place meanings. These disruptive changes were viewed as anthropogenic, and participants spoke of them in terms of narratives of 'meddling and loss' attached to the largely incremental changes they observe (such as increasingly evident invasive plant and animals species, dune formation and silting). Discussion of what do about this 'gradual whittling away' of meaningful place connections revealed various tensions: between sustainable management needs and the wish to see nature 'left alone'; between responding to possible disruption and exacerbating the disruption; and between protecting people and property and preserving the integrity of place narratives in the context of signs of climate change.

The work of Roberts and her colleagues shows that participants understood their landscapes as 'complex socio-ecological systems filled with competing legitimate claims that are difficult to manage' (p. 518) and, as they go on to say, 'finding an appropriate way forward without compromising … dynamic stability will by no means be straightforward… as it entails a collective effort involving deliberation between the diverse interests of multiple groups' (p. 519). If we broaden the understanding and scope of 'claims' to include nonhuman as well as human communication, interpret 'dynamic stability' as an issue for political institutions, democratic or otherwise, as parts of the social landscape, and take an interest in the role of news media consumption on 'collective deliberation' this is a fitting summary of the themes of this issue of *Environmental Values*.

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