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RECENT RESEARCH IN SOUTH WESTERN PREHISTORY

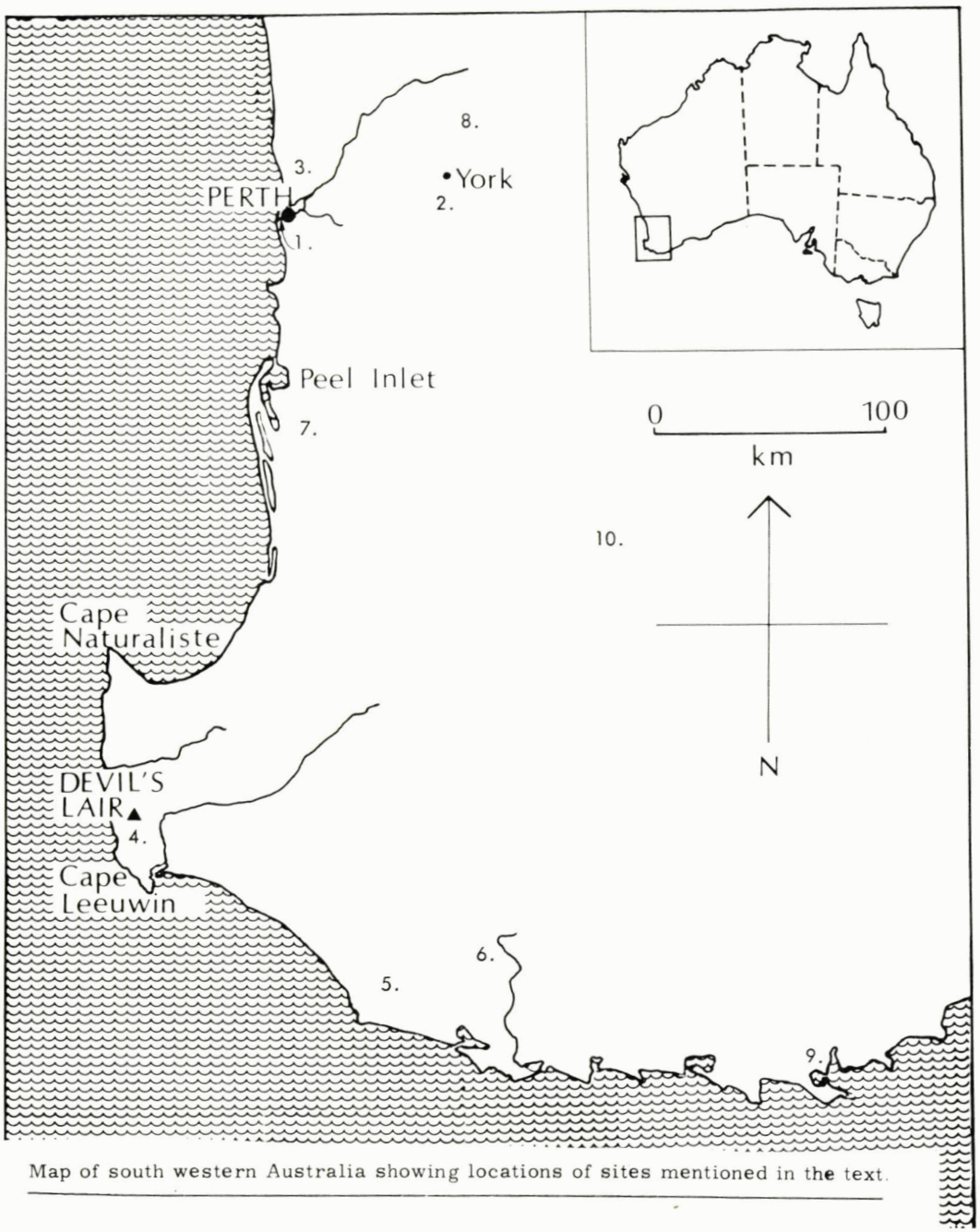
The Devil's Lair investigations continue to be the most important single research project in the prehistory of south western Australia. The small group of excavators from the Western Australian Museum (J. Balme, C. Dortch, D. Merrilees and J. Porter) completed their fifth field season in April 1975. During this season they penetrated well below a charcoal band dated at 24,600 ± 800 BP (SUA 31) and found more evidence of human occupation in the form of a large pit and perhaps two more hearths, all of which are still under analysis. At present six pits have been recorded, including the enigmatic Pit 2 (Dortch and Merrilees 1973). There are also more than six hearths, some of which remain under analysis, and one occupation surface (Dortch 1974). The charcoal band dated at 24,600 BP, itself probably a large, thin hearth, contained a number of animal bones and stone artifacts including a few made of a distinctive form of bryozoan chert (see below).

No remains of the Australian extinct Pleistocene marsupial fauna have yet been identified at Devil's Lair. The only species recovered which are now extinct in mainland Australia are the Tasmanian devil and the thylacine, the last being represented only by two incisors. A single incisor from a layer dated between 20,400 and 24,600 BP is probably that of a koala. Marine fauna is still extremely rare, and mussel shells are the only relatively common freshwater faunal remains. Recently several seeds, probably of heath plants, were identified during laboratory sorting of bulk sediment samples. Until 1975, froth flotation sampling had not been carried out on the Devil's Lair sediments. However the Conservation Department of the Western Australian Museum has recently completed a froth flotation unit (bubbler type), and sediment samples taken over the past three years are now being processed.

A human pelvis bone has been recovered from Hearth 2, a feature dated at 12,000 years BP (SUA 102 and SUA 103: Dortch 1974) A human milk tooth was identified in 1974 during laboratory sorting of a bulk sample from a layer dated at 19,000 years BP, making this one of Australia's oldest human fossils. The pelvis bone and the tooth are respectively being published by Professor D. Allbrook and Dr L. Freedman of the Department of Anatomy and Human Biology, University of Western Australia.

A variety of other small finds were made during the 1975 season. From Hearth 2 (12,000 BP) and layer 10d (20-21,000 BP) respectively there are two engraved limestone plaques the younger of which appears to be an art object. Other finds include a second bone bead (see Dortch and Merrilees 1973) which may be as much as 15,000 years old, and a very finely worked small, broken bone point dating to about 19,000 BP.

A few finely dentated or abruptly retouched small stone artifacts have been recovered including a 19,000 year old partly



Map of south western Australia showing locations of sites mentioned in the text.

1. MOSMAN PARK
2. FRIEZE CAVE
3. WALYUNGA
4. DUNE SITES
5. NORTHCLIFFE
6. COWERUP SWAMP
7. PEEL INLET SURVEY
8. BOLGART
9. ALBANY
10. SALT LAKE DISTRICT

backed quartz bladelet which probably fortuitously resembles a bondi point. Other stone artifacts include a few more adze-like scrapers as described in Dortch (1974) and Dortch and Merrilees (1973). The Devil's Lair bone tools are now seen to be a numerous and complex group, and it is clear that bone tools were an important part of the tool kit of Late Pleistocene man in the south west. Balme and Dortch are preparing a paper on the bone technology of Devil's Lair.

Dr M. Shackely of Institute of Archaeology, Oxford University is presently making a detailed study of the Devil's Lair sediments, and her colleague Dr A. Wimple is engaged in thermo-luminescence dating of samples of crystalline limestone taken from successive layers in the radiocarbon dated part of the Devil's Lair deposit. Preliminary investigations are also being made in Perth of amino-acid and uranium-thorium dating of bone samples from the deposit.

One of the most interesting recent developments in south western research centres on studies (Glover 1974, 1975; Glover and Cockbain 1971) of a distinctive form of Eocene fossiliferous (bryozoan) chert. This stone was much used for artifacts at Devil's Lair between 12,000 and 25,000 BP (Dortch 1974; Dortch and Merrilees 1973), and bryozoan chert artifacts occur in abundance in many coastal dune sites which on stratigraphical and typological grounds are thought to date to the early Holocene and Late Pleistocene. Recent off-shore boring shown that a formation of Eocene limestone which is the probable source of the bryozoan chert used in the Perth Basin and at Devil's Lair was exposed during times of low sea level during the Late Pleistocene and until perhaps six or seven thousand years ago (Glover 1975). This new evidence appears to confirm recent hypotheses of Glover and Cockbain (1971) and Hallam (1972, 1975) on the origin and prehistoric human use of the stone. In February 1975 Western Australian Museum staff found bryozoan chert flakes *in situ* in coastal dunes of the ancient Spearwood System (McArthur and Bettenay 1960) at Mosman Park on the Swan River about five km north of Fremantle. Charcoal samples taken from this excavation are being radiocarbon dated by University of Sydney, and J. Clarke and C. Dortch are preparing a report on the investigation.

C. Dortch and W.M. McArthur (Land Resources Management, CSIRO, Perth) are presently carrying out archaeological and geomorphological investigations in dune systems in the vicinity of Devil's Lair. Survey has revealed numerous bryozoan chert and quartz artifacts in dunes probably of much the same age as the Spearwood System of the Perth Basin to the north. Test excavations yielded bryozoan chert artifacts in association with quartz geometric microliths. It is likely then that bryozoan chert was used, and thus its sources exposed, until six or seven thousand years ago, this being the probably age of the first microlithic assemblages in south western Australia. This age is in keeping with Glover's (1975) estimate for the termination of Aboriginal exploitation of bryozoan chert. Charcoal samples from the principal test excavations in these dunes are being dated by University of Sydney radiocarbon laboratory.

Dortch (1975) recently obtained radiocarbon dates for the stone industrial sequence at a quarry - factory near Northcliffe on the south coast which indicate that geometric microliths were being made there between three and about six thousand years ago. In June 1975 R. Pearce of the University of Western Australia carried out a test excavation in a dune soil near Walyunga at the foot of the Darling Escarpment 40 km north of Perth. Here he identified a stone industrial sequence in which bryozoan chert artifact assemblages are followed by ones which contain no bryozoan chert but which do contain a few backed blades and other microlithic tools. The sequence ends with Aboriginal artifacts made of European materials though it is not certain whether backed microliths continue until the post-European phase. Three charcoal samples taken from this excavation have been submitted for radiocarbon assay.

Thus recent excavations at Mosman Park, the dunes near Devil's Lair, Walyunga and Northcliffe provide petrological and typological sequences which, when combined with the stone industrial sequences recorded from Devil's Lair (Dortch 1974; Dortch and Merrilees 1973) and Frieze Cave near York (Hallam 1972, 1975), constitute a reliable record of changes in stone industries and variations in stone resources in the south west from the Late Pleistocene until the modern period.

Studies in south western traditional or prehistoric ecology, economy and environment are also being advanced. Hallam (1975) has published *Hearth and Fire*, an important synthesis of traditional land use in the south west based largely on the excellent ethno-historical sources available. Baynes, Merrilees and Porter (1976) have produced a detailed study of the mammalian faunal sequence at Devil's Lair which includes environmental inferences based on preferred present day habitats of south western mammals. Meagher (1974) has written a very useful paper on south western Aboriginal food resources based on ethnohistorical accounts and to a lesser extent on her field inquiries among south western Aboriginal people.

Site protection and salvage continues to be a serious problem in the south west. Staff of the Departments of Archaeology, Anthropology and Aboriginal Sites of the Western Australian Museum, Mrs Hallam and her students from the University of Western Australia, and also a number of interested amateurs have been engaged in several salvage excavation or survey projects in the Perth Metropolitan area. Here numerous dune sites containing archaeological horizons are being destroyed by large scale urban development. Most of these sites are not being properly salvaged before they are destroyed despite the efforts of the above archaeological groups. (The Mosman Park excavation was one such salvage project, and the site is now totally destroyed.)

Salvage projects and surveys have been carried out in other parts of the south west, one of the most recent of these being a survey on the coastal plain south of Peel Inlet which was directed by Mrs V. Novak of the Museum's Department of Aboriginal Sites. There are many large sedge swamps in the south west, and one of the largest of these, Cowerup Swamp, near Lake Muir is being systematically excavated by fertilizer manufacturers. Quartz artifacts occur in sufficient numbers in the peaty deposit to chip the blades of the shredder used

to process the sedge plants removed from the swamp. Site destruction in the Perth metropolitan area and the draining or commercial excavation of sedge swamps near Perth and on the south coast constitute the two most crucial salvage problems in the south west at present. There are many hundreds of limestone caves in the Capes Leeuwin and Naturaliste area, in the Perth district and near Geraldton to the north and some of these undoubtedly contain valuable archaeological deposits. The caves are under threat of destruction or vandalism at any time, though, fortunately, Perth-based speleological groups have been keeping a very close watch on developments which may endanger them. It is worth noting here that the present series of excavations at Devil's Lair itself began as a salvage job.

Most research into south western prehistory has been confined to the western coastal plain (the Perth Basin) and the Cape Leeuwin-Cape Naturaliste area. The notable exception to this has been Hallam's (1972, 1975) survey and excavations near York in the Avon Valley to the east of Perth. Other work includes a preliminary survey made by Dr J.M. Bowler of the Australian National University at lunettes in the interior zone of salt lakes (playas). Mr W. Dix, now Deputy Principal of the Australian Institute of Aboriginal Studies, has made a detailed study of tidal fish traps at King George Sound (Albany) on the south coast, and he and staff of the Department of Aboriginal Sites have also recently recorded linear rock engravings at Bolgart near York. Rock art is rare in the south west though at least two caves near Perth contain linear engravings (Hallam 1975) and one of the engraved plaques from Devil's Lair is, as noted above, probably an art object, and these suggest that the south west may yield more finds of prehistoric rock art.

In conclusion prehistoric research in the south west is only in its beginning stage. A number of very interesting developments have been detected even though the sample of archaeological data for an area of this size is admittedly small. However research to date has been broad based and includes significant contributions from palaeontologists, palynologists, geologists and soil scientists, ethnographers and historians, not to mention physical scientists who have provided radiocarbon dates and many other essential studies.

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BROUGHTON ISLAND, N.S.W.

RECENT PREHISTORIC USE OF AN OFFSHORE OCEAN ISLAND

Introduction

In June 1974 exceptionally strong winds coincided with high tides on the coast of New South Wales to create damaging waves. Unpublicised results were wave cut sections in middens previously unrecorded. One such exposure was on Broughton Island, which I visited for a day in July 1974.

Location

Broughton Island is 32° 35' S, 152° 20' E; grid reference is 535967. The island is of irregular shape, being from north to south about 2 km across and from east to west 3 km. An aerial photo has been published in D. Baglin and B. Mullins *Islands of Australia*.