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Paul Bishop and the *longue durée* of human–environmental relations in SE Asia

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ABSTRACT

Paul Bishop's contribution to the earth sciences is profound. His work on large spatial and temporal scale landscape evolution is well known, but he also (and coevally) directed his attention to the complexities of human–environmental interactions, with all their site-based and short-term cultural idiosyncrasies. His focus on mainland SE Asia, and Thailand in particular, reflects a long-standing fascination in and affection for the region and its people. His natural inquisitiveness stimulated work in historic climate change, the emergence of complex states, Quaternary landscape evolution and the geochronology of anthropogenically modified sediments, among many other areas. His work on human–environment interactions drew on and strengthened links with many people and institutions, and between Geographical and Earth Sciences and the Scottish Universities Research Centre at the University of Glasgow, in particular. Just as important as his contribution to the earth sciences was his contribution to the development of his students and other mentees, and his role in shaping our careers was enormous.

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Introduction

Paul Bishop's primary research goal was to understand landscape history. He pursued this goal at two different temporal scales, broadly defined as 'geologic' and 'modern', to use Schumm and Lichty's (1965) dichotomy. The first of these was Paul's work examining landscape change at the longest timescales ('geologic'), which provided career-defining research at study sites worldwide. In this contribution, along with some others in this special issue, we highlight the other time scale of great geomorphic interest to Paul, that of the late Holocene (the 'Modern'; spanning the last several thousand years), and the important legacy of his research on the interplay between human occupation and environmental change in riverine landscapes in Southeast (SE) Asia. His passionate pursuit of this theme, which brought together his expertise in geomorphology and landforms with an enthusiasm for human history turned, in recent decades, to the environmental contexts

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of human settlement in river valleys in eastern Australia (Muñoz-Salinas et al., 2014; Portenga et al., 2016; Portenga & Bishop, 2016), southern Italy (Grano et al., 2016; Grano & Bishop, 2017), and in the historic landscapes of his adopted home of western Scotland (Bishop & Muñoz-Salinas, 2013; Bishop et al., 2010; 2017).

Rivers, people, and the landscapes of industry

Paul Bishop's academic interest in the connections between societies of the past and their environment extends back, at least, to his participation in fieldwork in Egypt with Professor Martin Williams (cf. Williams et al., 1977, and Williams' contribution to this theme section). Paul began publishing his work in Thailand in the mid 80's, particularly on complex palaeochannel sequences in north central Thailand. Near fluent in Thai, Paul had a long-standing fascination for Thai culture and history. His initial interest, set out in two papers in 1987 (Bishop, 1987a, 1987b), focussed on challenging the applicability of facies models of floodplain accretion (that is, lateral accretion dominates vertical accretion) developed in 'humid temperate terrains' (Bishop, 1987b, p. 207) to tropical regions of the earth. His focus was the alluvial rivers of Thailand's vast Central Plain, and particularly those at the transition from the mountainous terrain to the north. The Yom River, in particular, because a focus of this and subsequent work. These relatively flat alluvial terrains, only occasionally pierced through by bedrock, provided an ideal location to test models of tropical fluvial landform development, but it is clear from the outset that Paul's interest extended to the rich archaeological history of the region. His geomorphological work contextualised the kiln fields centred around the village of Ban Ko Noi in collaboration with archaeologist Don Hein, and one gets the sense that his primary interest lay in the complex interdigitation of environment and culture in this historic industrial landscape (and something he clearly maintained a passion for in his retirement). He mentions a 'Thai-Australian Thai Ceramics Archaeological Project' in a 1987 paper (Bishop, 1987b, p. 210), which implies the geomorphology work was designed to support the archaeology. This early work was very characteristic of Paul's field-based empiricism (ambitious hard graft married with meticulous field notes), exploiting exposed stratigraphic sections through floodplain terraces and undertaking transects of 5 m deep auger holes.

Paul's attention soon expanded from the kiln fields of Ban Ko Noi to the mediaeval city of Sawankhalok/Sisatchanalai, some 6 km downstream along the Yom River (Bishop, 1989; Bishop et al., 1992; Bishop et al., 1994; Bishop & Godley, 1994; Hein et al., 1988). His work here with David Godley, in particular (then a Master's student at Monash University, who completed in 1997) was ground-breaking multi-disciplinary research into human/environment interactions in the tropics (Godley's 2002 publication, which summarised key aspects of this work, remains a remarkable piece in the period before 'big data' became widely digitised and easily accessible). A theme that emerged from this work in the mid- to late-1990s was a renewed recognition of biophysical phenomena in social developments that was explicitly non-deterministic. It is perhaps over-egging to suggest that this was a reaction to social and cultural determinism that characterised the study of 'post-hunter-and-gatherer-societies' (Paul never wrote extensively on the nature of determinism in Geography), but it is clear that he recognised the complex interdigitation of social and biophysical phenomena. He reflected:

> The waning of environmental determinism often seems to mean, however, that the natural environmental dimension is now completely absent from many interpretations of social change and development in post- hunter-and-gatherer society. (Bishop et al., 1996, p. 147)

The images of historic boundary walls of old Sisatchanalai interbedded with flood deposits from the Yom River are beautifully emblematic of intwined social and biophysical phenomena. They also go to the resilience of urban environments in the seasonal tropics in the face of environmental perturbation and disruption.

By the late-1990s Paul's attention had shifted toward north-east Thailand and the Khorat Plateau, an uplifted low-relief plateau that was less well-watered than the north and suffered through an enervating dry season water deficit. His attention was, perhaps, partly stimulated by an interest in the palaeo-climate of this marginal environment, in that changes in prevailing climate were likely to make themselves more apparent in the north-east than they were in the north.

He was also drawn to the geomorphology of the area, and particularly to the peculiar quartz-rich 'cover sands' that mantled the landscape in some areas, and which were apparently of glacial-age and aeolian origin (loess). His initial work with Professor David Sanderson (Scottish Universities Environmental Research Centre [SUERC]) on the luminescence characteristics of these deposits (Sanderson et al., 2001) sought to test an alternative 'biomantle' hypothesis (originally proposed by Löffler & Kubiniok, 1996). Paul and David suggested the mantles were most likely aeolian and late Pleistocene in age, which has been subsequently confirmed through geochemistry and mineralogy (Nichol & Nichol, 2015). It is pleasing to see that this work continues, with Alan Cresswell and David Sanderson returning to these materials in a paper published last year (Cresswell et al., 2022).

The 2004 Indian Ocean tsunami, despite its horrifying impact, represents another outgrowth of the long and energetic collaboration with SUERC (Bishop et al., 2005; Sanderson, Bishop, Hansom, et al., 2007). In that case, the ability to test methods for generating independent ages on tsunamigenic deposits using the 2004 incident as a training set, and the ability to field test the portable Optically Stimulated Luminescence (OSL) reader newly developed by SUERC, represented compelling science. This work weighed heavily on Paul, too, given his long association with and deep affection for Thailand. He wrote that 'the excitement and enthusiasm generated in us by this breakthrough sat awkwardly with the sobering nature of the materials to which we were applying it' (Bishop et al., 2005, p. 383).

The environmental context of early trading states in mainland SE Asia

The strong links with SUERC were carried from Thailand to the Mekong Delta in Cambodia and Vietnam, in collaboration with Professor Miriam Stark from the University of Hawai'i Manoa, as part of the Lower Mekong Archaeological Project (LOMAP). The emergence of early *entrepôts* on the Mekong Delta at places like ÓcEo in Vietnam and Angkor Borei in Cambodia represented critical points of inflection in the political and social development of the region. These early trading states created links to maritime trade networks and set the groundwork for the emergence of the great agrarian states of mainland SE Asia. As elsewhere, Paul's approach here

was diverse, from the interrogation of sediment cores from archaeological features (reservoirs) to constraining palaeo-climate and environment, to archaeological excavation across abandoned canals, and experimental field-based work on luminescence properties of surficial sediments and the dating of bricks in collaboration with David Sanderson.

Paul's excavation of the canals that linked the historic *entrepôts* of Cambodia and Vietnam became an iconic example of his ingenious field-based research. These canals, originally mapped by Pierre Paris in the 1930s and 1940s (1931, 1941), appeared as linear traces across the relatively featureless upper Mekong Delta. The longest of these, dubbed Paris 4, stretched for more than 80 km between the ancient settlements of Angkor Borei and ÓcEo. This was part of a canal network tied together a loose assemblage of polities called *Funan* by the Chinese, and which dominated the Mekong Delta and the Gulf of Thailand region during the first to seventh centuries CE (Coedes, 1975). Paul's interest was primarily in the age of these canals, given their likely significance in enabling internal interaction of polities within *Funan* and engagement with regional trade networks outside of it. Excavating archaeological trenches across these ancient canals and several metres deep into the Mekong Delta, even during the incapacitating dry season, is a mind-boggling logistical problem given the high ground water. To counter this, Paul and David Sanderson constructed a cofferdam of sorts – a drainage

Figure 1. Excavation across Paris Canal 4, linking the historic centres of Angkor Borei (Cambodia) and Oc Eo (Vietnam), on the upper Mekong River delta in southern Cambodia (March 2004). The encircling drainage trench, from which water was continuously pumped, created a local depression in the groundwater table that preserved the integrity of the research trench (centre), allowing a nearly 2 m deep excavation to the base of the canal infill. Photo: Dan Penny.

trench that encircled the archaeological excavation and protected it from the gushing groundwater (Figure 1). The drainage trench required constant pumping, with flatulent diesel pumps running night and day, yet still the walls of the trenches succumbed slowly to the hydraulic pressure and were eventually shored up with bamboo poles before the whole ensemble was abandoned. The fieldwork heroics aside (Figure 2), developing resolved absolute chronologies for the Paris canals proved

Figure 2. Paul Bishop, taking dosimetry measurements from the exposed face of an archaeological trench ('Paris 2') cut across an ancient canal near Angkor Borei, Cambodia. Photo: LOMAP, Miriam Stark, David Sanderson.

challenging (Bishop et al., 2003; Bishop et al., 2004; Sanderson et al., 2003; Sanderson, Bishop, Stark, et al., 2007), being either frustratingly ambiguous or internally contradictory. The tendency of radiocarbon ages from these canals to 'pool' around 6–6.2 ka BP, irrespective of their stratigraphic position in relation to one another or to cultural materials that could not have been so old, was a particular frustration to Paul. In notes he wrote in March 2005 on this issue (sent to DP), he wrote '[t]he equivalence of [radiocarbon ages] may imply that the supposed "infill" is not that but part of a simple "layer-cake" stratigraphy. This conclusion calls into question the whole interpretation of the Paris 4 site as an infilled canal'. Despite these uncertainties – still unresolved – Paul and David's luminescence profiling of these canal sediments and the systematic application of field-based dosimetry to support it remains exciting and experimental science, and underscores the breadth and diversity of connections between the University of Glasgow and SUERC.

By the start of the 2000s, interest in the late Holocene climates of the global tropics, and how landforms and societies may have been influenced by climate, had increased sharply. Paul had already (for a decade at least) been thinking about what climate was like in the prehistoric Mekong Delta region. His years of field survey and direct observations of these landscapes led to an awareness, we think, that in such long-occupied places, the geomorphic evidence of past climate change can be difficult to obtain. What would evidence of prolonged drought (or many short-lived droughts) in the past look like, exactly, in a tropical floodplain core where the sedimentology is a compendium of irregular fluvial deposition (and erosion) and often poorly understood historical legacies? Even if we could equivocally identify evidence of past climate shifts in the modern landscape, could we directly date such evidence with any accuracy, so that the geomorphic information might be compared directly with the deep records (often annual in resolution) of human life in the region?

At this time (the 2000s) there were no palaeoclimate datasets from southern Cambodia that could support the evolving understanding of the ancient Khmer and the rise of early trading settlements. Certainly, Paul was already cognisant of the importance of local-scale climate variability for social evolution from his work in Thailand (e.g. Bishop et al., 1996; Penny et al., 1996). This consideration of location and scale of environmental change and its complex intersection with human decision-making remains a fundamental challenge in archaeological research to this day (e.g. Kintigh et al., 2014). Paul and colleagues argued the need for palaeoenvironmental records in Cambodia at temporal and spatial scales that would have been directly relevant to historic societies, and so would be comparable with the archaeological and historical records (Contreras et al., 2018). The palaeoenvironmenal record produced from Angkor Borei by Paul and colleagues (Bishop et al., 2003) provided the theoretical framework and foundational data sets that paved the way for an expanded, regional-scale multi-record project.

Paul and colleagues sought funding for an archaeological-orientated research project that was heavy in field-based geomorphic research, focused on developing new palaeoclimatic and palaeohydrological records (describing the 'natural' landscape) that could be articulated with the nature of the 'cultural' landscape that were being revealed at Angkor Borei and surrounds. The Arts and Humanities Research Council (AHRC) funded project, 'Early historic landscapes and the rise of centralised states on the

Mekong delta, Cambodia,' was originally sketched out by Paul, Dan Penny and Miriam Stark in 2004 and funded in 2005 with Duncan Cook as the named post-doctoral researcher. The project set out an ambitious agenda. It aimed to characterise the region's local and regional environmental variability in the early historic period and to assess the influence of environmental variability may have had on: (a) interrelationships between people and landscapes; and (b) the emergence of early historic centres in the Mekong delta. The project began in haste in mid-2006. This was the first large external funding that Paul secured from a humanities-focused organisation, and there is a nice career-symmetry, we believe, with his second funding success from the AHRC (for his work on the lime burning landscapes of west Scotland) bookending the era of human–environmental connections research.

We had the great pleasure of conducting multiple seasons of fieldwork with Paul across southern Cambodia between 2006 and 2009. Expeditions to the floodplain areas surrounding Angkor Borei were undertaken in the searing heat of June 2006 and June–July 2007 to recover the sedimentary cores needed to address the 'regional hydrology' questions posed for the research. Paul had previously acquired an enviable collection of hard-copy aerial photographs of the Lower Mekong river valley region, and the coring locations were carefully selected based on the analysis of these, all while sitting in Paul's office in Glasgow on the other side of the world.

The first wave of sediment coring was successful, but examination of the cores back in Glasgow showed that they were incurably impacted by dry season sediment compaction and weathering, leaving incomplete and difficult-to-interpret sedimentary records. In response, an extra coring programme, this time at Ankgor Borei, was undertaken in January 2008, focused on locations thought to be covered by water year-round. Paul and colleagues had had prior success, for example, coring in the *baray* (artificial pond) at Ankor Borei, and the area (and how to get around via the vast network of ancient and modern canals) was well known to Paul. The 2008 sediment cores (Figure 3), collected from boats and, less conventionally, off the back of a water buffalo, were of excellent quality, and contained records of hydrological variability back to c. 6000 BP (based on ^{14}C-dating undertaken at SUERC) but, disappointingly, did not contain much information for the period of particular interest, the last 1000 or so years. Using SUERC's portable OSL system, we generated an intriguing data set that confirmed the sedimentation discontinuities in the 'AB' cores, showing that major breaks in sedimentary sequences can be detected using portable OSL data, a finding reported by Paul and colleagues in *Earth Surface Process and Landforms* (Muñoz-Salinas et al., 2011).

The other side of the AHRC-project was focussed on developing the first speleothem-based palaeoclimate records from Cambodia. Fieldwork for this research between 2006 and 2008 resulted in the exploration and mapping of many tropical caves across southern Cambodia; this may also represent the first (and only) cave fieldwork undertaken by Paul (Figure 4). Detailed cave microclimate monitoring and surface water isotopic analysis was undertaken at multiple locations in southern Cambodia across all years of the project. Despite much success in the field, developing the cave palaeoclimate records was technically challenging, with early attempts to establish a chronology of speleothem growth (itself a measure of changing climate through time) using U/Th dating (again, a collaboration with SUERC) proving unsuccessful due to 'difficult' U-series geochemistry. Several speleothems were sampled and then analysed to produce oxygen and carbon

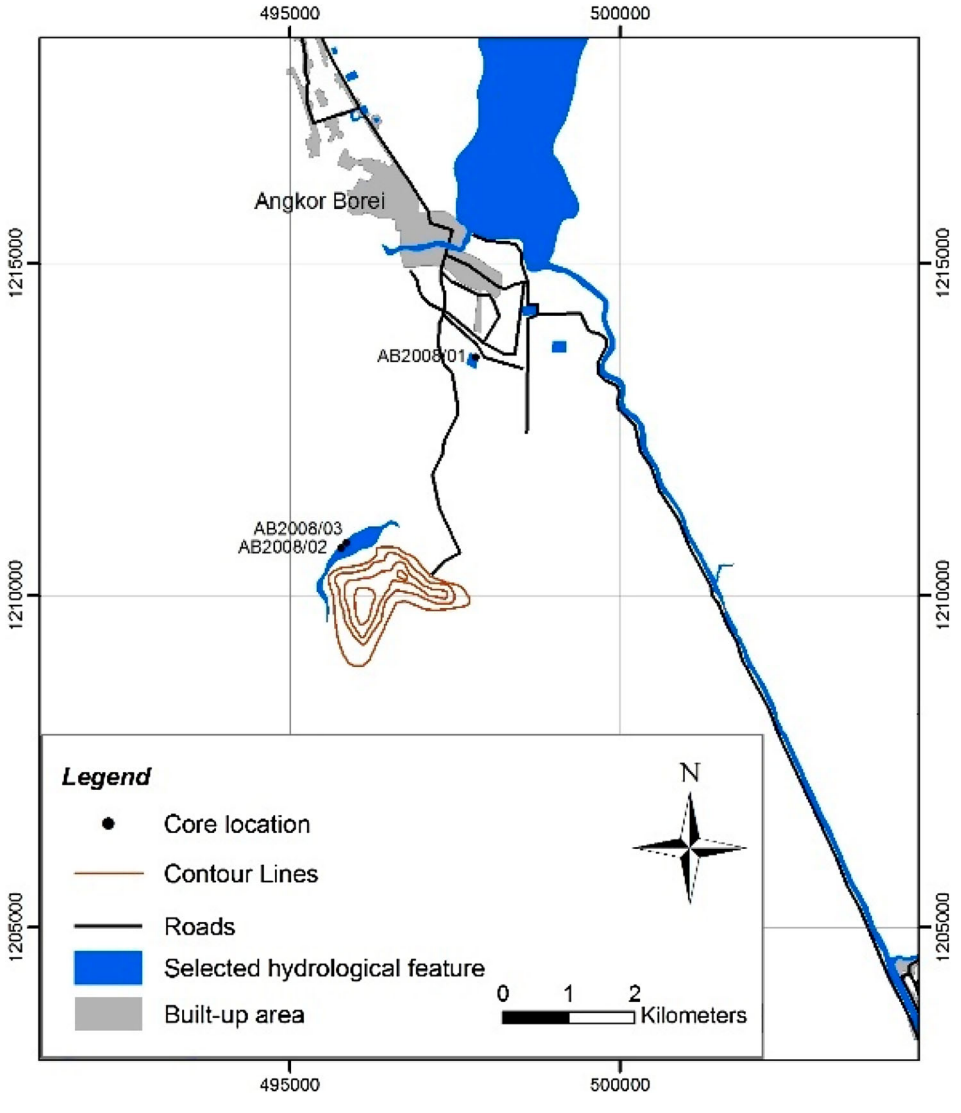

Figure 3. Location of AB2008 cores in around the historic *entrepôt* of Angkor Borei, southern Cambodia. Map produced by Paul Bishop.

isotopic records at SUERC. One of these (PC1) provided a good proxy record of rainfall patterns for southern Cambodia for the last 14,000 years. Seeking to crack the dating 'problem', Paul proposed experimenting with radiocarbon approaches to date the PC1 speleothem (a relatively novel approach for speleothem paleoclimatology at the time), and tests undertaken at SUERC provided an encouraging proof of concept. A detailed ^{14}C-based age-depth model was eventually produced by Dr Quan Hua and colleagues at the Australian Nuclear Science and Technology Organisation, and published in *Radiocarbon* (Hua et al., 2017).

Returning to Paul's original research aims, the now well-dated PC1 record indicated that climate in southern Cambodia deteriorated in the fourteenth to sixteenth centuries

Figure 4. Paul Bishop (right) sampling a stalagmite from a cave in southern Cambodia, 2007. The authors Duncan Cook, left, and Dan Penny, bottom, look on in awe.

CE, with a prolonged period of much drier conditions, or possibly multiple shorter drier periods, prevailing at a time of great social and cultural change in the region (Penny et al., 2019). The speleothem evidence of substantial climatic instability through these centuries is significant and confirms similar evidence from neighbouring Vietnam (Buckley et al., 2010). Paul's southern Cambodian project drove a number of methodological innovations, which is a hallmark of Paul's research career. In this case, it was the first application of low-cost ibutton microclimate recorders (more commonly used in refrigerated transport) to cave palaeoclimate research, and the first attempt at the using of maërl/rhodoliths (a form of coralline algae) as an archive of past temperature change in the region. The maërl was collected in the 2008 field season in shallow waters a short distance offshore of Kampot, on the south coast of Cambodia, and a fortnightly resolution record of ocean temperature successfully reconstructed (but unfortunately, only for the last 50–60 years) by Professor Nick Kamenos (a marine geoscientist then at the University of Glasgow) (Kamenos et al., 2017).

The southern Cambodia project was the last fieldwork Paul undertook in SE Asia. Since 2010, Paul's research on understanding historic landscape change shifted toward multiple interconnected projects in Scotland and additional projects in eastern Australia and southern Italy. In 2021, while in COVID-19 induced lockdown, Paul activated a project he had been discussing with us for some years that aimed to trace the connection between lime kilns and landscape modification in Scotland (now a primary research focus for Paul) and how this technology and resultant landscape impacts were transplanted to Colonial-era Sydney and NSW (Australia) via Scottish and Irish immigrants (Figure 5). This project, like many others Paul had instigated before, now continues with his collaborators, sustained in no small part by the momentum he created.

Arising from the floodplain: outreach, teaching and academic leadership in SE Asia

Bishop's years of research on the human landscapes of SE Asia featured periods that required him to put down the maps and sediment coring devices (temporarily) and depart the floodplain to share his research and expertise with diverse audiences in Cambodia, Thailand and Vietnam. While his research in the 1990s was located quite squarely in Thailand, Paul was active throughout the region in academic leadership and outreach roles. In 1992, he delivered Australian Government-sponsored lecturers to the Masters in Environmental Management programme at Prince of Songkhla University (PSU), southern Thailand, and he was recruited to advise Chulalongkorn University (Bangkok) on the development of a new Environmental Science programme. Paul also

Figure 5. Paul Bishop (right) standing on the right-hand flank of a rare, u-shaped clamp kiln, at Lime Kiln Creek, Jerangle, NSW, Australia. Photo provided to the authors by Paul Bishop.

held the UNESCO Chair of Environmental Education at Viet Nam National University, Hanoi, Vietnam for much of the 1990s, this being just one of the outcomes of the close working relationship he had formed with the UNESCO office in Bangkok. Outside of the academy, he provided advice to the Mekong River Commission (Bangkok) on river morphology in the context of bank protection, and he facilitated workshops between Thai and Lao officials on the problem of bank erosion in the cross-border contexts of the Mekong. Over the border in Vietnam, Paul was part of a team who contributed to the Regional Master Plan Framework for Economic Development for the Province Quang Nam – Da Nang (Vietnam) in 1993, which led to Australian-funded research on catchment management and fluvial geomorphology connected with the Hoa Binh hydroelectricity dam, Vietnam, in the mid-1990s. By the 2000s, when Paul's research interests were largely focused on the *longue durée* in southern Cambodia, he ensured time was put aside to travel to Phnom Penh and deliver lectures on his latest findings to staff and students at the Royal University of Fine Arts (Figure 6). Throughout this eventful time in SE Asia, Paul was also working for the International Borders Unit as a global rivers and riverine border expert, a role he continued (and greatly enjoyed) for decades. It was pleasing to learn that Paul had recently applied this experience to the subject of river borders in the UK (including the Scotland-England border) with talks to local history organisations.

Bishop's SE Asia research has left us with some unique legacies that are worth mentioning here. The field and laboratory work on the PC1 speleothem specimen from

Figure 6. Paul Bishop delivering a lecture at the Royal University of Fine Arts, Phenom Penh, Cambodia. 23 January 2007. Photo Duncan Cook.

southern Cambodia was featured in a 3D IMAX movie, *Angkor 3D: The Lost Empire of Cambodia*, by Australian director Murray Pope (K2 Studios), with a concurrent exhibition on Angkor organised in association with the Cambodian government. The speleothems from this project are now kept by the Hunterian Museum at the University Glasgow, an arrangement secured by Paul after their time in the laboratory was complete. Being accepted into the Hunterian ensures that these highly valuable materials can remain preserved based of their inherent geoheritage and cultural value and, potentially, to ensure their conservation and future availability for geoscientific studies. A final, but perhaps most important legacy from Paul's work on landscape change in late Holocene contexts is the immense impact he had on student training and the development of future scholars. Paul's projects were highly attractive to students and junior researchers and his landscape history projects, often in incredibly interesting parts of the world, provided superb field-based research training opportunities (as we, the authors, can attest to). While there are too many student thesis topics to include here, a close read of Paul's publication record shows that his students are well represented as co-authors. It is no secret, at least among his colleagues, that he mentored and strongly encouraged his students to act as lead authors on publications. Paul's generosity went beyond mentoring and co-authoring publications and grant applications with us. He actively supported and facilitated our (and many others') professional development throughout our careers.

Conclusion

Over a span of three decades, Paul Bishop pursued an intellectual track that took him from Australia (and then, from Scotland) to mainland SE Asia (Thailand, Cambodia, and Vietnam) where he, his students, and colleagues advanced our understanding of the connections between humans and their environment in recent millennia. Bishop, the towering geomorphologist, is best known for this highly cited research on mega-geomorphology and process acting over large temporal scales. We feel it is incredibly important to highlight the length of engagement that Paul had with research on human–environmental relationships, geoarchaeology and industrial histories. This began in the 1980s and continued into his retirement with renewed (or perhaps undiminished) vigour, mainly in the landscapes of west Scotland which he called home. In the case of the SE Asia projects, he often worked on the frontier in data-poor and logistically challenging locations, where he made substantial contributions. Paul pursued this research with gusto, and with great success, but he did so while maintaining his research on long-term landscape evolution worldwide – an incredible achievement that reminds of us Paul's strong work ethic, boundless energy, and his enthusiasm for thinking about and doing geomorphology. Paul's research from SE Asia continues to inform the field and many of the projects he led or contributed to are still in motion or have otherwise informed and inspired new research. Paul, perhaps only partially in jest, would say that his work on historic and archaeological contexts was a 'hobby' – a pleasurable distraction from the technical and intellectual grind of mega-geomorphology and geochronology – and his undiminished enthusiasm for this type research in his retirement indicates just how enjoyable it was to him.

We also highlight here an important legacy of his research projects in SE Asia: the contribution to student training and mentoring we and many others received through these years, and the enduring friendships that followed from working with him. We experienced the very best research training and mentoring from Paul, and the success of our research careers are largely thanks to the energy, generosity and professionalism he applied to nurturing future generations of scholars.

Personal Reflection

DP: I have known Paul Bishop most of my life. He taught me as an undergraduate in the School of Geography and Environmental Science at Monash University in Melbourne, Australia, became my PhD advisor there, and was my mentor throughout my career. Indeed, his interest in human–environment interactions resonated strongly with my own, and his timely intervention, in 1992, represented an inflection point in my life and marked the start of my career. At that time, I had just finished my fourth-year Honours dissertation and was idly considering future research. I clearly recall walking toward him in a corridor and he casually asking, 'how's your Thai?'. A short time later I had begun my PhD in the north-east of Thailand under his supervision, and I have worked in SE Asia ever since. In no small measure, I owe whatever success I have had to Paul. He was instrumental in developing a multi-disciplinary research consortium at Monash University for research into the social and environmental history of the Australasian region, supported first through a three-year Monash Development Fund grant and then by national competitive funding through the Australian Research Council (2000–2002), which carried his legacy if not his name (he is described as 'very instrumental' in developing this research prior to his appointment to a Chair at Glasgow in the forward to the 2002 edited collection *Bridging Wallace's Line* that summarised some of the outcomes of that diverse assemblage of work). It was in this context that my formative training as a researcher took place. Paul's close attention to the interdigitation of geomorphology, hydrology, palaeo-climate and archaeology represented something of a blue-print for my own interdisciplinary work in Thailand, Cambodia and Mesoamerica. Paul moved from Monash to Glasgow before I completed my PhD, to take up the position of Professor of Physical Geography there. I recently became Professor of Physical Geography at the University of Sydney, and I chose that title, in part, to recognise Paul's influence on my professional life and his massive contribution to our shared discipline.

DC: The day Paul Bishop swept into my office at The University of Sydney in 2005 – thanks to an introduction by DP – remains etched in my memory. As an Australian physical geographer, I was naturally aware of Paul's research on large-scale landscape evolution, and like others, somewhat less aware of his work on the historic landscapes of SE Asia. Paul described his research plans for the historical landscapes of southern Cambodia, and I quickly realised that I wanted to be his next post-doc in Glasgow. I had recently began working on human impact on the geomorphology of the Maya lowlands of Central America, and the similarities (and contrasts) historic geomorphic changes on either side of the Pacific were fascinating. I was keen to apply what I'd been learning in the Americas to reconstructing the past landscapes of the Khmer in southern Cambodia, and Paul was nothing but encouraging. I wasn't being treated uniquely, I now realise, because this was exactly how Paul was. The serendipitous meeting at Sydney set in course a post-PhD research career that has remained largely focused on understanding tropical landscape histories. Paul was there at the start, and, despite his incredibly busy career, he always, somehow, found time to support my research career (and that of many others), wherever it went, while magnanimously providing non-geomorphic advice and support. Among the many facets

of Paul's mentorship and guidance, especially valuable was showing me (and others) the importance of interdisciplinary work on landscapes, and how you build relationships and collaborations across disciplinary divides. The importance of fieldwork, direct observation, methodological experimentation, and verification of data were lessons learned from Paul that I still venerate, and importantly, these approaches are key themes in my teaching and mentoring activities. His influence on my thinking on how landscapes have co-evolved with people has been enormous. It has been a real honour (and so much fun) collaborating with Paul over the years; his insights, knowledge, and friendship will be greatly missed.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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