# CHAPTER FOUR

### DESCRIPTION OF THE FIVE ARCHAEOLOGICAL SITES

### 4.1 INTRODUCTION

The aim of this chapter is to describe the sample of assemblages chosen for this study. For comparability across the region, assemblages that belonged to roughly the same time span (Phase 1 - the last 1000 years) were selected. The surface units of all the selected sites belong to the Post-Backed blade production era which is dated to between c.1000 (uncalibrated) BP and 200 (uncalibrated) 3P in the Coonabarabran area (Gaynor 1987:168). Further details of the stratigraphy are presented in section 4.5. This represents phase 1 in the predictive mode described in Chapter Three.

To quantify the importance of quartz through time, the complete excavated assemblage from the square "N41" from the Crazyman Shelter (CMS) was selected. This assemblage of 6785 stone artefacts covers a time span of 20310 years (all phases in the model), and so should give an indication of the importance of quartz through time. All five selected sites have a geological connection (all sites are situated on soils derived from the Pilliga Sandstone Formation).

### 4.2 SELECTION OF ASSEMBLAGES

To get some perception of the importance of quartz in assemblages, only assemblages that contained at least 30% quartz were selected from the range of the recorded sites in the study region ( Gaynor 1987, Wall 1993). Some excavated samples were chosen in order to provide control over chronology. The samples also had to have at least 50 artefacts present. Witter (1990:13) suggested that, depending on the variability present in the assemblage, he needed 30 to 50 artefacts to successfully analyse an assemblage. The least number in the assemblages analysed by Wall (1993:29-30) was 64. As the surface assemblages for this research varied between 75 and 520 artefacts. The minimum number of artefacts (75) in my samples should be ample to enable some meaningful comparisons to be made between assemblages.

### 4.2.1 The sites

The five sites selected for this analysis (two excavated shelters, two excavated open sites and one surface scatter (unexcavated), cover a variety of site types and present an opportunity to pinpoint the importance of quartz across the landscape in a specific time period. The sites and surface units selected for quantifying the importance of quartz artefacts over time were:

The Crazyman Shelter (CMS) units 1-2
 Kawambarai Cave (KACA) units 1-3
 Camp Pincham (CP) units 1-2
 Ukerbarley Hayshed site (UKBH) layer 1

5. Jack Halls Creek Camp site (JHCC) entire salvaged assemblage.

(see Map 1.3). Details of the stratigraphy of the excavated sites is given in Appendix 1.

### **4.3 STONE SOURCES**

The Pilliga Sandstone Formation of Jurassic age (213-144 Million years ago) covers much of the Coonabarabran/Warrumbungle region. The sandstone outcrops belonging to this formation, contain many lenses of pebbles and cobbles of various sizes. The quartz and quartzite pebbles, which are prominent on many surfaces in the hilly Coonabarabran areas, erode from these lenses. Much of the hilly and mountainous areas of the Pilliga Sandstone Formation, however, is intersected with volcanic flows ranging in age from 13 to 17 million years (Wellman and McDougall 1974:259).

These volcanics vary in composition according to their time of eruption. Volcanic materials present include Trachyte, Pyroclastics, Ereccias, Basalt, Hawaiite, Trachyandesite, Teschenite and Tuff. Peaks in the region rise up to 755 metres above the surrounding plains country with many hills having 70 degree slopes (Hockley 1972, Wellman and McDougal (1974:259). Volcanic material of various sizes (pebbles, cobbles, rocks) is present in most of the creeks in the Coonabarabran' Warrumbungle region. These have originated from the volcanic flows, but do not appear to have been used for flaking (personal observations).

In an experiment that I carried out in 1937, I found that I could very quickly grind a sharp axe edge on the Hawaiite raw material using the coarse sandstone from around the Kawambarai cave. The only ground axes sighted around the Coonabarabran/Warrumbungle, however, were in the possession of the Judds at Ukerbarley. None of these axes appeared to be of local material. One axe from the Judds has been identified as coming from the axe quarry at "Daruka" Moore Creek near Tamworth (Jan Wilson - 1994 personal communication). This suggests some links with that area which is 190 km to the east of Coonabarabran. No axes or portions of them, were found in any of the assemblages studied.

The source of most of the fine grained material in the region has not been found, but after viewing the artefacts from the various sites of the region, it is suggested that there could be three main sources. These are:

1. Pebbles eroding out of the sandstone outcrops.

- 2. Infils in the volcanics of the Warrumbungles.
- 3. Deposits in the cherty Purlawaugh Eeds about 20 km to the east and about 15 km south east of Coonabarabran (see mag 1.3).

#### 4.4 SOIL TYPES OF THE WARRUMEUNGLE REGION

There are two main soils present in the area of the selected sites in the Warrumbungle area. These soils are based on either:

- 1. Sandstones.
- 2. Volcanics.
- 1. The acid sandstone soils are derived from the underlying sandstone rocks and lack many of the trace elements needed for adequate plant growth. The acidic nature of the soil is associated with the high silica content of the sandstone and the soil is very porous. The Pilliga sandstone soils are the main NSW intake for the Great Artesian Basin (Hind and Helby 1969:496). In comparison to other sandstone soils in N.S.W., the Pilliga sandstone type has some of the lowest percentages of the main soil nutrients in the state (Jensen 1914:147). Most of the nutrients present are tied up in the vegetation. These nutrients are recycled when the plant dies and this delicate balance is easily upset by too much clearing (Rolls 1981:222). The densities of particular plants seen in the Pilliga and Warrumbungle areas today, are probably not identical to those in prehistory, because of the different fire regimes practised now and then (Rolls 1981:247-250).
- 2. The volcanic soils (derived from the Trachyte Basalt, Hawaiite, etc.) are generally much richer in soil nutrients than the sandstone types. The volcanic soils have a high clay content, which can store large amounts of moisture. The capillary power necessary for the plant to obtain water from the soil, however, is generally lower in the black volcanic soils than those of the Pilliga sandstone type (Jensen 1914:130). Large tracts of black soil cover the Hawaiite flows to the north of the Kawamparai cave and west of the Warrumbungle Mountains (personal observations). All sites selected for this research (with the exception of the Ukerbarley Hayshed site) are within five kilometres of volcanic flows and their associated clay type soils.

## 4.5 DESCRIPTION OF THE SITES

### 4.5.1 The Crazyman Shelter (CMS) (see Plates 4.1 and 4.2)

The Crazyman Shelter was discovered in 1986 by Michael Keenan, then a neighbouring landholder and also a student of the Dept. of Archaeology and Palaeoanthropology at the University of New England, Armidale. Ir 1987 when I first observed it, the blackish sandy surface had been well trampled by cattle, but stone artefacts of various raw material were

still visible on the surface (quartz was the dominant raw material). There was also evidence of the site being used as a camp by white settlers (including the "Crazyman Shelter" whom the shelter is named after) as much old rusting iron and broken glass was present. The presence of a few strategically placed wooden fence posts pointed to portions of the site being used as part of a small holding paddock or corral in the past. A few scrubs grew near the drip line together with a native fig tree on the southern end of the site.

The Crazyman Shelter is situated on a small hill about 10 km (as the crow flies) southwest of Coonabarabran. This hill belongs geologically to the Pilliga Sandstone Formation of Jurassic age. The shelter, which faces the west, is about 35 metres in length, and is part of a high cliff with a number of small overhangs. The sandstone of the cliff is inclined to be coarse grained and grains of sand are easily brushed from its surface. The exposed face exhibits a number of purplish horizontal bands (hardened with ironstone) plus many pebbly lenses of varying widths containing rounded pebbles of quartz and quartzite of varying sizes. Deep cracks extend the full height of the cliff face and the overhang at the site is sufficient to ensure that moisture from above rarely gets to within the four or five metres of the base of the cliff face. One red hand stencil was still visible on the cliff face when I last visited the site in 1994.

The shelter is situated about 12 km south west of the Warrumbungle National Park, and about 2 km south of the Kawambarai cave, but unlike the Kawambarai cave, it is not situated next to permanent waterholes. Water, however, can be found just below the surface in a swampy area about 200 metres north of the shelter in normal seasons. Nearby Deringulla Creek, which may have been a shallow watercourse in pre-contact times, is now many metres deep, but water is only present in it in wet periods. The small slope between the shelter and Deringulla Creek (about 80 metres to the west) s now devoid of trees but scattered Macrozamia (Macrozamia heteromera) grow on this well grassed sandy surface. If the vegetation on the slope on the opposite sice of the valley can be taken as a guide as to what may have been the density of the pre-contact vegetation, then the slope in front of the shelter would have been thickly timbered in precontact times, ensuring a more sheltered outlook to the west than at present. Rain and wind from the west are common in this area and the shelter at present is open to these elements.

A small test excavation (500 mm x 500 mm x 400 mm in depth) was carried out in July 1988 by staff and students of the Department of Archaeology and Palaeoanthropology, UNE Armidale. This test pit revealed a rich deposit of stone artefacts, charcoal, animal bones and plant material in the upper levels. A full scale excavation began in September 1988 under

the direction of Drs. Wendy Beck and lain Davidson, with a one metre by one metre excavation to a depth of 550 mm being carried out, but bedrock was not reached. At the time of excavation the surface area contained dried sheep and cattle dung, fragmented bone, quartz and chert flakes, quartz pebbles and sandstone rocks. Some of the sandstone was hard and platey, much the same as in sections of the cliff face. The cliff overhang has probably been instrumental in the good preservation of plant and animal material found in the upper layers of the deposit. No grass was growing inside the dripline, indicating very little direct rainfall was getting into the shelter, ensuring good preservation.

An uncalibrated radiocarbon date of 5450 :: 70 BP was obtained from charcoal from a depth of 507 mm, suggesting that the length of Aboriginal occupation at the Crazyman Shelter was at least twice that of the Kawambarai cave (see Gaynor 1987:35). Materials recovered and identified from this initial excavation were Emu egg shells, animal faeces, plant seeds, animal bones and plant fibres. Animal bones identified included Bandicoot, Greater Glider, Rat Kangaroo, Swamp Wallaby, Eastern Grey Kangaroo, Red Kangaroo, Wombat, Koala, and Tiger Cat (Cooper 1989). Plants identified from the excavation included Dianella, Macrozamia or Burrawang, Kurrajong, Five Corners and Urn Heath (Beck, Cooper and Davidson 1988:1). A feature of the September 1988 excavation at the Crazyman Shelter, was the presence of a large fire pit on one wall and the presence of Dianella and Macrozamia plants (personal observations).

The second excavation at the Crazyman Shelter (1989) under the direction of Dr. Wendy Beck, extended the September 1988 excavation from the 507 mm depth in "N41" square down to bedrock (reached at 1360 mm). A uncalibrated radiocarbon date of  $17140 \pm 140$  was obtained on sieve charcoal obtained from the basal level. This date makes this site, the oldest securely dated Aboriginal Shelter or the north west slopes of NSW. These slopes stretch from Coonabarabran in the south to Yetman in the north and are bounded by the tablelands in the east and the western plains in the west. Preservation of organic material in the Crazyman Shelter extends back to uncalibrated radiocarbon date of  $5450 \pm 70$  BP (Beck, Cooper and Davidson 1988). No identifiable fauna or floral material was obtained beyond this depth (see Appendix 1). There could be three reasons for this:

- 1. This age of 5450 BP is the limit for organic preservation in this soil type.
- 2. Climatic conditions before 5450 BI<sup>2</sup> may not have been favourable for the preservations of such material (the site may have been subject to wetter conditions before this time which could hasten disintegration of organic material).
- 3. No organic material was left by the Aborigines.



THE CRAZYMAN SHELTER (CMS)

PLATE 4.1



CMS SHOWING THE OVERHANG NEAR SQUARE N41

PLATE 4.2

### 4.5.2 KAWAMBARAI CAVE (KACA) (see Plates 4.3 and 4.4).

The Kawambarai cave is situated in a sandstone cliff about 8 kilometres south of Coonabarabran. The cave faces the northeast and overlooks a small valley through which Jack Halls Creek runs from west to east. The cave is well protected from the weather but the vegetation on the slope makes it difficult to see from a distance. A number of smaller shelters were found in the same sandstone outcrop, but very few showed signs of past Aboriginal occupation in 1987.

Several small holes had been dug in the surface of the cave before the site was officially recorded for the NPWS in 1986. The spoil from these holes contained plant material (leaves, sticks and *Macrozamia* nut hulls), fragment of fresh-water mussel shells, a rock wallaby jaw, plus a quantity of quartz and fine-gra ned stone artefacts (one was a prismatic microblade core). Other finds of some significance were two pieces of knotted cordage, one possibly a Kurrajong (*Brachychiton populneus*) fibre multi-twisted cord, and the other a single strand fibre (Witter, Dunn and Davidson 1986:2).

The dimensions of the cave are 13.5 metres wide by 4 metres deep, with a long low passage jutting off to the left hand side (this passage extends about 12.5 metres from the dripline). The cave has a 2 metre wide apron extending from the dripline, and this is intersected in places by large rocks. The cave is about 20 metres south of Jack Halls Creek, but at a height of 20 metres above it. The ground between the cave and the creek falls away steeply and there are benches of solid sandstone around sections of the creek. Several permanent waterholes are present around these benches (personal observations). The creek in 1987 and 1988 ran for weeks on end. In drier times (1994), the waterholes held large expanses of water, making it an attraction for wildlife (personal observations).

According to Murphy and Beck (personal communication 1987) many plants grow in the immediate area of the cave (see table 4.1). Some of these plants have known Aboriginal economic value (for example *Macrozamia*, *Melichus*, *Styphelia*). If this large variety of plants is indicative of the variety growing there in pre-contact times, this cave would have been an attractive area at all times for humans and animals. An added attraction is a black soil plateau which runs adjacent to the valley on the northern side. This area has an average rainfall of about 800 mm or 32 inches per year, which is well in excess of that of the flatter plains country to the west of the Warrumbungle mountains. This black soil plateau produces an abundance of plants in normal years and he black soil in the northwest is thought to have been a source of millable grass seed for Aborigines in the past (Wyndham 1890 112-128).

# KAWAMBARAI CAVE SITE PLANT LIST

## **COMMON NAME**

Sword Wattle

Black Wattle

Wavy Leafed Wattle

Mistletoe (on River Oak)

Rough Barked Apple

Black Cypress Pine

River Oak

Native Fuchsia

Barbed Wire Grass

Sticky Hopbush

Blakely's Red Gum

Narrow Leafed Ironbark

White Gum

Seven Dwarfs Grevillea

Hovea

Large Fruited Tea Tree

Burrawang

Ruby Urn Heath

Geebung

Riceflower

Five Corners

Kangaroo Grass

## **BOTANICAL NAME**

Acacia gladiformis

Acacia mearnsii

Acacia uncinata

Amyena cambagei

Angophera floribunda

Callitris endlicheri

Casaurina cunninghamiana

Correa reflexa

Cymbopogon refractis

Dodonaea viscosa

Eucalyptus blakelyi

,,

Eucalyptus crebra

Eucalyptus rossii

Grevillea floribunda

Hovea lanceolata

Leptospermum sphaerocarpum

Macrozamia heteromera

Melichrus erubscens

Persoonia sp. aff. rigida

Pimelia stricta

Styphelia triflora

Themeda australis

# "ABLE 4.1

In 1987, portions of the cave were excavated by students and staff of the Department of Archaeology and Palaeoanthropology, University of New England, Armidale, under the direction of Drs. Wendy Beck and Iain Davidson. Additional stone artefacts from this site were inspected and analysed for this research in an effort to get a more comprehensive database. The results were combined with those obtained from the surface units which I analysed for my honours thesis in 1987. The Kawambarai cave has two radiocarbon dates:

- 1. 600 (calibrated 2 sigma) BP (range 725-501 BP), depth 48 mm (SUA-2681).
- 2. 1940 (calibrated 2 sigma) BP (range 2319 1568 BP) at a depth of 415 mm (SUA-2682).

The depth of deposit varied because of the unevenness of the solid sandstone bench on which the deposit rests. None of the squares excavated had deposits of more than 500 mm in depth.

The units analysed for this thesis were spits 1-3 in squares H30 and H31 (see appendix 1).



VIEW FROM DOWNSLOPE OF KAWAMBARAI CAVE (KACA)

PLATE 4.3



SECTION OF THE CAVE FLOOR

PLATE 4.4

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## 4.5.3 CAMP PINCHAM (CP) (see Plates 4.5 and 4.6)

This site is situated in the Warrumbungle National Park and according to the NPWS site description, is large by Warrumbungle National Park standards. Witter (1987 as cited by Geering 1988) stated, that:

the exposed artefacts at Camp Pir cham car park appear to include an unusually high number of artefacts with a particularly broad range of raw materials and some notably large sized artefacts, when compared with other stone artefact scatters recorded within Warrumbungle National Park.

The site was first discovered when erosion (caused by cars being parked at the beginning of various walking trails in the Park) caused National Parks personnel to consider terracing and tar sealing a selected area for a car park.

Inspection of the whole area by the NPWS archaeologist, revealed a large surface scatter of artefacts spreading well outside the eroded area. The stone artefacts in the area to be impacted upon by the reconstruction of the car park were salvaged by Park personnel under the direction of the NPWS archaeologist Katrina Geering plus two volunteers (Warwick Pearson and myself). The salvage after consultation with the Coonabarabran Local Aboriginal Land Council, was carried out just prior to the terracing and tar sealing of the car park. A small excavation was carried out at the same time in order to ascertain if there were artefacts at depth. The excavation yielded 542 stone artefacts. The ground at the time was exceptionally hard as a result of vehicle traffic. The a tefacts from the surface units of this excavation (see appendix 1) were chosen for compar son with the other sites. No charcoal was recovered for dating purposes. The units analysed were units SU1/1 and SU!/2.

Many stone artefacts were still present around the present terraced car park when I last visited the site in 1994. The site then appeared to extend up the slope for about another 50 metres above the car park. Spirey Creek, carries water from the higher country past the site, and although it was dry in 1994 (drought conditions), but it should have been a reasonable source of water in average rainfall years. The Camp Pincham car park is situated at the beginning of many of the walking trails through the higher country of the Park (see Fairley 1983:94-95). Aborigines in pre-contact times probably used the site as a base when exploiting the higher country of this part of the Warrumbungle Mountains.



CAMP PINCHAM (CP) ABOVE CAR PARK
PLATE 4.5



CP AT THE BASE OF THE MOUNTAIN TRAILS (LOOKING WEST)

PLATE 4.6

## 4.5.4 UKERBARLEY HAYSHED SITE (UKBH) (see Plates 4.5 and 4.6)

the Ukerbarley Hayshed site is situated at out 18 km north by road from Coonabarabran. The property "Ukerbarley" is owned by Milton and Jane Judd. The surrounding hills feature large sandstone cliffs belonging to the Pilliga Sandstone Formation. Large stands of *Macrozamia* (mainly the *diplomera* spec es) grow in many of the valleys running between the sandstone hills. The site is situated on the lower northern slope of a low hill which juts onto a small floodplain. The site is adjacent to both the Ukerbarley and the Ukerbarley Swamp Creeks. Some of the floodplain is inclined to be damp and swampy and, according to the present property owners, the Ukerbarley Creek has not stopped running in the last eighty years, suggesting it was a permanent source of water in pre-contact times also.

Mr. Judd has informed me that previous Ukerbarley owners (dating back to the last century) have stated that the general area around the site, was a favourite meeting place of large groups of Aboriginal people in the last century. The open space on the small flood plain, adjacent to the creek would probably have made an ideal spot for ceremonial gatherings. A source of both red and white ochre has recently been found at the site by the Judds. In recent years many shelters and overhangs containing Aboriginal artefacts have been discovered on Ukerbarley (Murphy 1992, Milton and Jane Judd 1995 personal communication). This suggests that the property was a favoured area for Aborigines prior to European settlement. Grinding grooves as well as paintings are found within a kilometre of the site.

In 1990, I carried out an excavation at this open site. The excavation was part of the ongoing research in the region. A small part of the surface had been analysed in 1986, and so the excavation offered an opportunity to research an open site at depth.

The area selected at the Ukerbarley hayshed by Witter in 1986 as part of the 1986 Warrumbungle survey (discussed in Chapter 2), was only a small part of a large site which surrounds the hayshed. The NPWS site record states that the site covers an area of 200 metres square, however, the 217 artefac s recorded in 1986 came from an area of only two metres square. The 1986 survey revealed that a great variety of fine grained raw material were present, but by far the largest percentage of raw material present was quartz. A further survey conducted at the time of the excavation in 1990, revealed that the site was much larger than that originally recorded in 1986. It extended well up the ridge, where there is a plentiful supply of raw material (quartz and quartzite), and easterly across the present homestead access road towards the Ukerbarley Creek.

One significant detail recorded in the survey of the site in 1986, was that much of the site was

situated on or near an old abandoned road. This surface was badly eroded with most of the artefacts sighted, lying on an exposed clay base with a background scatter of dark ironstone pebbles. This suggested to me, that the artefacts on the eroded area could have come from different levels in the past and as erosion took place, the artefacts settled to a lower level. This made the task of working out any chrohological sequence of stone artefacts extremely difficult. Much of the remainder of the site was still eroding in 1990. At the time of the excavation, sheep camped on the ridge overnight and made their way down the slope in the early morning. This was adding to erosion pressures over the general area. Only a few portions of the large site seemed to have escaped the processes of erosion.

A small area above the old road appeared relatively undisturbed (it had plenty of topsoil and was well grassed), so this area was chosen for the excavation. As it was situated very close to the surveyed eroded area in 1986, it was hoped that it would provide an undisturbed sequence of artefacts. Permission from the Coonabarabran Local Aboriginal Land Council and the National Parks and Wildlife Service was of tained to excavate four (one metre square) squares.

The Ukerbarley Hayshed site it was felt, offered a unique opportunity to attempt to define a sequence of artefacts from an open site and compare it with sequences from the two shelters (the Kawambarai cave and the Crazyman Shelter). It also offered a chance to recover some charcoal for dating purposes as no open sites had previously been radiocarbon dated in the region.

The 1990 excavation was carried out by m/self under the guidance of Dr. Wendy Beck and with the help of students from UNE as well as other volunteer help from central and northern NSW (locals and non-local). The deposit was of a stiff clayey nature and required a determined effort to wet sieve the excavated material. A total of 200 artefacts was recovered and this was thought to be sufficient for an analysis of the site. A large lump of charcoal was also recovered at a depth 220 mm below the surface, and this was used for dating purposes. This charcoal returned a calibrated (2 sigma )radiocarbon date of 4030 BP (range 3870 - 4240 BP) (Beta 41064). This charcoal was well below the surface section selected for comparative analysis. The top section of this site (based on visible stratigraphy of this excavation) was selected for research (see appendix 1 for a cross section of square G2).

A survey of vegetation growing close to the the Ukerbarley Hayshed site site was carried out by Dee Murphy, a student of the Department of Archaeology and Palaeoanthropology and Department of Botany, UNE in 1990. Although some of these plants were introduced species, there were native plants in the list that would have been of economic value for past Aboriginal

# UKBH SITE PLANT LIST

**BOTANICAL NAME** 

COMMON NAME

Rock fern Cheilanthes austrotenuifolia

Black Cypress Pine Callitris endlicheri

Tall sedge

Rush

Rush

Juncus australis

Juncus bufonius

Thread rush

Juncus filicaulis

Barley grass Hordeum leparium
Slender Bamboo grass Stipa vericillata

Mat rush Lomandra sp.

Wooley Mat rush

Slender Celery

Variegated thistle

Lomandra leucocephala

Apium leptophyllum

Silybum marianum

Prickly pear Opuntia stricta
Bluebell Wahlenbergia sp.

Bluebell Wahlenbergia queenslandica

Eastern Cotton bush

Kidney weed

Dichondra repens

Burr medic

Medicago polymorpha

Stagger weed

Stachys aruensis

Kangaroo Thorn

Acacia armata

White box

Eucalyptus albens

Blakely's Red gum

Eucalyptus blakelyi

Woodruff

Asperula subulifera

Narrawa burr Solinum cinereum
Stinging nettle Urtica incisa
Dock Rumex sp.

Plantain Plantago hispida

TABLE 4.2



UKERBARLEY HAYSHED SITE (UKBH) FROM SITE TOWARD CREEK

PLATE 4.7



POSITION OF EXCAVATION SQUARES AT UKBH NEXT TO ERODED LANDSCAPE

PLATE 4.8

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## 4.5.5 Jack Halls Creek Camp Site (LHCC) (see Plates 4.9 and 4.10)

This site is situated about 13 kilometres by road south of Coonabarabran, and is about six and a half kilometres downstream of the Kawambarai cave. The initial site report by Geering (1991:1-3) stated that the open camp site was similar to other camp sites recorded in the Warrumbungle National Park with quartz being the dominant raw material. Some fine grained artefacts, however, were also present. Geering was of the opinion (based on a preliminary analysis of 49 artefacts) that the site was a base camp. This suggestion has some credibility as the site is situated next to a permanent spring and adjacent to Jack Halls Creek. Aboriginal sites are often found next to permanent water supplies in the northwest (See Gaynor and Wilson 1994, 1995). Other Aboriginal artefacts associated with this site were two isolated Aboriginal scarred trees plus another cluster of scarred trees on the opposite side of the highway (Geering 1991:3). Some engravings were also present on rocks about one kilometre to the northeast (personal observations).

A preliminary analysis of the stone artefacts by Geering, revealed that the raw material percentages of the 49 artefacts analysed were quartz 80%, fine grained 4%, coarse grained 12%. This percentage of quartz is about the midcle of the range of quartz percentages of other recorded sites in the Warrumbungles (see table 2.1). A further analysis of the quartz artefacts revealed that the quartz cores were not heavily reduced, and less than half of the cores showed signs of being reduced by the bipolar method. Thirty one percent of the 39 quartz artefacts present still retained some cortex (Geering 1991:3).

After the initial research by Geering,  $\varepsilon$  salvage of the area to be impacted upon by the realigning of the Newell Highway in 1991 was carried out. Only a small portion on the eastern edge of the large site was salvaged. This area measured 90 metres by 45 metres at its widest point.

The salvage operation was undertaker out by myself with the assistance of NPWS staff (Archaeologist Katrina Geering and Aboriginal Sites Officer Colin Roberts). Visibility was 100% on the slightly eroded clay and light conditions were excellent on the day. There was background scatter of unflaked pebbles of quartz and sandstone on the exposed clay, making artefacts difficult to discern. It was thought, however, that a very high percentage of artefacts lying on the surface were recovered, as all three participants had many years of experience in recognising Aboriginal stone artefacts in the area. Permission was then obtained from NPWS and the Coonabarabran LALC to retain the artefacts for this research.



JACK HALLS CREEK CAMP SITE (JHCC) FROM SOUTH WEST

PLATE 4.9



JACK HALLS CREEK CAMP SITE (JHCC) FROM NORTH
PLATE 4.10

### 4.6 SITE ASSOCIATION

To gain some spatial perspective of the five sites, it is necessary to look at the direct distances between them according to the district map (see Map 1.3).

	DISTANCES BETWEEN SITES IN KM					
	CMS	KACA	CP	UKBH	JHCC	
CMS	0					
KACA	02	0				
CP	22	22	0			
UKBH	18	16	25	0		
JHCC	05.5	06.5	27	2 1	0	
	TABLE 4.3					

These distances do not take into account the fact that most of this area is hilly and the distances on the ground would be slightly further than the distances on the map. The furthest distance between any two sites is 27 km, so it not inconceivable that some or all sites, may have been frequented by the same tribal and/or family groups in the last 1000 years.

### 4.7 CONCLUSION

I have described the selection of the five sites from which assemblages are to be analysed in order to ascertain the importance of quartz through time and space. These sites were chosen because they represented a variety of open and shelter type sites. The geological and geographical backgrounds of the five sites have been described together with the two main soil types which all had a bearing on what lithic and plant resources were available to the precontact Aboriginal inhabitants. Each of the five sites has then been described together with the overall distance to each other as far as distance was concerned.