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Editorial

Past Environments and Human Lifeways of Lesotho and the Wider Maloti-Drakensberg Region of Southern Africa

The Maloti-Drakensberg of Lesotho and South Africa is Africa's highest and most expansive mountain system south of Kilimanjaro (Tanzania). Its name is hyphenated because the mountain ranges it incorporates span political and modern language and cultural regions and, accordingly, the mountains are seen from different perspectives. *Maloti* in the Sesotho language means 'mountains'; the Africaner trekboere saw them as dragon's ('drakens') mountains, today often coupled with the isiZulu term *uKhahlamba*, or 'barrier of spears'. The region labelled 'Drakensberg' on the KwaZulu-Natal (South African) side of the range simply refers to the escarpment (Mazel, this volume), whereas the highest peaks are inside the Kingdom of Lesotho. Although the mountains themselves were formed during uplift of the central plateau some 20 million years ago, it was the late Quaternary that saw the peopling of the area, with recurrent occupations from at least 83,000 years ago in the Lesotho Highlands (Pazan et al., 2022, this volume). This Special Issue highlights selected topics pertaining to the varied Late Quaternary peoples and environments of the mountains across time and space.

In terms of space, the studies in this volume are bounded by their focus on southern Africa's Maloti- Drakensberg, yet they traverse a spectrum of subject matter that is palaeoenvironmental and palaeolithic in focus – moving from the natural to the anthropogenic, through time – from geomorphology, climate and environment, to faunal and human occupation. This Special Issue is not intended to cover every aspect of Maloti-Drakensberg geography or archaeology, although it provides a range of new material that focuses research attention on the region. On several levels, the data presented in the articles brought together here can be seen to intertwine – especially those delivering environmental information, whether from a biological perspective or with reference to human occupation. However, the anthropological and linguistic turn introduced towards the end of the volume highlights that western scientific interpretations can distort what local communities report (e.g. Skinner, this volume). Detailed study can improve the translation of local idioms into materials that researchers can work with.

The physical properties and landscapes of the Maloti-Drakensberg region are fundamentally determined by geological and climatic characteristics of its mountain environment that are unique in a southern African context. These landscapes are mainly characterised by flat-lying Jurassic basalt beds that control the topography and geometry of mountain summits, as well as the weathering processes, soils and ecosystems associated with them; and regional to micro-scale climate patterns that reflect the high elevation of this region, and boundary layer interactions with the Great Escarpment topography that give rise to a strong precipitation gradient. Annual values and seasonality of precipitation and moisture availability are known to have varied significantly during the late Quaternary across this region, resulting in spatial and temporal changes in weathering, geomorphic processes and ecosystems. The interplay between the physical landscape and late Pleistocene to contemporary climate and environmental change is described in several papers in this Special Issue.

The paper by Knight and Grab (2022, this volume) describes a previously under-reported process of mountain denudation in the Maloti-Drakensberg caused by chemical weathering. This process is mediated by the accumulation of rainwater on exposed basalt bedrock surfaces which, by dissolution, forms distinctive but unusual pseudokarst features. The processes responsible for development of pseudokarst depressions reflect the interplay between rock chemistry, water availability and chemical supersaturation, seasonal development of ice within water pools, and bioweathering through the development of lichen on rock surfaces. Such chemical weathering yields a calculated denudation rate in the Lesotho Highlands of ~30 m/Ma. The effects of physical weathering processes in the northern Lesotho Highlands is discussed in the paper by Bregman and Knight (2022, this volume). This study describes the development of blockstreams issuing off the basalt plateau surface using evidence from geomorphic mapping, analysis of clast size and shape properties, and collection of Schmidt hammer rebound values that reflect the degree of surface weathering of individual clasts. Based on this evidence, different phases of blockstream development can be identified. Initial rockfall from basalt cliff faces caused blocks to accumulate at footslope locations. Progressive sediment accumulation took place in an upslope direction as sediment supply increased, likely related to climate cooling and gelifluction. Midslope deformation and development of arcuate ridges within the blockstream then took place, likely under a periglacial regime that allowed for the development of interstitial ice. Higher precipitation then led to temporary formation of a snowpatch and development of a protalus rampart near the blockstream head. The relatively high degree of surface weathering seen today suggests that the blockstreams are largely relict but are retained as distinctive landscape features today.

The paper by Combrink et al. (2022, this volume) presents a long-term palaeoenvironmental record from Ntsikeni wetland, located in the KwaZulu-Natal foothills of the Maloti-Drakensberg. Based on pollen evidence from a 3 m-long core dominated by anoxic clay sediments, several late Quaternary climate phases are identified spanning the period ~25 cal ka BP to present. This high-resolution record, constrained by radiocarbon dates, starts within the last glacial maximum and then shows warming consistently through the lateglacial to the mid Holocene but with millennial-scale cooler phases that correspond to the Younger Dryas and 8.2 ka event. A drier lateglacial period is marked by

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increased Poaceae and Asteraceae, and decreased Carophylaceae. Increased wet taxa in the late Holocene reflects an increase in wetland area driven by higher winter rainfall. Finch et al. (2022, this volume) examined two wetland cores from the Cathedral Peak region of the northern Maloti-Drakensberg, spanning the last 2000 years. They found variations in charcoal concentration and morphology that reflect the impacts of early agropastoralists on fire production, and a shift to early-season grass fires, respectively. In combination with pollen data from some key species, this evidence highlights the role of human activity in forest dynamics in mountain-foot environments. Herbert and Fitchett (2022, this volume) aggregated pollen data from 14 sites across the Maloti-Drakensberg in order to reconstruct regional climatic conditions for the past 8000 years. They used data on contemporary (1981–2010) climate from a regional climate model to calculate key climatic variables such as annual, seasonal and monthly temperature and precipitation which were then tested using Principal Components Analysis. Covariability of pollen data within and between sites was then used for climate reconstruction. A key result of this analysis was identification of a wetter and cooler neoglacial period at ~2 ka BP, consistent with sediment and diatom records in the region.

The paper by Grab and Nash (2022, this volume) examines changes in the distribution and relative abundance of large fauna in Lesotho through the late Pleistocene and Holocene based on archaeological, documentary and oral history records. Resulting faunal lists were examined for both temporal and spatial trends. Temporal trends correspond to changes in climate, ecosystems and food availability; spatial trends correspond to those upland or lowland regions across Lesotho where particular species are (or were) most commonly found, and how species' distributions have changed in response to hunting and local extinctions, mainly over the last 200 years. Results of this analysis reveal the correspondence between prevailing environmental conditions and the presence of certain faunal species, and the close association between individual species and the cultural and heritage values ascribed to them by local people.

How ecological changes like those just described articulated with past human lifeways in the Maloti-Drakensberg has been at the forefront of research agendas since professional archaeology began here in the 1960s, and remains a major focus. Lennox and Wadley (2022, this volume) present the results of an analysis of late Pleistocene charcoals from the deep archaeological sequence at Rose Cottage Cave, located west of the Maloti Front Range in the eastern Free State Province (South Africa). The charcoals derive from 24 individual layers that span from the earliest human occupations of the cave in Marine Isotope Stage (MIS) 5b (~96 ka) to mid-MIS 3 (35 ka), and together comprise the bulk of its Middle Stone Age (MSA) component. The study's results speak to both vegetation changes and continuities, with moisture-loving taxa persistently present even as substantial shifts are registered between the site's widely spaced occupation phases. Deciduous woodland with high taxa diversity prevailed during MIS 5b, shifting to deciduous/evergreen forest and lower diversity under the cooler conditions of MIS 4. Warmer conditions returned during the final millennia of the latter isotope stage, giving way to low-diversity evergreen woodland punctuated by brief phases of higher taxa diversity during the predominately cool but variable climatic conditions of early to mid-MIS 3 (~59–35 ka). That the vegetation community changes registered at Rose Cottage Cave are largely uncoupled from shifts in lithic industries is in agreement, Lennox and Wadley (2022, this volume) argue, with models of MSA technological change that eschew climate as a straightforward prime mover (Jacobs et al., 2008). Moreover, their detection of enduring streambank communities lends support to the hypothesis that the Maloti-Drakensberg acted as a refugium for interior populations during dry and unstable phases of the late Quaternary (cf. Stewart and Mitchell, 2018a; Stewart et al., 2016).

Pazan and colleagues (2022, this volume) present a typotechnological analysis of MSA lithic assemblages from the basal strata of Melikane Rockshelter, Highland Lesotho. Along with Rose Cottage Cave, Melikane is the region's other site whose sequence stretches into the Last Interglacial. Deposited around 80 ka during MIS 5a, the basal assemblages there are currently Lesotho's oldest radiometrically-dated archaeology and constitute some of the world's earliest evidence of a sustained human presence in a high mountain setting. Operating in a highland environment cooler and more humid than today, Melikane's first inhabitants, the study shows, followed two main stone tool reduction systems. One used soft-hammers to produce large blades and then smaller, irregular flakes, while the other employed bipolar technology to further reduce high quality raw materials (cryptocrystalline silicates). The overall strategy was to produce multifunctional tools while economizing raw materials, probably part of an adaptive repertoire to facilitate high residential mobility within a small, topographically-constrained foraging territory. Formal tools are dominated by perforators and various steep-sided scrapers, forms that recur frequently at Melikane and probably represent components of tools that were especially useful in the highland zone. Flaking systems and proportions of tool forms at Melikane differ from contemporaneous sites across southern Africa, suggesting human populations inhabiting the highland zone were weakly connected to people living in other regions, as has been posited for southern Africa as a whole (Mackay et al., 2014).

Moving forward in time to the Last Glacial Maximum and terminal Pleistocene, the paper by Pargeter and Dusseldorp (2022, this volume) tests a hypothesis developed by Stewart and Mitchell (2018b). The latter authors posited that during phases of climatic cooling, the depression of alpine vegetation belts in the Maloti-Drakensberg and reduction of ungulate populations provoked dietary and land use intensification responses from highland foragers. These responses saw them broaden their diets to lower-ranked foods (like riverine fish) and become focused along linear river corridors, with associated technological and perhaps sociopolitical reorganizations. Pargeter and Dusseldorp (2022, this volume) use different subsistence and lithic technological indices, augmented with a probabilistic lithic raw material survey in the region, to test this model with data from Sehonghong Rockshelter, located not far from Melikane in the southeastern highlands. Their results provide mixed support for Stewart and Mitchell's (2018b) model: whereas greater dietary evenness largely correlates with phases of enhanced fishing, their measures of technological intensification show more complex trends that are often divergent from both the faunal evidence and from one another. From these data they argue that while aquatic resources provided highland foragers with a clear intensification pathway, the foragers' behavioral responses were more variable.

Resources for foragers were dramatically reconfigured when rapid ecological changes occurred in the early Holocene, with an overall warming trend was punctuated by short cooler and drier phases. This impacted the occupation of rockshelters such as the lowland Lesotho site of Ntloana Tšoana, examined by Arthur (2022, this volume). While Ntloana Tšoana possesses a sequence stretching back to the Howiesons Poort MSA (~61 ka), this study examines early Holocene (Phase 3) deposits (~11–9 ka) to explore issues of placemaking and memory on a temporally well-resolved, microstratigraphic scale. The fine-grained levels are bracketed by massive, archaeologically-sterile fluvial silts, deposited when the adjacent Phuthiatsana River periodically inundated the site. Those underlying the Phase 3 levels provided a clean surface for new forms of site occupation, while the silts above these levels preserved the cultural residues beneath. The Phase 3 deposits at this site exhibit remarkable cultural continuity, most notably in the form of large hearths with dense material inventories. Among these are high frequencies of stone tools known as Woodlot scrapers, suggesting the development of a leather craft tradition at this site. The presence of evidence of hide-working may reflect cultural memory, traditions, and the lived experiences of people, place and occupation of the site, and over multiple generations.

The concept of place is also examined by Mitchell and colleagues (2022, this volume), who present the results of reinvestigation of Later Stone Age (LSA) levels at Moshebi's Shelter in the Sehlabathebe Basin of

southeastern Lesotho. Motivating the new excavations of Moshebi's upper levels was the potential for shedding light on contact dynamics and attendant socioeconomic transformations over the past two millennia. This is a timeframe over which the Maloti-Drakensberg and its hunter-gatherer societies became increasingly affected by recurrent waves isiNtu-speaking African farmers settling the surrounding lowland areas, and the pace, nature and extent to which local foragers were impacted by novel foodways, materials and ideas. The authors found that the LSA levels were affected by spring-fed water channels, rodent burrows, and anthropogenic pits and postholes that moved materials vertically through the sequence, including dated charcoal and pottery samples. Notwithstanding these complications, what was thought an entirely late Holocene LSA sequence almost certainly includes both early/mid-Holocene and late Pleistocene archaeological components. Another outcome may be the effects of a changeable rockshelter environment on the perceptions of Moshebi's inhabitants, including engagement with the wider landscape, a point that is reinforced in the linguistic and anthropological papers of this Special Issue.

Bonneau and colleagues (2022, this volume) examine hunter-gatherer rock paintings from the Phuthiatsana Valley of western Lesotho, and the chemical characterization of the pigments used to make them. Using SEM and FTIR spectroscopy, they identify 17 different base colour materials, three of which had not been previously reported, and with individual rock paintings constrained by AMS radiocarbon dating. Their results show which pigments were being used during different phases in the painted sequence. This is largest characterization and dating study of LSA rock art in southern Africa. The locality of the samples, moreover, ties them to the fine-grained excavated record created by Arthur and colleagues (e.g. 2018) and that there is great potential here to integrate the two datasets.

Moving eastwards and down the uKhahlamba-Drakensberg Escarpment, Mazel (2022, this volume) synthesises aspects of the Holocene human occupation of the KwaZulu-Natal Province (South Africa) mountains using archaeological evidence. The results illuminate hunter-gatherer life below the main escarpment. Detailed evidence of the excavated remains pertaining to subsistence – people's plant and animal diets – from the early LSA ~8 ka to the historical period, is presented. Across this timeframe are material culture changes exemplified by the presence at different times of marine, ostrich eggshell, glass, copper and iron beads. Importantly, this paper introduces the idea that pastoralists were briefly present in the region around 2000 years ago at the same time as the arrival of African farmers, evidenced by the presence of finger paintings usually attributable to herders. African farmers increased in number during the Late Iron Age from about 1000 years ago and the influence of herders and farmers on forager lifeways is one of the paper's core themes.

Jimenez (2022, this volume) provides a linguistic study of the Iron Age settling of the Thukela uplands, in the eastern foothills of the Maloti-Drakensberg, as farmers moved out of the lowveld and into the montane grasslands. IsiNguni-speakers came into this landscape around 1000 years ago and developed a new linguistic repertoire for farming practices and the natural environments of this region. This study explores and defines the spread of proto-Nguni-speakers using glottochronology (the rate at which language diverges) adjusted by archaeological correlations in pottery styles and settlement patterns. Lexical innovations for 'wild place', 'mist' and 'famine' as the higher elevations are settled are notable, as is the innovation of a new term for grass, *-ngca*, which incorporates the Khoe-San dental click. Fundamentally, this tracking of movement and language demonstrates how people responded to, and shaped, the late Holocene environment.

In the final paper of this Special Issue, Skinner (2022, this volume) highlights the need for outsiders such as administrators, governments officials and academics to see the local environment of the Maloti-Drakensberg as local inhabitants do. To illustrate, he takes us to the deep, dark places where 'river snakes' live by building up a pattern of understandings from interviews on snake classifications (including non-western categories such as crocodiles). The 'owner of the pool', *khanyapa-fito*, is inextricably linked to river flow and meteorological control, categorised by outsiders as 'mythological', but for locals a very real phenomenon, particularly the specialists who have the snakes' permission to approach. The landscape is thus defined by the entities that populate it and how those entities can be expected to behave (cf. McGranaghan and Challis, 2016).

Collectively, the papers in this Special Issue showcase the temporal, topical, and transdisciplinary breadth of Quaternary research currently being conducted in the Maloti-Drakensberg. They speak to the extraordinary geological, palaeoenvironmental and cultural histories of southern Africa's foremost mountain region currently receiving the scientific dynamism it deserves. The insights derived from these programs of research will be vital for securing a bright future for the Maloti-Drakensberg's fascinating yet fragile natural resources and cultural heritage.

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