

Documenting Environmental Change

Introduction

On 15 September 1999 a colloquium was held at Clare Hall College, Cambridge, under the auspices of the Centre for History and Economics, King's College, Cambridge, on the theme 'Documenting Environmental Change'. The meeting brought together a broad spectrum of people working in the fields of geography, history, archaeology, historical climatology, literature, anthropology and political science, to exchange information about their work and examine the possibilities of future interdisciplinary co-operation in the study of historical environmental change. A full program and list of participants is to be found at the end of this document.

'Environmental History', or the study of environmental change in past time, has since its inception incorporated methods from a variety of disciplines, particularly in its institutionalized form. History and geography are perhaps the most prominent of these, but they must be ranged alongside ecology (especially landscape ecology), botany, climatology, anthropology, archaeology, and the history and philosophy of science. Those disciplines concentrating on 'natural resource data' such as pollen records, sedimentation history or dendrochronologies have been able to provide remarkably accurate data series charting the changes in such variables over time. Nevertheless, it is often difficult to fit such series into explanations that are able to determine either the impact of humans on their surroundings, or why societies managed or mis-managed their environments in a particular manner. Those whose work falls under the rubric of the 'social sciences', in turn, have tended to approach their subject from the perspective of policies and arguments which lent credence to the specific environmental concerns of interest groups in the period under study. It has proven difficult to integrate their narratives with data provided by the 'natural sciences' to assess the plausibility and validity of such concerns.

Environmental issues, most prominently the risks presented by global environmental change, have become a leading topic of international political debate in the last three decades, culminating in the Rio and Kyoto conferences of the 1990s. This period has also seen a rapid expansion of scholarly interest in the environment, challenging narrow perspectives on change and increasing awareness of the problem of how political or economic interests generate attitudes toward, and idealizations of, the natural world. At the turn of the millennium the necessity for

an integrated view of environmental change with which to engage debates in both the academic and political sphere is perhaps more apparent than ever before.

The participants at the colloquium were in broad agreement that the challenges faced by those studying environmental change required a holistic approach to overcome barriers, often of language and perspective rather than interest, that divided the practitioners of various disciplines. A first step was an appreciation of the problems and complexities of handling each others' data. Only approaches which promoted the flow and feedback of ideas between the different disciplines would allow us to overcome the regular 'frustration.. [experienced] ..in seeking out the causality and having to attribute it to factors outside the narrow confines of [one's] own discipline' (Meena Singh).

The colloquium addressed these topics via papers and discussions that focussed on both specific histories and broader methodological concerns, along with a lengthy session in which all participants spoke about their own studies and aspirations for future work. The results of these discussions can be thematized under two headings. Firstly, the issue of methods in an interdisciplinary context. This encompasses tasks such as the combination of different data sources and series; applying 'holism' in the field or the academy; interrogating the relationship between 'elite' or technical and 'local' forms of knowledge; and defining the arena for work, the integration of differing spatial and temporal perspectives and the idea of the 'baseline'. Secondly, the enduring 'problematics' of documenting environmental change. These include the interpretation of correlations and generation of explanations of causality; reflecting upon the narratives by which we construct models of environmental change (of 'embetterment', 'conservation', 'catastrophe' and so forth); and the understanding of what, both now and in past times, constitutes 'environmentalism' or an 'environmental' viewpoint and how this is associated with other interests. It is hopefully only stating the obvious to say that these issues in turn should only be considered in the light of each other.

1. Methods

i. Combining sources and series

The methodological problem of how to combine the utilization of different datasets is of course by no means unique to interdisciplinary work. Indeed, it is perhaps the fundamental problem of both the human and natural sciences since their earliest beginnings. Particular problems are

presented, however, in the study of environmental change because an object for study has been created to which a very wide variety of different accounts, sources and methods can be brought to bear. The manner in which these might be assembled into a coherent understanding of environmental change, in a fashion which is comprehensible to all those involved, remains a fundamental challenge; producing a document that can embrace all our ways of documenting.

Environmental history has already provided a very significant body of work which exemplifies the great variety of sources that might be employed. Meena Singh, for example, discussed her study of soil erosion in Lesotho, that embraced work on geomorphology and soil sedimentation (with such data as 'beer can horizons' and the presence of peach seeds that could be linked directly to periods in the human historical record), as well as utilizing the oral traditions of indigenous people, missionary diaries, letters, paintings and sketches and the archives of colonial government. Jean Grove highlighted the success of historical climatologists in addressing such diverse sources as ice core samples from glaciers to diary records of the date of cherry blossom in order to reconstruct past climates, citing in particular the work of scholars associated with Christian Pfister at Berne.

Such work is, however, extremely labour-intensive and the danger exists of being drawn in to the more readily available sources. William Beinart noted the manner in which economic histories of southern Africa had tended to underestimate the importance of sheep in the economy because of their lack of concern with their role in many activities other than the more easily traceable export of wool, as well as a tendency to focus upon prestige industries such as diamond mining. It was also generally agreed that despite strong evidence of rapid environmental change in some periods scholars were reluctant to build this data into their historical narratives because of a reaction against overly-simplistic environmental determinism, partly produced by the eagerness of earlier practitioners in the field working with insufficiently fine-grained data. Source combination will remain a methodological difficulty that places a high premium upon the readiness of scholars in different fields to be sensitive to each others' results and approaches.

ii. 'Holism' in practice

Taylor Brown made the case for the use of the concept of a 'holistic' rather than simply an interdisciplinary method, emphasizing a pro-active, integrative approach to work rather than simply arranging the results of different studies alongside each other. Certainly, participants were

adamant that simply producing studies where different disciplines were allotted a chapter without in practice working together was not a desirable model for interdisciplinary work; nor, as Lennart Strömquist stated, was it adequate to present the results from different disciplines for arbitration so it could be declared that in particular cases ‘the botanist is correct’, or ‘the geographer is correct.’ Stress was laid on the necessity to develop a ‘communication language’ that allows the flow of ideas and exchange of results, sensitive to the problem of generating ambiguities due to lack of familiarity with each others’ methods or terminology. Not only would such a language allow more effective models of environmental change to be developed; it would contribute, as Gillian Beer observed in her discussion of the genesis of Darwin’s evolutionary theory, to a process of ‘troubling and disturbing of the categories he had been offered to work with by his own community.’

Whilst this might enjoin us to be ‘the greatest scroungers’ (as Joan Oates described archaeologists), this should not make us less sensitive to the strengths of particular disciplines and foci. Holistic work should not entail a return to the ‘holistic hero’ and the ‘pretensions it carried’ - nationalist in the case of early Swedish polar studies described by Sverker Sörlin. The geographers present emphasised in particular the ‘field experience’ as a ‘joint activity’ that enjoyed a regular exchange of ideas and information. Such an arrangement is not possible, of course, for all types of work, but although contributors tended to stress the way such interaction had to develop around particular projects and goals, the necessity of specific fora - such as working groups suggested by Gloria Pungetti - was recognized as a way of keeping already heavily burdened scholars in communication. Whilst a ‘methodology which would allow us to genuinely participate in a common project’ (Meena Singh) remained, at least for now, an ideal, several highlighted the potential of ‘landscape’ as a concept to link different disciplines and as ‘a background to illustrate change.’

iii. ‘Elite’ and ‘local’ knowledge

A particular issue highlighted whilst discussing fieldwork was that of combining ‘technical’ knowledge and academic expertise with the knowledge and practices of local populations who have lived in and managed environments over long periods. This relation of technical ‘expertise’ and ‘local knowledge’ might be expanded, however, to the difficulties of working between

disciplines, learning to listen to and effectively translate the perspectives and specific methodologies of different academic groups.

Meena Singh, referring to her work on Lesotho, noted that present-day villagers, ‘had been monitoring these [gullies] far better than any natural scientist could have done over such a long period.’ Indeed, despite the impetus given towards fieldwork, particularly in geography and related disciplines, the ‘elaborated. gaze of the field’ (Sverker Sörlin) was one that could bring limiting perspectives applied over only a relatively short amount of time. Gullies are a case in point; as William Beinart stated, ‘For every individual observer there is a moment when their vision sees gullies and [they] are unable to see anything else.’ This does not imply that local perspectives are more accurate, indeed in addressing the different arguments around the state of the South African *veldt* and sheep numbers in the nineteenth century, Beinart concluded that many reasons given then, and more recently, for altered pastoral practices and environmental change were simply inaccurate, and linked to an idea of desiccation ‘deeply rooted in Cape culture.’ Even the explanation of the veterinary profession that disease was the prime limiting factor on sheep numbers around 1900, which Beinart considers to be accurate, had earlier in the century been based upon environmental determinism before the rise of germ theories.

Local perspectives can, however, provide vital insights over timescales not available to researchers, and also provide an indication of the interests that lie behind particular strategies of environmental management. A case raised by Paul Warde was the debates over an imagined impending wood shortage in Germany and France during the eighteenth century, always linked to demand for specific uses, and methods of exploitation of wood reserves. Indeed, complaints at the condition of woodland and commonly-managed resources in Europe dating from the eleventh century onwards can only be understood in the context of the particular economic interests involved, broader contemporary conceptualizations of nature, and the quantitative and qualitative data open to the assessment of the modern social and natural sciences. Lennart Strömquist noted from his fieldwork in Tanzania that, ‘We found that we needed to combine the local competence, the local values, with the interdisciplinary competence and intra-disciplinary work approaches.’ This is of course of particular importance where work, such as Environmental Impact Assessment, is directly linked to future uses of the landscape and requires an understanding of past and potential future values invested in that landscape, and the modes of its management. Only this listening and balancing approach can avoid ‘technical’ expertise -

particularly when linked to the use of new technologies - simply becoming a 'new imperial[ism]'. The problem was rather to 'use these tools, but applying rather the human brain as the main tool' (Lennart Strömquist). This will demand methods that allow a place for many more of the voices with a stake in the past and future of a landscape to be heard and become part of the process of documentation and evaluation.

iv. Spatial and temporal perspectives

A central part of the process of an interdisciplinary or 'holistic' approach is the setting of parameters for the study, and being able to integrate the very different time horizons and types of spaces that different disciplines tend to work within. The potential for 'landscape' as a focus of these processes, as the subject of geomorphological change, as a mosaic and series of patterns generated by the interaction of 'natural' and 'social' phenomena, and a feature in which values are invested, was stressed by several participants. Landscape would provide not only conceptual flexibility as a unit readily comprehensible to the methods of most disciplines, but would allow those studying environmental change to advance from a focus on particular ecological 'islands' (emphasising, as Gillian Beer pointed out, the 'enclosed, autonomous, stable and primitive', and the delimited space as a stage for 'encounter' with the outside) to the idea of an 'ecological network', understanding flows, corridors, and the interaction of landscape 'patches'. This chimes well with current thinking about the future of landscape planning highlighted by Gloria Pungetti.

Of equal importance is a flexible understanding of timescales. This is not simply a case of the differential rates of change between different factors which tend to focus the methods by which they are studied, but also the problem that changes in many factors create time-lags before the crossing of a threshold inaugurates significant observable change. Such difficulties require the perspectives of different disciplines, as well as the ability to compare technically-produced and 'local' knowledge, to appreciate the complexities of underlying causes. There is a real danger, in both the historical and contemporary record, of considering only immediate sources and providing inadequate short-term explanations. Lennart Strömquist addressed the importance of this point, noting that particularly where future planning was involved (such as with Environmental Impact Assessments) there was a clear problem with the concept of the 'baseline' from which any change is postulated as the result of recent interventions. Any appreciation of the

variability of change in the parameters under study, and the timescales within which they operate, must also require a variability of baselines and the multiple perspectivism of an interdisciplinary approach.

2. Problematics

i. Correlations and causes

The resolution of problems of source combination and interdisciplinary co-operation do not, in turn, provide a ready framework for explanations of causality even if our sources determine to some degree the direction that this might take. Nor does it seem likely or desirable that such a framework could ever be provided outside of particular studies. As William Beinart succinctly stated, ‘One can write environmental history in a whole lot of different ways.’ One of our tasks will be to develop methods that are sufficiently flexible to encompass multiple perspectives, and that allow space for more inventive approaches as fresh problems are encountered. If providing explanations of causality is an enduring problematic, we can at least point out some of the more obvious pitfalls.

Perhaps foremost among these is the danger of false correlations, and converting correlations (which may, of course, be mediated by variables external to those under study) into explanations. Again, this is not a problem by any means peculiar to studying environmental change, but such is the breadth of data types involved that scholars working in this field must constantly be alert to it, particularly in areas where they must utilize data from disciplines where they have only a limited amount of training. As Lennart Strömquist pointed out, it is an especial hazard where over-reliance is placed on the high-tech generation of data. Equally, Joan Oates expressed concern over the kinds of causal explanations produced (and their subsequent representation in the media) in ancient Mesopotamian archaeology, pointing out that lack, or insensitive handling of datasets can lead rapidly to entirely erroneous linkages of the material to hand. Effective environmental history required ‘high-resolution studies’.

Nevertheless, fears of over-hasty conclusions and the obvious problems of slipping towards discredited environmental determinism (especially where that had racist implications) should not remove the challenge of integrating data on environmental change into other historical narratives; nobody would be happy with sustaining a dichotomy between explaining change in geophysical and social phenomena. Both sufficiently focussed studies, and interdisciplinary

work, seem minimum requirements in the production of explanatory frameworks that would seem plausible today to scholars in the various disciplines, and that might be couched in a language that was readily intelligible and utilizable by those disciplines.

ii. The rhetoric of environmental change

The kinds of explanatory narratives that we provide for environmental change are themselves a product of our interests, the concepts with which we operate, our rhetorical strategies, irrespective of the quality of data from the natural or social sciences that may be to hand. A fine example is provided by Sverker Sörlin's work on the Swedish geographer Hans Ahlmann, whose work on what we would now term global warming won an article in *Time* magazine in 1952, when the phenomenon of polar warming was referred to as 'climate embetterment' (although it is unlikely that this was intended to have any broader social connotations.) Equally, because Ahlmann focussed upon climate change as a purely geophysical phenomenon he was unable to provide anything but the loosest (and inaccurate) theory of why this might be occurring. 'One might want to suggest that his disciplinary background made him indifferent to alternative hypotheses to the causes and explanations of climate change.' (Sverker Sörlin).

Similarly, the work of Gillian Beer, Meena Singh and Lennart Strömquist drew attention to the manner in which Europeans have commonly judged landscapes, especially colonial landscapes, according to the criteria inculcated by habituation to the landscapes of their native lands, often with profound implications for the manner in which those landscapes were then managed by colonial governments. The terminology by which we articulate our data, our styles of argumentation, and the expectations of a proper ordering of the landscape that we bring to our work - as much as was brought by those people who are the objects of our study - highlight a more generalized problematic of whether we characterize environmental change as positive or negative. As much prior debate has indicated - whether over the conditions of the grazed *veldt* in nineteenth century southern Africa, or the depletion of the woodlands in seventeenth and eighteenth century Germany - assessments of the quality of the environment are commonly linked to economic interests or cultural stereotypes of what is 'proper' to a particular region. Where human and non-human interests compete over an area there is often no sure guide over what might stand as effective criteria for ecological health; it is only recently that we have begun to develop such criteria. Such considerations are not only presentational; they shape, too, the

methods by which and the objects on which we choose to conduct our studies. Taking the broadest feasible interdisciplinary approach allows us to compare perspectives, ask multiple types of questions and reflect upon our own attitudes as well as the attitudes of those in past times who have commented upon environmental change.

iii. The environment and environmental interests

It cannot be taken as given what actually constitutes an 'environment', and the account given by different disciplines will vary, not least in respect of the extent to which it is useful to talk about the 'environment' as a factor to some degree exogenous to human activity. We have now a strong appreciation of how 'nature' as a concept, especially as an autonomous sphere of, to some degree, self-regulating processes, varies according to the cultural contexts in which it is embedded. Both a history of the 'thinking' of the environment, and the documenting of the changes it has undergone, require an understanding of how the very notion of the 'environment' might have been, and could be, effectively employed. This is an 'problematic' of contemporary and future importance. Gillian Beer drew attention to the double aspect of islands as being 'somewhere quite stringently contained, and somewhere where encounter takes place', in many ways a model for our recent understanding of nature, and particularly the history of some recent conservation strategies (the urban park, for example). Efforts to expand this conception in landscape planning towards 'ecological networks' and a greater stress on flows between different ecological 'patches' is part of a process by which we understand the immediacy of environmental change, rather than seeing it as a process which takes place elsewhere, even if within easy reach.

This process of conceptualization - 'the articulation of territory' - has its own rich and varied history. Sverker Sörlin's paper described the shift from a nationalistic, heroic and holistic age of Swedish polar expedition symbolically closed by the return of the corpses from the ill-fated polar balloon expedition of 1929 to a 'modernist' conception more in tune with the contemporary social 'emphasis on social engineering, welfare, technology, functionalist architecture, and egalitarian ideals.' This technical era, despite success in expanding the study of change in polar climate, failed to appreciate this as an 'environment[al] problem' and Sörlin argued that we needed to 'look at ... when and how this it was interpreted as an environmental problem and not only as a geophysical and climatological phenomenon.' He argues that this was the result of the development of an 'environmental paradigm' based in environmentalist politics

since the 1960s. Beinart, in contrast, doubted that such a 'paradigm' was recent, arguing rather that environmental concerns were articulated via different and changing objects over time. It is at least clear that in the middle of this century, despite not interpreting his glaciological data as being indicative of a 'Greenhouse Effect', the work of Ahlmann 'was used as a vehicle [for] mobilizing resources for international co-operation and large-scale polar research involving Sweden.'

A problem remains for us now to develop concepts of the environment adequate to mobilizing resources to effectively protect and develop the world that we live in. In documenting environmental change this means developing a conception adequate to avoid the swings between 'environmental determinism' and those theories only satisfied to attribute a 'forcing' role to human agency that have characterized much of the last century of study. Our concepts must also, as was pointed out, be equal to the task of being understood and employed in the broader public domain and of encouraging the next generation of scholars. It is perhaps a particular obligation to articulate these in an interdisciplinary context, not only to enhance the plausibility of our explanations, but to demonstrate the manner by which consensus and an understanding of ecological dynamics, local and global, may develop. In an age where public debate around environmental change tends to oscillate between the poles of catastrophe and complacency, or scaremongering and adaptability, our ability to document, imagine and explain change is not simply of academic significance.

Conclusions

The colloquium on 'Documenting Environmental Change' was both a beginning and part of a process that has long been ongoing. Environmental history, whilst only emerging as a discipline relatively recently, has deep roots in the various ways we have studied ourselves and our surroundings, and the day provided striking evidence of the tenacity and ingenuity with which people have pursued those studies. At the same time, it brought together a group of scholars from a wide variety of disciplines who could provide a core group for future collaboration and networking, prepared to listen to each other and articulate the kinds of difficulties that holistic, or interdisciplinary work faced. (We should include here Richard Grove and Winfried Schenk who very kindly provided papers despite not being able to attend.)

There was consensus among the participants that holistic work was most effective when practiced by a focussed group of scholars in close communication. As such, the utility of the very diverse group brought together by this meeting (both in terms of disciplines and the range of environments studied) was above all to provide contacts and openings to future work of this kind. To this end the organizers proposed that the day's work be continued by the establishment of an electronic database of interested scholars providing a broad range of information and updated news of work and initiatives in our fields. It was also proposed that a seminar be established in Cambridge specifically to address these themes. It was emphasised by some that specific, focussed fora were required (without providing additional burdens) for already busy scholars to remain in productive and focussed contact. It is to be hoped that in the coming months these will indeed be developed to carry the work forward.

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Database and Website proposal

Subsequent to the colloquium 'Documenting Environmental Change' it is proposed to set up an electronic database linked to a website as an information resource for those working in the fields of studying historical environmental change, especially interdisciplinary projects. This would hope to avoid any duplication of current work, but rather facilitate contacts and news exchange, especially between disciplines and countries. It is envisaged that this would act as a stimulus to future collaborative work and would be complemented by a seminar series, 'Documenting Environmental Change', to be held at Clare Hall, Cambridge. The field of information is potentially very large, even with the limit of historical work and an emphasis on interdisciplinary proceedings.

Work on the database has already begun. It is established in Microsoft Access but will undoubtedly undergo modifications during the initial period and in the light of practicalities as more information comes in. The database will be configured in such a way that the information is easily transferable to a website, which would be set up under the auspices of the Centre for History and Economics.

The website would consist of three main sections. Firstly, an introductory page outlining the project, and colloquium (linked to the conference report). Secondly, a news page which could be updated fairly regularly, detailing recent publications by those connected to the database, forthcoming projects, seminar dates and titles, and so on and so forth. Finally, the main section, a text-based database of those with whom we have connections or about whom we have information. Space could be limited to, for example, one page per project or university/faculty/centre, where the participants would be invited to provide a few lines on their work, supplemented with contact addresses and numbers, and any relevant website links. The aim of the website would be to provide contacts and encourage communication, rather than unnecessarily burdening it (and us) with an overload of information.