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ABSTRACTS FROM THESES,DEPARTMENT OF ANTHROPOLOGY, UNIVERSITY OF OTAGO, 1982-84.

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Abstracts from all Ph.D., M.A., and B.A. (Hons) theses in archaeology completed during the period 1982 to late 1984 are given below. Copies are held in the Department of Anthropology, University of Otago, where they may be consulted in the Departmental Library. Xerox copies may be obtained through the Librarian, Anthropology Department at cost, plus GST and postage. These are subject to the usual restriction applying to theses, namely the understanding that their use is for private research and not publication.

1982

Pamela J. Bain, Maori Rock Drawings; a Stylistic Analysis of Drawings in North Otago and South Canterbury. M.A. thesis, Anthropology Department, Otago University. viii, 148 pp., 2 plates, 41 figures, 14 appendices.

A valuable part of the history and prehistory of New Zealand in the form of drawings, paintings and engravings is present in many of the limestone areas of New Zealand. Although undated, the drawings give an indication of the way of life and the culture of the artists.

There are three kinds of rock art in New Zealand: drawings or paintings and engravings in rock shelters and engravings on portable rocks. The most common variety of rock art is the drawings. Concentrated recording has revealed sites throughout New Zealand, but most commonly in North Otago and South Canterbury. The drawings and paintings from these areas will be dealt with in this thesis, with only brief mention of engravings and portable art forms. In particular, an analysis of stylistic variation was carried out and this analysis indicates that the greatest variation in style between the two areas appeared to have been early in the cultural sequence, and the Waitaki River may, in fact, have served as a type of cultural boundary. The variation is not so great during the 'Classic' Period and it is possible that this is a reflection of changes in social organisation in the South Island.

Roger Fyfe, The Fishing Behaviour of the Prehistoric Inhabitants of Long Beach, Otago. M.A. thesis, Anthropology Department, Otago University. 1 page abstract; x, 219 pp., 5 plates, 38 figures, 14 tables, 5 appendices.

Excavations at the Long Beach site (S164/20), East Otago, produced large assemblages of faunal remains and artefacts from two major periods of occupation. The early period, dated to the 13th - 15th centuries, was represented by three layers of midden material, above which were working floors and middens of a mid-17th century Maori settlement.

A total minimum number of 4,189 fish representing 14 species was identified. The analysis of this large sample of fish bone with the evidence from a variety of smaller comparable local samples, is used to evaluate the fishing behaviour represented in these sites and to examine the role of fishing in local subsistence economics. The analysis of the surviving archaeological evidence and the secondary information available concerning the marine resources exploited can be summarised as an attempt to answer three questions - What is the plan?; How is it to be inferred from the data?; What makes it a better (or worse) plan than some others?

The results indicate that the fishing behaviour can be accounted for by assuming the operation of a single discernible fishing strategy.

Mary H. Slatter, Contents of a Kete from Puketoi Station. B.A. (Hons) dissertation, Anthropology Department, Otago University. iv, 82 pp., 7 plates, 1 figure, 2 appendices.

The artefacts upon which this study is based fall into a category, that of textile materials, which has been little examined by archaeologists in Otago, in recent years. This is due though, more to the unlikely chances of preservation of such articles, rather than a denial of the contribution such studies can make to an area's prehistory.

Found by David McKee Wright in a small cave formed by an overhanging rock on Puketoi Station, on the Upper Taieri, the kete and its contents were briefly described by Hamilton, one of the 'pioneers' of Otago archaeology, in 1896. Since then the articles have received little attention, and no further work was done in identifying the fibres involved. Several particularly interesting 'finds' were included in the kete, which also contained bone, shell, and lithic articles, such as a bag once used for the extraction of tutu juice, and which became a holder of kokowai, a small woven bag containing mimiha, and a paua shell kokowai container.

As well as the artefacts being of interest in themselves, the kete itself was discovered in a type of site which is also of relevance in helping to complete the picture of Otago's prehistory - a cave formed by an overhanging rock, along an obvious routeway from the coast to the interior.

1983

Charles A. Bollong, Automated Isoprobe Analysis of New Zealand and Oceanic Volcanic Glasses. M.A. thesis, Anthropology Department, Otago University. 2 page abstract; xii, 234 pp., 4 maps, 6 plates, 13 figures, 17 tables, 4 appendices, 2 overlays.

The problem identified is the lack of functional analysis facility for the routine characterisation of obsidian artefacts. In over 20 years and no fewer than 12 different projects, a dedicated system for the analysis of New Zealand and Oceanic archaeological obsidian by prehistorians themselves has yet to be established. An attempt is made to remedy the situation, and a programme of research and development is initiated which utilises ^{241}Am radioisotope gamma-ray induced x-ray fluorescence analysis. An automated analysis and sample changing facility capable of up to 50 artefacts per run is amalgamated with micro-computer controlled data reduction and inspection.

Experiments are performed to determine the excitation source emission characteristics as well as sample specific effects inherent in physically non-destructive fluorescence analysis. Minimum system detection limits are explored with the use of glass standards. Volcanic glass source samples from Melanesia, New Zealand and Central and Eastern Oceania are examined and distinct source-region groups established. Sources best distinguished by this technique include Mayor Island and Northland within New Zealand, in addition to Central and Eastern Pacific volcanic glasses. Lesser discrimination ability is attained between the New Zealand source regions of Inland, Coromandel and Great Barrier with the Melanesian groups. Artefact allocation is based upon a rejection configuration which clearly shows the level of source discrimination achieved.

Allowance is made for the addition of an x-ray tube excitation source, and recommendation to improve the isoprobe system's performance are proposed.

Christine A. Barnett, The Maori spine. B.A.(Hons) dissertation, Anthropology Department, Otago University. iv, 55 pp., 7 figures, 7 tables, 6 graphs.

This study is concerned with an analysis of skeletal material and, in particular, the height and curvature of the vertebral column. Analysis of the measurements of the vertebral bodies will endeavour to reveal the height of the cervical, thoracic and lumbar regions of the vertebral column and their role in the curvature of the spine. Using these measurements, comparison is made with other racial groups' presacral vertebrae. A further consideration is the degenerative processes at work upon the spine and other pathological disorders of the vertebral bodies.

The results of the study were hampered statistically by the small sample size available. The difference between male and female did not appear to be significant, nor did the racial type appear significantly different from other races in previous studies. Pathologically the prehistoric Maori spine appears to be riddled with arthrosis (67% of the sample) suggesting a life style which involved a considerable amount of activity leading to stress and strain on the vertebral column.

Deborah Foster, Wood Remains and Stone Tools: Prehistoric Woodworking Technology at Lee Island, Lake Te Anau. B.A. (Hons) dissertation, Anthropology Department, Otago University. ix, 139 pp., 27 plates, 19 figures, 9 tables, 3 appendices.

This study is an analysis of both the modified and unmodified wood remains, along with the stone tools, recovered from the Lee Island excavations, Lake Te Anau. The corpus of woodworking evidence at Lee Island enabled the investigation of a wide range of issues pertaining to woodworking technology. Were there specific woodworking areas at the site? What timber species were used and were they locally available? What sort of artefacts were being manufactured and what function did they fulfil? What stages of manufacture are represented by the woodchips? Can any of the tools be correlated with the chips or artefacts?

The assemblage is described and interpreted in detail. Qualitative and quantitative characteristics of archaeological and experimental woodchips were investigated with the aim of establishing criteria which may be used to infer from the type of chip what artefact was being produced. The typology developed was further used in conjunction with experimental work to test the contention that the type of tool or mode of action used could be determined.

The identification of the wood recovered during excavation provided some insight into the selection of a specific timber for a particular purpose. A vegetation survey of the site environs gave the opportunity of ascertaining whether the artefacts were likely to have been manufactured locally or imported.

1984

Amphan Kijngam, The Excavation of Ban Na Di and the Prehistory of the Sakon Nakhon Basin. Ph.D. thesis, Anthropology Department, Otago University. x, 406 pp., 2 plates, 213 figures, 57 tables, 1 appendix.

This thesis is based on fieldwork undertaken in North-east Thailand during 1980-1 to examine two objectives. The first was to undertake a site survey to establish the settlement pattern of sites akin to Ban Chiang. The second was to excavate one of the sites in order to expand our knowledge of the pre-

historic people in question. It must be stressed that at the outset of this research project, there was a wide gap between claims for an extremely early and significant metallurgical tradition and the published data. There was no information at all on settlement size, population levels, trends in settlement patterns, site hierarchies in terms of size or architectural complexity, social organisation and the role of metallurgy in cultural terms.

This thesis concentrates on the region known as the Upper Songkhram Valley in north-east Thailand and, in particular, the prehistoric site of Ban Na Di. Following a description of the excavation, detailed analyses are presented of the material culture, the burial pottery, the biological remains, and the mortuary practises as evidenced by the burials. These analyses enable a cultural and chronological framework to be hypothesised for north-east Thai prehistory.

Payom Chantaratiyakarn, The Prehistory of the Middle Chi Valley: a Pioneer Study. M.A. thesis, Anthropology Department, Otago University. vi, 200 pp., 6 plates, 25 figures, 10 tables, 6 appendices.

The southern two-thirds of the Khorat Plateau are drained by the Mun and Chi Rivers, and is generally known as the Khorat Basin. In 1980, settlement of that region was seen as late, and derived from the communities of the Sakon Nakhon Basin to the north. In terms of the environment, the Khorat Basin receives markedly less rainfall and its initial settlement was, according to Higham's model, facilitated by iron technology and, in particular, the use of the buffalo-drawn plough which allowed the opening up of the more arid areas to wet rice cultivation in fixed fields. This dissertation set out to test this model by employing settlement pattern studies and excavations in the region of the middle Chi Valley. A primary focus of the excavations was the large site of Ban Chiang Hian.

Simon J. Holdaway, Colour as a Symbol in New Zealand Prehistory. M.A. thesis, Anthropology Department, Otago University. 2 page abstract; ix, 282 pp., 9 figures, 6 tables.

This thesis explores a new method for looking at the symbolic importance of prehistoric material culture by investigating a non-functional attribute. The attribute selected is the colour red and its relevance to the study of various items of prehistoric Maori material culture is explored.

The operational and positional meanings of the symbol are defined through the use of records kept by 18th and 19th century explorers in the Pacific; semantics of Polynesian terms which can in some way be associated with the colour red; and studies which deal with social institutions of traditional Polynesian cultures. The antiquity of the colour symbolism is investigated

using a method adopted from historical linguistics. The operational and positional meanings of the symbol are defined for five cultures from East Polynesia: Tahiti, Hawaii, the Marquesas, Easter Island and New Zealand. Common symbolic associations between all five are most likely to be due to a common origin and have been conservatively maintained in each of the cultures.

Common associations for the colour red in East Polynesia are shown to include the category tapu and the atua, a concern with genealogy and chiefly status, and often an association with warfare. In prehistoric New Zealand, archaeological support is found for these common associations in the form of burial practices, the colouring of godsticks and burial chests, and the material excavated from Kauri Point Swamp.

Using the symbolic associations for the colour previously defined, their relevance to the study of various items of prehistoric material culture from one region is explored. Information on the prehistory of southern New Zealand is collated and a number of new interpretations put forward.

A final element of this thesis considers the conservative nature of the symbolic associations defined. A model is suggested relating this conservatism to other aspects of culture and the situation in Polynesia is contrasted with other areas of Oceania. The thesis concludes by emphasising the importance of New Zealand's place in East Polynesia when considering aspects of prehistoric symbolism.

Michael Till, Seasonality in Prehistoric Murihiku: The Evidence from Oxygen Isotope Ratios. M.A. thesis, Anthropology Department, Otago University. 1 page abstract; ix, 215 pp., 9 plates, 20 figures, 5 tables, 3 appendices.

Assessing the timing of seasonal movements by the prehistoric peoples of Otago has long been a problem in the archaeology of this region. The oxygen isotope ratio ($^{18}\text{O}/^{16}\text{O}$) of mollusc shell carbonate is temperature dependent. By sampling successive increments of shell growth, palaeotemperature curves can be constructed to provide 'season of death' estimates for individual shells. In this work carbonate samples from the blue mussel (Mytilus edulis) were used to estimate the seasonality of four prehistoric fishing sites. A total of 275 samples of shell material were analysed for carbon and oxygen isotope ratios at the Institute of Nuclear Sciences, Lower Hutt. Where fishing and shellfishing were important activities they were consistently associated with the winter season. A model of seasonal activity is presented for the early part of the prehistoric period.

Metha Wichakana, Ban Na Di, Northeast Thailand. The Rim Sherds and Their Implications for the Prehistory of the Sakon Nakhon Basin. M.A. thesis, Anthropology Department, Otago University. iv, 156 pp., 5 plates, 46 figures, 7 tables, 2 appendices.

This thesis is another resulting from the major field programme undertaken in Northeast Thailand in 1980-81. Following a site survey, excavation of four sites was initiated - three small test investigations and the fourth a large scale excavation at Ban Na Di. The thesis design was formulated following the difficulties experienced in interpreting the site survey, and is based on an analysis of the pottery rims from the sites of Ban Na Di, Ban Muang Phruk and Non Kao Noi.

Excavations at these sites revealed a relatively lengthy prehistoric sequence and very considerable quantities of potsherds. The possibility of identifying changes in pottery styles with potential cultural significance was therefore presented. The pottery, and in particular the fragmentary rimsherds, are the basic data studied in this dissertation. It has two principal objectives. The first, is to lay the foundations for a comprehensive pottery typology for the Upper Songkhram Valley in Northeast Thailand. The second, is to consider the implications of this knowledge for the prehistory of the area.

Warrachai Wiriyaromp, The Human Skeletal Remains from Ban Na Di: patterns of birth, health and death in prehistoric Northeast Thailand. M.A. thesis, Anthropology Department, Otago University. viii, 179 pp., 14 figures, 21 tables, 1 appendix.

The human remains from Ban Na Di were analysed principally in order to illuminate prehistoric health, mortality and nutrition. The 73 burials recovered at Ban Na Di came from two areas. The burials were disposed in rows, and superimposed in exactly the same orientation. It was found that some graves were opened for the inclusion of a further body and this pattern of superimposed burials continued for almost a millenium.

One objective of this dissertation is the consideration of mortuary data as a further avenue in assessing population pressure. Given an appropriate sample, evidence for conditions commensurate with a growing population and resultant stress could take at least three forms. Firstly, evidence from life tables could disclose a pattern of high natality but low mortality consistent with a growing population. Secondly a trend in which life expectancy significantly lengthened would suggest a larger population. Finally, increasing skeletal and dental evidence of malnutrition could be due to an imbalance between the number of people and available food.

Warren Gumbley, An Historical Survey of Maori Tracks South of the Waitaki Valley. B.A. (Hons) dissertation, Anthropology Department, Otago University. v, 83 pp., 11 maps.

The aim of this dissertation was to determine as accurately as possible the presence and nature of tracks and routeways used by the Maori in New Zealand south of the Waitaki Valley. There are three main sources of information, relating to the use of trails and track, which were used in this study. The first of these are those related by early European visitors who were guided through the area by Maoris; secondly, that recorded from information given by Maoris either in the nineteenth century or the early years of the twentieth century to historians and ethnographers; and thirdly, those given in Maori traditions mentioning the movement of heroes, explorers and war parties.

Andrew K.S. Piper, Nineteenth Century Chinese Goldminers of Central Otago: a study of the interplay between cultural conservatism and acculturation through an analysis of changing diet. B.A. (Hons) dissertation, Anthropology Department, Otago University. 1 page abstract; ix, 80 pp., 4 plates, 2 figures, 29 tables (in appendix).

The few written records concerning the early Chinese miner in New Zealand tell us little about the material culture, diet, social organisation, or the degree of acculturation of this group. For this reason, it was decided to undertake a study of the faunal remains of one Chinese site in the Kawarau Gorge, Otago, against a background of ethnohistoric information. It was concluded that the Chinese miner had a highly varied diet; retained the customs of his youth, relying on food imported from China; expended considerable effort in trying to maintain his traditional diet; and, that there was only minimal acculturation up to 1900.

Alistair M.P. Ross, The Function of Abrasive Materials in the Manufacture of Maori Adzes. B.A. (Hons) dissertation, Anthropology Department, Otago University. xiv, 102 pp., 7 plates, 11 figures, 6 tables.

The vast amount of literature stimulated by the adze has, in the past, been concerned primarily with typologies and chronologies. The goal of the present study is to further our technological knowledge of Maori adze manufacture with specific interest in the role of grinding in this process. This will be divided into two parts, the historical and ethnographical material relating to this process, and a practical analysis. In the latter, two primary goals are of interest; to approach the mechanics of grinding through the associated angles, and to discern the order of grinding of the adze faces.