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PREFACE

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Dr Thomas H. Loy (1942-2005) was a master storyteller, an innovative archaeologist and an inspiring teacher. He was equally at home walking a survey line in the red dust of northern Australia as he was enthusiastically lecturing on starch identification to an undergraduate audience, or sitting back with a cold beer spinning tales of escapes from helicopter crashes and bear attacks in frozen Canada. With an Apple Mac and a microscope always somewhere close by, Tom dedicated his working life to understanding the world around him by systematically examining the details that others may have overlooked, and inventing new methods of doing so if none existed. His sudden passing in October 2005 deprived us of the opportunity to present these papers to Tom personally, but both the diversity of research represented and its global coverage stand as testament to an enduring legacy, appropriate for an archaeological pioneer who demonstrated the value of examining the smallest traces for answers to the biggest questions.

The genesis of this collection was a symposium held to honour Tom's memory on 19 August 2006 at the University of Queensland, Brisbane, where he was Senior Lecturer in the School of Social Science. Papers delivered at that event have been augmented with invited contributions from colleagues not able to be present on the day. The symposium was memorable for the breadth of research presented (from residues on the tools of *Homo floresiensis* to the DNA of Henry VIII's warship) as well as for a stone knapping demonstration and discussion by Colin Saltmere of the Dugalunji Aboriginal Corporation, with whom Tom had established a strong friendship through his final field project near Camooweal in northwest Queensland. Following Tom's lead, many of the presentations recognised the responsibilities we as archaeologists bear towards both the past and present people that we deal with, a responsibility that requires vigilance in getting our stories straight. That recognition continues in the pages that follow. The central theme of this volume lies in using the detailed information recovered from microscopic and molecular archaeology to tell the most accurate stories we can about the human past, and doing so in a manner that encourages never-ending inquiry about the further avenues we may follow.

Beginning with a reproduction of the keynote address given by Richard Fullagar at the symposium, the volume is divided into two main sections. The first is titled 'Principles: synthesis, classification and experiment' and includes overviews and experimental or collection-based studies that aim to strengthen the fields of microscopic residue and ancient DNA analysis by examining the underlying principles on which these disciplines operate. In soliciting papers, the editors aimed to present an integrated if broad snapshot of the microscopic residue analysis field as it stands in the first decade of the twenty-first century. The synthesis of recent South African work provided by Lombard and Wadley provides a clear indication of the promise for residue studies to contribute to the important issues of human evolution, including the advent of hunting and the definition of modern human behaviour. From an historical perspective, Haslam's review of microscopic residue study sample sizes likewise stresses the need for thoughtful application of residue results if the field is to reach its full potential.

Specific residue types such as starches, raphides and blood proteins all played prominent roles in Tom's career as a residue analyst. This work is continued, first in the investigations of Jones and Barton into residue taphonomy over timescales from weeks to millennia, and second by Lentfer and Crowther in establishing archaeobotanical databases that will bring new rigour to discussions of past plant-use practices in Indonesia and the Pacific Islands. Watson *et al.* report on a decade-long search by Tom Loy and his students for an ancient DNA analogue to use in maintaining inter-laboratory standards (a topic continued by Hlinka *et al.*), emphasising again both respect for ancient remains and the need for procedural scrutiny to ensure reliable results.

The second section, titled 'Practice: case studies in residue and ancient DNA analysis', presents a series of studies with coverage from Europe to the Americas and Australasia. The full gamut of microscopic residue work is on display, from rockshelters (Hardy and Svoboda; Robertson) to open sites (Cooper and Nugent; Fullagar *et al.*) and private collections (Field *et al.*), and a number of stone tool types and materials receive close attention. An integrated battery of tests employed on Mesoamerican ceramic artefacts by Matheson *et al.* mirrors those used by Tom in his own early blood protein work, and reveals possible ceremonial use of the examined vessels. All these studies demonstrate the importance of detailed specialised analyses for adding social value to objects either newly or previously recovered, a theme continued in the DNA studies of museum pieces large and small by Spiers *et al.* and Hartnup *et al.*. There are few places in the modern world where you can still hunt the mighty moa, and the ancient DNA laboratory is one of them.

Reflecting on the work in this collection it is evident that one of the central strengths of residue and ancient DNA analyses lies in bringing rigorous yet innovative science to bear on otherwise intractable problems. That said, amongst the researchers reporting here there appears little room for science done for its own sake, and the anthropological and humanist underpinnings of archaeology are very much apparent. For example, the DNA case studies echo Tom's knack of identifying a specific topic of interest to modern audiences and then using that starting point to address wider issues. Microscopic residue analysis has yet to experience the same global explosion of output as ancient DNA research, but even in this selection important commonalities are emerging. One of these is the influence of rapid desiccation of residues as a significant aid to their long-term preservation, a point reiterated in various contexts by Jones and Matheson *et al.* regarding blood proteins, Barton for starches and Cooper and Nugent for a variety of residues. Identifying these common outcomes allows for future targeted research agenda, and the approaches demonstrated in these pages take important steps towards such coordinated effort.

Much was said about Tom Loy during his lifetime, and we will conclude by saying just one thing more: Tom was not always right, and he knew it. He also knew that the best way forward was to use his generosity and enthusiasm for revealing past human lives to inspire others to find the answers he did not have the time to find himself. This volume is testament to the success of that vision.

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upon the work that forms a career. For those who worked with and learned from Tom, and those who will never meet him, we hope that there remains something of his inquiring spirit within these pages.