PREHISTORIC CULTURAL TRADITIONS AT THE BEACHES SITE, DeAk-1 BONAVISTA BAY

PAUL CONRAD CARIGNAN

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B.Sc., Universite de Montreal, Loyola College, 1968

A Thesis
Submitted in partial fulfillment of the requirements
for the Degree of
MASTER OF ARTS IN ANTHROPOLOGY
Memorial University of Newfoundland
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ABSTRACT

This research concerns itself with the identification of prehistoric cultural remains as represented at the multicomponent Beaches site, DeAk-1, Bonavista Bay. Several cultural traditions are known for this area and the Beaches site produced evidence of Maritime Archaic, Dorset and Beothuck groups. A chronological framework for these occupations is attempted on the basis of radiocarbon dating, stratigraphic position, and comparisons to other sites and cultural sequences. The interpretation of spatial arrangements of artifacts and habitation features is offered in an attempt to reconstruct their settlement patterns. Inferences on their subsistence activities is based on ethnographic data, the limited faunal remains, and reconstruction of the regional resource potential.

Occupational evidence at this coastal site occurred in two stratigraphically distinct layers. Cultural Layer 1 contained lithic artifacts attributed to Maritime Archaic, Dorset and Beothuck groups all in a single three inch occupation layer. Cultural Layer 2 was bottommost and clearly distinct with artifacts pertaining entirely to the Maritime Archaic tradition.

This lower Archaic component is characterized by chipped stone biface forms - bipointed, ovate, lanceolate and stemmed. Scrapers are present in the large retouched flakes but a formal flake end scraper category has not been identified. The ground stone industry - celts, a single ground slate point and abrader, is not present in large amounts. A blade-core industry is unique and definitely part of this Archaic component. Three radiocarbon dates, 1740 B.C., 1890 B.C., and 2950 B.C. indicate the early temporal position of their occupation.

The upper Archaic component reflects cultural continuity through these Archaic groups with identical chipped stone forms occurring. Temporal and stylistic variations are seen in the greater variety of stemmed points, flake unifaces, and the presence of flake end scrapers. The ground stone industry is well established although ground slate points were not found. The blade-core industry is also present in this later Archaic component although examples tend to be cruder. A guess-date of 1500 B.C. may validly indicate the initial Archaic occupation in this stratum. It may have terminated just prior to Dorset intrusion into Newfoundland and Bonavista Bay.

The Dorset occupation was probably initiated during the early centuries B.C. This early population movement is postulated on the basis of a few artifacts considered time-sensitive. The main Dorset occupation however occurred during the first half of the first millenium A.D. A date of A.D. 300 from a Dorset hearth supports this interpretation.

An influx of Indian groups is seen towards the termination of the Dorset period. These groups represent the initial Beothuck population in Newfoundland. The Beaches site provided only six corner-notched points which we can ascribe with certainty to these people. As a further reflection of our inadequate knowledge of Beothuck prehistory, these cannot be assigned to any temporal position in the Beothuck development.

The reconstruction of subsistence-settlement patterns reveals a basic coastal-interior adaptation for all cultural groups. A spring to fall coastal occupation for specialized sea mammal exploitation is postulated. Interior subsistence is based on the large congregating winter herds and a deep interior penetration and interior settlement was necessary. This was probably fascilitated by the large river systems in the Bonavista Bay area. This regional distribution of abundant coastal resources among

the many islands and reaches plus interior caribou herds provided the establishment of similar settlement patterns for the various cultural occupations in Bonavista Bay.

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CHAPTER 1

PREHISTORIC CULTURAL TRADITIONS IN NEWFOUNDLAND - LABRADOR

Introduction

This study concerns prehistoric cultural traditions in Bonavista Bay as represented at one site, the Beaches, registered as DeAk-1 according to the Borden system (Borden 1952). This multi-component coastal site was a habitation area for several cultures identified in the northeast and insular Newfoundland but are essentially unreported for Bonavista Bay. This habitation site produced numerous examples of lithic technologies, a limited amount of data on settlement patterns and spacial arrangements, plus inferences on economic exploitation and subsistence practices. The few hearths and other pockets of charcoal have provided a temporal framework for some of these occupations.

Several cultural traditions are defined for this northeast area: Maritime Archaic, Arctic Small Tool and the Shield Archaic. These cultural traditions are seen as "...a distinctive way of life, reflected in various aspects of culture, perhaps extending through some period of time and exhibiting normal internal cultural changes, but nevertheless throughout this period showing a basic consistent unity. In the whole history of a tradition certain basic persistent themes dominate the life of a people. These give distinctiveness to the configurations" (Goggin 1949:17).

In insular Newfoundland, the Maritime Archaic and Arctic Small Tool (Dorset culture) are known. The Shield Archaic however is not yet

identified on the island. This tradition is thought to be the cultural base for all Algonkian speaking Indian groups in the northeast perhaps including Beothucks. The archaeology of both these cultures are included in the following reviews. In this review emphasis is placed on technological adaptation, settlement patterns and subsistence practices in an attempt to reconstruct the distinctive cultural way of life of each of these people.

Review of Maritime Archaic Tradition

This tradition has been proposed by Tuck (1970, 1971a) to subsume those archaeological complexes in the Maritime area of the northeast with similar technological, settlement, economic and mortuary systems. This unity is seen as validity for the establishment of the Maritime Archaic as a "full cultural tradition."

This tradition, then, is seen to encompass a "natural area" transcending three biotic provinces, the Arctic, Hudsonian and Canadian. The unifying aspect of "common denominator" in these environments which allowed the establishing and flourishing of this culture is the uniform distribution of similar resources. These resources are mostly marine oriented: the sea mammals, sea and shore birds, and anadromous fishes. In the interior areas terrestrial mammals such as black bear, fox, beaver, marten and otter are common. However the most economically important species here was the caribou, Rangifer tarandus. Together they formed a distinctive resource base that influenced a uniform cultural tradition over this Maritime area from northern Labrador to southern New England states.

The mortuary system is represented in the burial complexes of the second and third millenium B.C. distributed across this area: the Moorehead or Maine Cemetery complex and Red Paintcemeteries of the New England

states, the Cow Point site N.B. (Sanger 1973), as well as those cemeteries in Newfoundland at Port au Choix (Tuck 1970, 1971a) and Twillingate (MacLeod 1967).

While these attest to the elaborate burial ceremonialism that developed in Late Archaic times the accompanying grave offerings relate to varying degrees the technological industries utilized by these people. In the Newfoundland burial sites the ground stone industry was well represented with numerous axes, gouges, adzes, a variety of stemmed points and long thick bayonets. Chipped stone artifacts are somewhat rare but represented by long narrow stemmed points also known for southern sites and by bipointed and lanceolate biface forms at Twillingate. The bone industry preserved by soil conditions at Port au Choix was elaborate and well-developed and included toggling and barbed harpoons, varieties of barbed bone points, bone counterparts of ground slate points and bayonets, bone needles, combs, and large lance foreshafts.

These industries find their counterparts in habitation sites known for this tradition. In the southern area coastal sites are represented at Taft's Point, the Basin, Goddard, Nevin and Waterside shellheaps (Tuck 1971a:352, Bourque n.d.:227). Interior sites are located at major falls such as Eddington Bend, Ellsworth Falls, Horwell's Garden and Gradley, and at the confluence of streams with lakes such as Hathaway Farm. Bourque notes (n.d.:247) that for Maritime Archaic groups in the central Maine area (2200-1800 B.C.) the moose plays a dominant role over caribou in the interior winter economy. For this area a much more diverse winter economy is postulated.

In Labrador Fitzhugh (1972) defines two components of the Maritime Archaic tradition for Groswater Bay: the Sandy Cove complex (3550-2750 B.C.) and Rattler's Bight phase (2150-1750 B.C.)

The former is characterized by tapered stemmed point styles, the smaller examples with leaf-shaped blades and long tapered stems, the larger with broader triangular blades and shorter stems; large leaf-shaped bifaces; a variety of small stemmed flake points; wedges; ground slate points and single-edged knives; and ground slate celts. Ramah chert is present in trace amounts and used almost exclusively for chipped points. A distinctive feature of this Sandy Cove complex is the extensive use (90%) of chipped vein and crystalline quartz (ibid.: n.d.).

In the Rattler's Bight phase the chipped stone industry is based on Ramah chert and dominated by a stemmed point tradition: bifacial and unifacial points, flake points, and micropoints. Points of twenty-five millimetres and greater are bifacially flaked and those smaller are generally marginally retouched flakes. Flake knives and scrapers are common but a formal scraper category is absent. Stemmed slate points, knives, bayonets, gouges, axes and adzes are represented in the ground slate industry. Numerous whetstones and grindstones accompany this ground stone technology. Pecked and ground plummets plus one perforated and grooved soapstone variety are present. A bone industry has not been preserved except for one barbed leister of antler identical to those from Port au Choix.

The Sandy Cove complex is earlier and ancestral to Rattler's Bight. But differences such as the greater variability of stone tools and raw material in the former indicates a missing developmental progression culminating in the increased usage and distribution of Ramah chert in the later Rattler's Bight, this Ramah utilization and trade was not available after 1900 B.C. when the source for this chert was occupied by different cultural groups (Tuck-personal communication).

Bridging this chronological and technological gap is the Black

Island complex defined on the basis of recent work at the Black Island 2 site (Fitzhugh n.d.). This large summer site produced a unique chipped stone industry utilizing "side and corner-notched" bifaces to the complete absence of the stemmed forms known for the above complexes. A formalized type of flake tool and number of scraper and biface forms are also present. This typological difference is complemented by the use of a dark felsitic and rhyolite raw material which is completely new to this area. However technological similarities are seen in the use of micropoints, flake points, and wedges. This intrusive Black Island complex is confirmed temporally by a date of circa 2250 B.C. (Fitzhugh-personal communication).

An Interior-Maritime subsistence-settlement system has been identified (Fitzhugh 1972:159) in which there is a dichotomy between interior winter and coastal summer exploitation and adaptation.

The Sandy Cove system is known for its coastal summer settlements. These are small transient sites of very brief occupation. Artifacts and chipping debris are scattered over a restricted area. Occasionally there is a central hearth as at Sandy Cove 3 and 4, the latter producing a date of 2860±115 B.C. These seem to indicate a single dwelling by a family or extended family probably exploiting both terrestrial and marine food resources. This less specialized type of adaptation using small exploitation camps appears to develop into the larger intensive summer adaptation known for the Rattler's Bight phase. At the Rattler's Bight 1 site there appears to be an increasing sedentary summer settlement probably resulting from the development of specialized marine hunting technology (ibid.: 143). This large base camp was repeatedly occupied by several families for an extended summer period. A population increase and the expansion of coastal movement and trade accompanied this development.

While no winter sites are yet known these are expected to be of an unspecialized interior winter caribou adaptation. Large congregating herds are unknown for Hamilton Inlet and exploitation of the dispersed woodland caribou probably was accomplished by small groups of hunters. This winter exploitation is postulated as pertaining to both the Sandy Cove and Rattler's Bight systems,

In Saglek Bay in northern Labrador (Tuck 1971b: 2), the Maritime Archaic sites seem to be small repeatedly occupied settlements with large stone hearths. At Site Q there appears to be a development from extremely crude quartzite knives or "stemmed flakes" found in Band 7A (2580±105 B.C., I-5249) to bifacial stemmed points and small uniface flake points in Band 4A (1940±110 B.C., I-5251). Ground slate points and knives are represented by several fragments in Band 7A. In southern Labrador, Harp's (1968:44) early dates of 4319±76 B.C., 4223±77 B.C., and 3611±60 B.C. may represent the early populating of this area by people of this tradition (Tuck 1971b:353).

In Newfoundland this interior-coastal dichotomy of seasonal rounds is postulated (Tuck 1970, 1971a) to continue in the form of a major coastal occupation from early spring to late fall exploiting the numerous sea mammals and their young, aquatic fowl, their eggs and nestlings, and the abundant Atlantic salmon. A brief return to the interior for caribou hunting during their migrations to their summer grounds might be possible in some areas. With the first snow an interior settlement is necessary for these groups to again exploit the congregating herds during the winter months.

Review of Shield Archaic Tradition

The Shield Archaic Tradition refers to a distinctive preceramic

complex widespread throughout the Canadian Shield-Boreal Forest zone (Wright 1968; n.d.). Its origin is postulated as being in the late Paleo-Indian technology evident in the Northwest Territories around 5000 B.C. culminating in the Algonkian-speaking peoples known in historic times. Wright notes the technological similarities at sites throughout this area. This consists almost entirely of chipped stone forms: biface and uniface blades, lanceolate and side-notched projectile points, a wide range of scraper forms, crude chopping and scraping/cutting tools. These are based on quartzites and other coarse-grained materials. Scrapers, bifaces, and projectile points dominate these Archaic assemblages with an average of forty-one, twenty-five, and sixteen percent respectively for each of these classes over eleven sites (Wright-personal communication). The frequencies of these points and scrapers increases through time with a corresponding decrease of biface frequencies.

This widespread Boreal forest zone offered a unique ecosystem with a fairly continuous distribution of shared environmental features. This interior forest region is one of numerous lakes and rivers with economic resources predominately based on fish, birds, caribou and moose. The widespread and similar technological base utilized throughout this environment reflects not only the population movements and cultural continuity but the distinctive way of life engendered exploiting this uniform environment.

Despite the impression of technological and cultural unity, regional expressions and variations are bound to occur considering the immense geographic and temporal spread delineated for this tradition. In Labrador Fitzhugh (1972) has defined several complexes including the Little Lake component at circa 1500 B.C., the Brinex Complex dated at one site at 1140±180 B.C., the Charles Complex circa 1000 B.C., and the David

Michelin circa 200 B.C. as possibly associated with the Shield tradition. Artifact assemblages are small and percentage frequencies of artifact classes do not meet those established by Wright for his Shield Archaic sites. The North West River phase circa A.D. 200, however, is interpreted as definite evidence and possessing the closest relations to the Shield Archaic. This assemblage consists of lanceolate bifaces, stemmed points with triangular or convex blades, bifacial knives, flake knives and scrapers, and hammerstones. Formal scrapers are nevertheless noticeably absent.

These Shield Archaic manifestations follow a Modified-Interior Subsistence-Settlement system (ibid.: 158) which entails a generalized interior adaptation with extensions to the coastal areas to exploit species distributed across the two zones. Caribou hunting occurs during the winter with small game hunting and fishing along lakes and coastal areas in summer. The North West River phase has more emphasis on large semi-sedentary fishing at river mouth areas. On the coast, seal hunting seems to be definitely part of their exploitation.

Fitzhugh (ibid.: 116) envisions relationships with the Tobique complex in New Brunswick (Sanger 1971) and the Wenopsk complex in central Quebec (Martijn and Rogers 1969). The former has a wider range of classic Shield traits: biface lanceolates, uniface lanceolates, stemmed projectile points, and a high percentage of formal end scrapers. This assemblage is related to the Point de Camp 2 component, within the early phase of the Wenopsk complex. Here the assemblage includes lanceolate, triangular and side-notched projectile points, various biface and uniface fragments, end scrapers, retouched flakes and one combination tool. This early phase is temporally placed at 4000 to 2500 B.C. and is believed to be the cultural adecedents of the Mistassini Indians of central Quebec.

Inferences on subsistence-settlement patterns practiced by Archaic groups at these sites is speculative due to poor preservability of evidence in this boreal zone and they rely heavily on ethnographic data. The occassional fire-cracked rock, hearth pit, and discoloured soil indicates living areas and central camp fires. Limited distribution of artifacts and chipping debitage indicate small sites probably occupied by small nuclear families. Evidence of actual structures or shelters is a rarity. The most notable exception to this is at the Aberdeen site where House Structure 1 was an oval semi-subterranean feature with an entrance passage, interior pit and hearth, and a sleeping platform area. A date of 1075±90 B.C. was obtained from this feature (Wright-personal communication). Subsistence is also conjectural at these interior sites attributable to the lack of faunal preservation. For the Tobique complex, the Deadman's Pool site is considered a summer camp for small groups exploiting the rich salmon holding pool (Sanger 1971: 34). At Point de Camp Martijn postulates large game subsistence, probably caribou and bear, with fish taken when available. In general then the limited evidence supports the assumption that the interior boreal zone offered an economy based on caribou, moose, beaver, birds and fish exploited by small groups probably on a restricted wandering base.

Review of Arctic Small Tool Tradition (Dorset culture)

Dorset culture is the terminal expression of the Arctic Small Tool tradition or Paleo-Eskimo cultures that occupied the North American arctic region as early as the first and second millenium B.C. and possibly earlier. This Dorset culture, originally defined by Jenness (1925) on the basis of a collection from Cape Dorset on Baffin Island is characterized by a microblade and generally microlithic technology that

reflects its inclusion in the Arctic Small Tool tradition.

Newfoundland Dorset lithic technology has been analyzed most closely by Linnamae (1973) who concludes that the bulk of the technological traits belong to the middle Dorset period with the strongest cluster of dates and artifact traits belonging to the first half of the first millenium A.D. These traits include triangular tip-fluted end blades, asymmetric side-notched knives, ground slate knives and end blades, side blades, end scrapers of various forms, microblades and polyhedral cores, rectangular and rounded soapstone vessels. At Port au Choix bone preservation adds bone lances, foreshafts, harpoons, sled shoes and even needles to our knowledge of their material culture.

Dorset settlement patterns in Newfoundland are known almost entirely from the Port au Choix-2 site (Harp 1964a; 1973). Here twenty housepits in a total of thirty-six distributed across two raised beachlines have been partially or completely excavated. The majority are interpreted as winter dwellings. House 2, considered the typical or model, had a central depressed floor area fifteen-foot square with side walls of stone beach-rocks stacked to a height of twelve to eighteen inches. A central hearth in the form of a combination of stone-lined pits about twelve inches deep run the central front to rear axis. Towards the rear a semi-circular bed platform was ten to twelve inches higher than the floor. This area also had three deep storage pits towards the centre. Side benches thought to originally occur along the walls in the central floor area were later interpreted as turf blocks banking the house walls.

A few housepits are considered summer dwellings. House 5 is a shallow, oval depression measuring ten by eighteen feet. The internal hearths, peripheral rings of stone and other features that marked the winter dwellings were absent. Artifact distribution was relatively thin in

marked distinction to the high density of artifacts occuring both interiorly and exteriorly in winter houses. This higher density is thought to reflect their continual use over long periods and House 2 produced four radiocarbon dates indicating a minimum of eighty-eight years and a maximum of three hundred and two years habitation.

At the Cape Ray Light site (Linnamae 1973) hearth remains, stone configurations and artifact groupings delineated habitation areas. These centralized hearths and their surrounding rocks suggested an interior stone pavement of a house structure. Distinct structural remains such as Port au Choix-2 however were absent.

In Labrador the Dorset period spans circa 800 B.C. to circa A.D. 200. The early period in Groswater Bay is characterized by high side-notched end blades with "box-like" bases and distinct plano-convex cross-sections, bipointed side blades, corner-notched and single side-notched knives and unusual ground burins with spalls removed along the lateral edge from the apex (Fitzhugh 1972: 148-149). In northern Labrador Tuck (1973a; 1973b) defines three complexes, Early, Middle, and Late from Saglek Bay and traces technological changes through this sequence. The first includes high narrow side-notched end blades, triangular end blades, ovate bipointed side blades, side-notched asymmetric knives and a blade industry based on Ramah chalcedony. During the Middle period, 400-100 B.C., the frequency of tip-fluted end blades increases, side blades decrease, and flake side scrapers increase. Side-notched asymmetric and symmetric knives, angular steatite lamps and bowls continue to be used. Around A.D. 200 the Late complex is characterized by unifacial end blades as well as tip-fluted end blades, large stemmed knives, high frequency of large end scrapers made on thick blade-like flakes, absence of expanded corner end scrapers, large prismatic blades and smaller microblades.

The Groswater Dorset subsistence-settlement system is identified as Modified-Maritime (Fitzhugh 1972: 161). In this area year round adaptation to the coast and its marine resources is possible. Caribou hunting is a necessary secondary source of food but can be obtained near the coast and not by deep interior penetrations. Sites here reflect summer occupations by small probably family groups. No definite structures were discerned although hearths were present and large rocks may be indicative of tent rings. Winter occupation sites were not located.

Faunal remains at Port au Choix-2, collected from House 4 a winter dwelling, indicates subsistence based primarily on seal hunting. Here the twenty-five thousand pieces of bones were ninety-eight percent Harp seal (Phoca groenlandica). Minor occurances of fox, beaver, migratory fowl, fish and caribou were also noted. Community patterns consisted of small clusters of households reaching a maximum of seven households in A.D. 200. Individual house layout, Harp (1973: 33) further feels, indicates a two family unit, probably an extended family group.

Review of Beothuck culture

The cultural origins of those Indians of insular Newfoundland known in historic times as Beothuck is thought (Tuck 1973b) to be in the Shield Archaic tradition. Wright (n.d.) postulates the cultural continuity from Shield Archaic to the historic Algonkian-speaking groups in the northeast. In central Quebec the Wenopsk complex has been defined as a regional expression of this tradition (Martijn and Rogers 1969) which lasted until contact times in this interior boreal environment to become the Algonkian-speaking Mistassini Indians. Linguistic (Hewson 1968) and the growing archaeological evidence supports this association of the Beothucks with the Algonkian speakers.

The basic adjustments of these interior Boreal forest hunters to the seasonal coastal exploitation known for Beothucks may be seen in Fitzhugh's (1972) Modified-Interior system for Shield-affiliated sites in Groswater Bay. This coastal adaptation was probably initiated by exploiting species distributed through both interior and coastal areas. In the North West River phase, circa A.D. 200, there is evidence of seal hunting. Although the evidence is not yet available, it is easy to postulate an increasing seasonal exploitation and reliance on marine resources culminating in a subsistence-settlement pattern based on coastal spring to fall marine mammals and interior caribou hunting during the winter.

Whatever the evolution Beothuck migration to insular Newfoundland is thought to occur following the Dorset occupation, probably before A.D. 1000 and settlement patterns as deduced from historical accounts and archaeological data follow this seasonal coastal-interior pattern. Two known interior sites are at caribou crossings along the Exploits River system.

At the Indian Point site (Devereux 1970) on Red Indian Lake two Beothuck components were excavated. The most interesting feature of the historic component is the large hexagonal housepit 25 by 20 feet with a large central mounded hearth, single entrance area with an irregular patch of red ochre, a platform area and an interior hollow between the mounded central hearth and platform. On the exterior were two large cobble concentrations. Associated with this historic Beothuck occupation are hearths of fire-cracked rocks, bone fragments, iron tools, and "bone mash" concentrations. Artifacts reflect this historic affiliation: tanged iron deer spearheads, iron toggling harpoon heads, iron spikes and iron axe heads used as a source for iron tool-making (ibid: 57-58).

The prehistoric component showed a thin discontinuous distribution with isolated fire-cracked rock features, and shallow midden deposits and large red ochre stains. A single date from feature 33 of A.D. 1590±100 (I-6562) indicates a very late prehistoric occupation for all or part of this component. Artifacts were entirely lithic based on chert with small corner-notched points, small and large stemmed knives or points, leaf-shaped and triangular knives, large flake knives, small snubnosed chert endscrapers, chert cores, cobble choppers and hammerstones considered part of this assemblage (ibid.: 59-60).

The Wigwam Brook site along the Exploits River produced three housepits, only one of which was undisturbed. This was a multi-sided feature and similar to that described for Indian Point site. Measuring twenty-four by twenty-one feet with a central hearth and a small cluster of fire-cracked rocks, the associated artifacts confirmed its historic placement in time: glass buttons, square cut nails and one china fragment (LeBlanc 1973: 99).

Coastal settlement patterns are presently known from only the Beaches site, Bonavista Bay (Devereux 1969). The four housepits on the northern half of the site were roughly circular ranging from twelve to twenty-three feet. The limited testing defined a central hearth in two of these depressions and in housepit number 4 this hearth measured three feet in diameter. In this same depression a midden was located extending over the edge of the housepits. Artifacts were typically scarce but included an admixture of stone and iron tools: a triangular stemmed flake tool, a triangular quartz tool, one stemmed projectile point, a concave edge flake tool, iron spearhead, square iron nail and sheet iron fragments, an iron bolt fragment, and a clay pipestem. Devereux concludes that the presence of both types of tools indicates an early historic

temporal placement. The evidence, meagre as it is, indicates the Beothucks increasingly relied on iron tools through the historic period to the final complete detriment of their stone technology. The pipestem has been identified (LeBlanc 1973: 52) as indicating a date range of A.D. 1680 to 1710 which would concur with the original estimate of an early historic placement.

Subsistence at this site was interpreted from the faunal bones contained in the midden. This contained immature harbour and harp seal, caribou, blackbear, polar bear, Canada goose, northern double-crested cormorant, common cormorant and sea duck. The immature harbour and harp seal, and the polar bear indicate an initial occupation during early spring probably March or April. This occupation lasted through the summer probably to the fall as suggested by the presence of the other species.

Subsistence at both the interior sites is based on caribou. At the Wigwam Brook site they accounted for ninety-eight percent of the total faunal collection, with beaver, arctic hare, red fox and common loon accounting for the remainder. It is interesting that faunal analysis indicated an unusually lengthy occupation possibly year round to obtain these species. This break with traditional subsistence-settlement patterns may tend to confirm Tuck's (personal communication) hypothesis that these people were eventually cut off from the coastal resources by the overwhelming presence of Europeans, contributing to their demise. The Beothucks at this site may have indeed deviated in late historic times under this pressure and attempted year round subsistence on interior, predominately caribou, resources. The late occupation date assigned to this site, possibly during the latter part of the 1700's (LeBlanc 1973: 147) supports this interpretation.

CHAPTER TWO

Environmental Setting

Regional Topography

Bonavista Bay and its interior drainage is characterized by a general topographic trend of sharply rolling ridges and hills all under a 700 foot elevation. These ridges are oriented generally SW-NE and extend finger-like out into the coastal area where they form the many channels or "Reaches" and islands which typify this coastal environment. These ridges are steep-sloped and generally rise immediately, from the waters-edge of the channels to an average elevation of 250 - 300 feet.

The major interior drainage area for Bonavista Bay consists of numerous valleys, large lakes or ponds and bogs and the drainage patterns follows the general SW-NE topography along two major river systems, the Terra Nova and the Gambo. This is in distinct contrast to the coastal environment where the steep and narrow ridges and headlands offer few ponds and only small but numerous streams along the slopes.

Geology

This general area lies in the eastern Precambrian rock and Lower Paleozoic deposits (William 1963). Rocktypes for the immediate site area belong to two categories separated by the Charlottetown fault running the length of Bloody Reach. On the north-western half where the site is located is the Love Cove Group consisting of Volcanic rocks - Rhyolites, Andesites, Trachytes and metamorphosed sandstones and siltstones. On

the south-eastern half in the Musgravetown Group are red to green coarse-grained conglomerates, sub-greywakies and acidic to basic lavas. (Jenness 1963).

Soils of the humic podsols are the most widespread in Newfoundland (Leakey 1969: 123) and are based mainly on post-glacial drift deposits. Development is impeded by many factors including poor weatherability of the parent material, cool boreal climate, and the short period since deglaciation (Pollett 1968). Vegetational and climatic factors have resulted in podsolization with the associated leaching and lack of underlying limestone producing a strong acidity to the soil.

Flora

The forest cover for insular Newfoundland has been included in the broad Boreal Forest zone (Rowe 1959) characterized by a number of species with decreasing frequencies. These include the predominant black spruce (Picea mariana), balsam fir (Abies balsamae), white spruce (Picea glauca) and larch or tamarack (Larix laricina). Broad-leaved species are a minority with the most common being white birch (Betula papyrifera) and balsam poplar (Populous balsamifera).

The site itself is located in a transition area between Rowe's(ibid) Avalon (B 30) and Grand Falls (B 28a) sections, this latter category typifying more closely this locale as well as most of the interior drainage area. Here the thick stands of black spruce and balsam fir are dominant especially on the well-drained valley slopes with white birch and white spruce of scattered occurance (Jenkins 1955). The tops of the higher ridges as well as large sections of the interior has this cover give way to extensive barrens, where Labrador tea (Ledum), sheep laurel (Kalmia), reindeer moss (Cladonio) and various other lichens become dominant (Cameron 1958).

The extreme outer fringe area of this coastal environment approximates the Avalon (B30) section which includes extensive barrens as a result of cultural practices and extensive historic forest fires. Patchy, dense-growing stands of white spruce associated with balsam fir characterize parts of this coastal section.

Palynological studies are few but indicate that the vegetational cover as represented in the pollen assemblages have undergone no major changes for the past 3000 years and climatic conditions closely approximate the modern situation (Terasmae 1963).

Climate

Newfoundland climate has been the subject of many attempts at categorization and these range from Koppen's Dfb to ET. Hare (1952) places it in the moist marine type, Dfc, climatic group. While such general categorizations do not take into account the extreme complexity and variability of Newfoundland climate, they do attempt, quite rightly, to establish the island within a cold marine climate. This marine climate can be attributed to many factors.

The North Atlantic Ocean is the dominate force and the cold Labrador current is given as exerting the greatest single influence (Lindroth 1963). This Labrador current with its arctic pack ice directly affects the temperature especially along the northern section where it blocks the numerous bays for most of the winter months. Winter temperature in this northern section and inland has a January mean of 15.2^{o}F (Pollett 1968:11). This frigid temperature caused by off-shore ice and the prevailing easterlies retards spring which may be delayed until May or mid-June. This cold Labrador current also helps induce fog in spring and early summer especially along the southern coastal areas.

Summers are moderate and moist with a July mean of 55°F for the coast and 67°F inland (ibid:12). Precipitation is fairly abundant and the mean annual rate varies from 63.79 inches at St. John's to 32.75 at St. Anthony. The vegetative season with air temperature above 43°F varies with many parts of the island south of the northern peninsula experiencing over 160 days.

The fall sees a north to south temperature gradient for the island with the northern portion experiencing a rapid temperature decline. Autumn as a season however is regionally variable and not well defined for this marine environment.

Resources and Resource Potential

While any area offers degrees of productivity according to its resource potential, the activities leading to its exploitation are dependant on the degree of technology and socio-political level for each particular cultural group. The resource and the potential offered by insular Newfoundland and the Bonavista Bay area are decidedly geographically distinct within the Northeast. Moreover a dichotomy can be observed between the faunal and vegetal resources offered by the coastal littoral and that of the interior environs.

It is not intended to equate these two, the coastal and interior environments, as distinct ecosystems or establish the Bonavista Bay area itself as a unique microenvironment within the Maritime area. Yet the dichotomy of coastal and interior resources is distinct and directly influences the seasonal exploitation of these resources and therefore the settlement patterns of the various cultural groups utilizing the available resources.

For the interior region, of the fourteen terrestrial mammals

(Peters 1967) native to insular Newfoundland, the single most economically valuable is the Caribou, Rangifer caribou (Table 1). These are restricted by the regional geographic factors to the deeper interior locales and presently a band of these ungulates congregate in the barren areas around Maccles Lake (Telfer 1964). This present distribution probably approximated the prehistoric situation. Interior penetration to this resource is easily facilitated by the Terra Nova and Gambo river systems. Semi-annual migration treks with large congregating herds in the late fall and spring makes these otherwise solitary animals easily available.

TABLE 1

Native Land Mammals (Peters 1967)

Caribou	Rangifer caribou	Otter	Lutra canadensis
Arctic Hare	Lepus arcticus	Short-tailed Weasel	Mustela erminea
Beaver	Castor canadensis	Martin	Martes americana
Muskrat	Osdata zibethicus	Black bear	Ursus americanus
Lynx	Lynx canadensis	Long-eared Bat	Mytois keenii
Wolf	Canis lupus	Meadow Vole	Microtus pennsylvanicus
Red Fox	Vulpes fulvo	Little Brown Bat	Myotis lucifugus

TABLE 2

Interior Avian Resources (L. Tuck 1967)

Common Loon	Gavia immer
Common Goldeneye	Bucephala clangula
Willow Ptarmigan	Lagopus lagopus
Canada Goose	Branta canadensis
American Bittern	Botaurum lentiginosus
Green-Winged Teal	Anas carolinensis
American Golden Plover	Pluvialis dominica
Common Merganser	Mergus merganser
Black Duck	Anas rubripes
Common Snipe	Capella gallinago
Spotted Sandpiper	Actitus masculatis

TABLE 3

Vegetal Resources (Rouleau 1956)

Bakeapple	*Rubus charnaemorus*
Partridgeberry	*Vaccinium oxycoccus*
Blueberry	*Vaccinium cespitosum*
Squashberry	*Viburnum edule*
Crackerberry	*Cornus canadensis*
Wild Raspberry	*Rubus acaulis*
Cranberry	*Ribes glandulosum*
Blackberry	*Empetrum* spp.
Wild Cherry	*Prumus pensylvanica*

Bear, fox, weasels and others were present in the interior lakes and valleys and smaller game such as the beaver and arctic hare offered an abundant though not necessarily stable food source.

Birds were abundant and probably added to the diet either in themselves or their eggs. For groups exploiting seasonally or year-round the interior lakes, ponds and barren area, important land birds, listed in Table 2, included the willow ptarmigan, common goldeneye, common loon and Canada goose.

Vegetal foods are numerous in the interior bogs, slopes and barrens where they are in profusion in the late fall. Table 3 lists the more important of these, the most abundant in the Bonavista Bay area being bakeapples, partridgeberries and blueberries.

In contrast to this is the outter coastal environment among the Reaches and islands of Bonavista Bay which offered resources that are marine oriented. Presently, marine mammals include thirteen varieties of whales and dolphins, Table 4, which were undoubtedly more abundant in prehistoric times. The smaller species, the white whale, bottlenose

and white-back dolphin frequent the shallow coves and estuaries feeding on the numerous herrings and caplins. The larger deep-water varieties were probably taken only when they became stranded in shoals or run aground along the shores. These mammals were available from spring to late fall.

Six varieties of seal still frequent these coastal waters (Table 4). Four of these, the Harbour seal, Ringed, Bearded and the Grey occur mostly along the coastline. These become plentiful in spring along the coast where they gave birth to a pup on the rocky shore or land-fast ice. Historically and probably prehistorically, the harbour seal was the most plentiful in Bonavista Bay. The young, especially easily taken and plentiful in numbers, were probably a major resource attraction to the coastal area. The remaining seals, Harp and Hooded, are also abundant in spring but give birth to their pups on the "front" or arctic pack ice that moves down with the Labrador current. The Harp breeds in late February and early March on this pack ice and leaves in early May. Depending on wind conditions, this Front with its several thousand seals can lie inaccessible miles out to sea or be blown shoreward against the coast itself. The Hooded seal was probably more of a rarity to Bonavista Bay hunters, breeding on the heavier arctic ice on the seaward side. Both species generally return north by June.

Walruses were known in early historic times to inhabit the Gulf of St. Lawrence area where they bred on several of the Gulf Islands. Their distribution in prehistoric times may have included the entire insular Newfoundland and become available to Bonavista Bay hunters.

Thirty-five species of sea and shore birds - terns, sea ducks, scoters, murres and gannets, frequent the Newfoundland coast only a partial inventory of which is listed in Table 5. Most arrived in spring and

their large breeding colonies and rookeries provided thousands of birds and eggs. The flightless Great Auk were extremely vulnerable and easily accessible. Their last known breeding locale, the Funk Islands, lie northward to Bonavista Bay and their prehistoric distribution probably include the island-studded Notre Dame and Bonavista bays.

The coastal environment also provided other aquatic resources such as caplins which spawn in coves by the millions along the coast in June; marine mullusks such as blue mussel, solf-shell clams and scallops; and various shell fishes. Salt water fish such as cod, flounder, tuna were very abundant but we can only speculate as to whether the native technology allowed for their exploitation. The anadromous fishes, the sea trout and especially the Atlantic salmon (Salmo salvar) probably numbered thousands in their runs along the major rivers such as the Terra Nova and Gambo.

TABLE 4

Marine Mammals (Peters 1967)

Whales and Dolphins

Right Whale	Eubalaena glacialis
Finback Whale	Balaenoptera physalus
Rorqual Whale	Balaenoptera borealis
Piked Whale	Balaenoptera auctorostrata
Blue Whale	Sibbaldus musculus
Humpback Whale	Megaptera novaengliae
Spern Whale	Physeter catadon
Whiteback Dolphin	Lagenoshynchus albirostris
Atlantic Killer Whale	Grampus orca
Common Blackfish	Globicephala ventricosa
Atlantic Harbour Porpoise	Phocaena phocoena
White Whale	Delphinapterus leucas
Bottlenose Whale	Hypesoodon ampullatus

TABLE 4 (cont'd)

Seals

Harbor Seal	Phoca itulina	Bearded Seal	Eringathus barbatus
Ringed Seal	Phoca hispida	Grey Seal	Halichoerus grypus
Harp Seal	Phoca groenlandica	Hooded Seal	Crystophora cristata

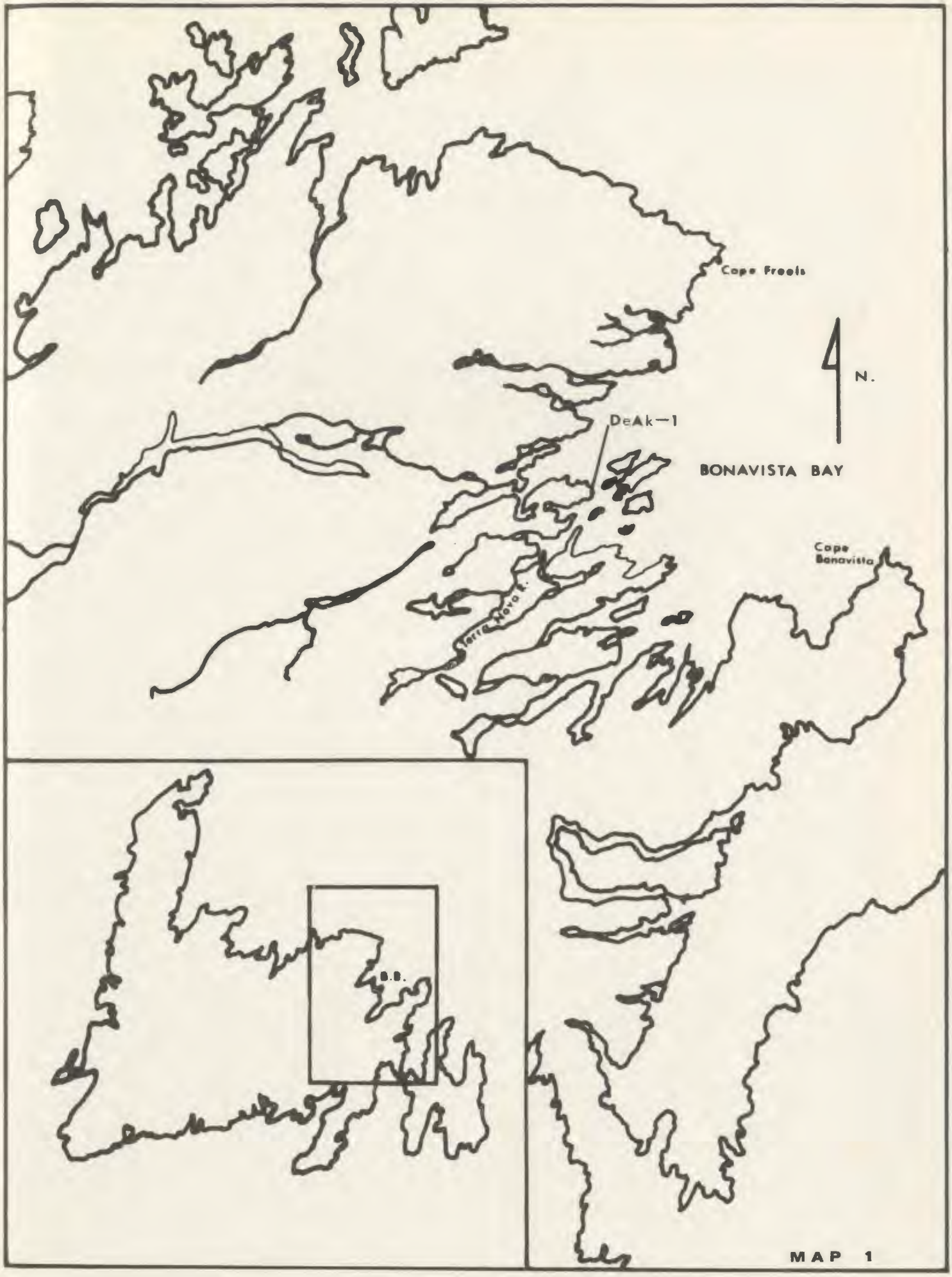
TABLE 5

Sea and Shore Birds (L. Tuck 1967)

Greater Shearwater	Puffinus gravis
Leach's Petrel	Oceanodroma leucorhoa
Gannet	Morus bassana
Common Eider	Somateria mollissima
Common Scoter	Oidemia nigra
Herring Gull	Larus argentatus
Common Tern	Sterna hirundo
Arctic Tern	Sterna paradisaea
Greak Auk	Pinguinus impennis
Common Murre	Uria aalge
Common Puffin	Fratercula arctica
Black Guillemot	Cepphus grylle

The Local Setting: The Beaches Site

The area known as the "Beaches" presently consists of two low-lying triangular points of land about ten miles out in Bloody Reach from the mouth of the Terra Nova River (Map 1). The western point, on which the site is located, is on the north-western shore at the base of a steep talus cliff. It stretches approximately 330 feet along this cliff face and 300 feet along both its north and south side. The eastern point is located against what is now an island about 1000 feet distance. It measures 100 feet maximum length along this juncture point with the island and


Cape Freels
N.
DeAk—1
BONAVISTA BAY
Cape Bonavista
Terra Nova R.
B.B.

MAP 1

only sixty feet along its sides at high tide. Because of the steep, densely wooded sides of Bloody Reach, the area is only accessible by boat.

Historically these points of land are the remnants of a continuous gravel bar or tombolo that stretched from the mainland to the island. Its almost complete erosion is a relatively late historic phenomena. The magnitude of this destruction is indicated in Lloyd's (1875:222) early account of the area:

> "On the north-west shore of Bloody Bay Run, at the north side of the entrance to Rocky Bay, in Bonavista Bay a narrow gravelly beach connects an outlaying mass of rock on the east with the mainland. It is about a quarter of a mile long, and of an average width of about 120 yards, being narrowest in the middle, and widening out on the east and west. Its flat surface, which rises five or six feet above sea level is partially covered by long grass, the centre portion being bare of vegetation."

Even as late as sixty years ago the bar is remembered as being about 100 feet in width with only a narrow passage or tickle towards the centre. Its erosion to the present state of two points of land was probably greatly accelerated in 1929 by the tidal wave forces that swept the general Bonavista Bay area.

This former continuous bar can be seen in the form of the tidal flats that connects the two points at low tide. This tidal bar presently ranges from forty to sixty feet maximum width.

The area has not stabilized and in fact seems to be undergoing constant erosion. Since 1966, when the site was first scientifically examined by H.E. Devereux (1969) for the National Museum of Canada a full

four to eight feet of the entire southern frontage of this western bar has been eroded by the storm waves and severe winter ice.

The site itself (DeAk-1) is situated along the southern shore of this western point. This point is fronted on the north by a large storm beach or berm rising six to ten feet above high tide level and a smaller one along the southern shore of two to three feet. Between these, towards the centre is a stretch of low lying land, somewhat boggy. This bog area effectively separates the present flora of spruce and fir that fringe the northern shore from the dense speckled alders, ferns and wild rose and raspberry thickets that grow in profusion over the southern half of the point.

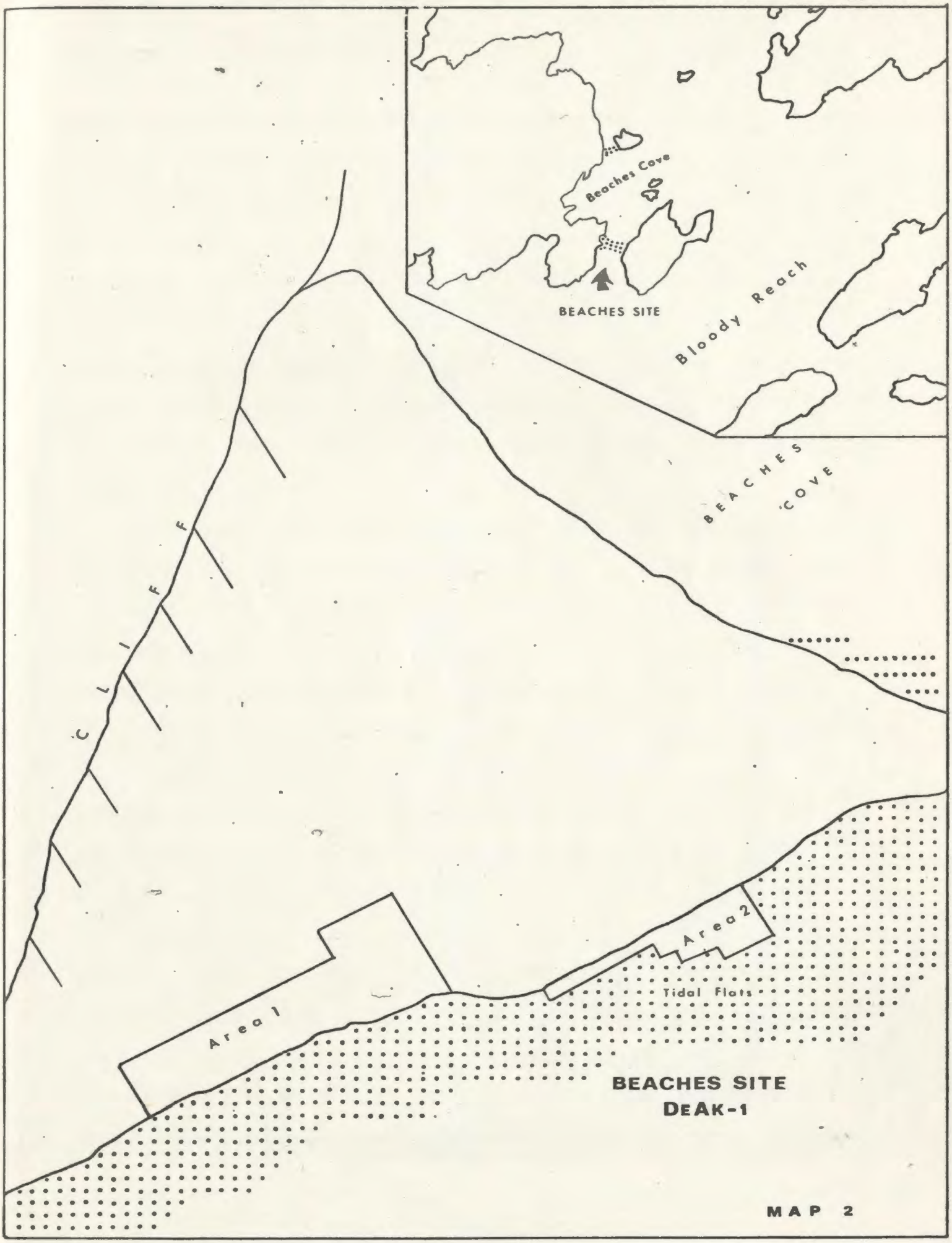
CHAPTER 3

INTRA SITE ANALYSIS

Excavations and Stratigraphy

Two artifact producing areas were excavated (Map 2). Area 1 is located midway along the southern shore where erosion had exposed the cultural layer along the bank. A one hundred foot stretch was selected where the cultural deposit seemed thickest. Excavation proceeded by five-foot squares and a maximum distance of thirty feet from the bank was attained. Both horizontal and vertical control of artifacts and features were recorded in tenths of feet.

Stratigraphy consisted of an overlying humus/peat deposit that varied from one to nine inches thick. The peat layer accounted for most of this and increased in thickness as excavation proceeded towards the cliff. The occupation layer or Cultural Layer 1 was immediately below averaging three inches thick with occasional dips to as much as nine inches (Figure 1). Generally speaking, a single continuous deposit extended throughout this area. This was a rich black organic stratum littered with thousands of waste flakes and bits of charcoal. In some areas this cultural stratum could be visually distinguished into two layers, the top-most being the darker and black while the bottom was more grey in colour. Attempts to attribute these to different cultural occupations proved untenable and it is interpreted as a leaching phenomenon. Beneath this was the true, white, leached zone. It was one-half to two inches thick and poorly formed with a discontinuous distribution throughout the



BEACHES SITE
DEAK-1

MAP 2

site. A dense, compact, schistose gravel subsoil which comprises the matrix for the entire point and bar was encountered immediately below this. This matrix is derived from the green schist rock type that forms the immediate site locale. In two instances a second cultural layer was present. The first occurred as an irregular patch over a restricted ten to fifteen square foot area. A thin cultural deposit one-half to one inch thick occurred above the main deposit which dips slightly in this area. They are separated by a layer of sterile gravel and both cultural deposits eventually merge indistinguishably. Artifactual remains in this thin deposit were restricted to waste flakes and one corner-notched projectile point.

The second occurance of multiple cultural stratigraphy occurred in the extreme northeast corner of Area 1 in the last four squares. Here below the main deposit previously described was a thin layer of small waterworn pebbles, one to two inches thick, followed by a thicker layer of two to three inches of sandy clay. Beneath this was a black organic occupation layer two to three inches in thickness. The typical white leached zone and the sterile gravel subsoil occurred immediately below this (Figure 2). Cultural remains in this lower stratum were restricted to two artifacts: one bipointed biface preform and one flake retouched along the convex lateral side.

The second artifact producing excavation, Area 2, occurred further west towards the tip of the point. Here excavation revealed an intact cultural horizon, Cultural Layer 2, underlying the gravels in what is now the tidal flats and extending into the bank. The grid was extended to cover this area and work proceeded whenever wave and tidal conditions permitted. The wet cultural deposit was reduced to a muck consistency

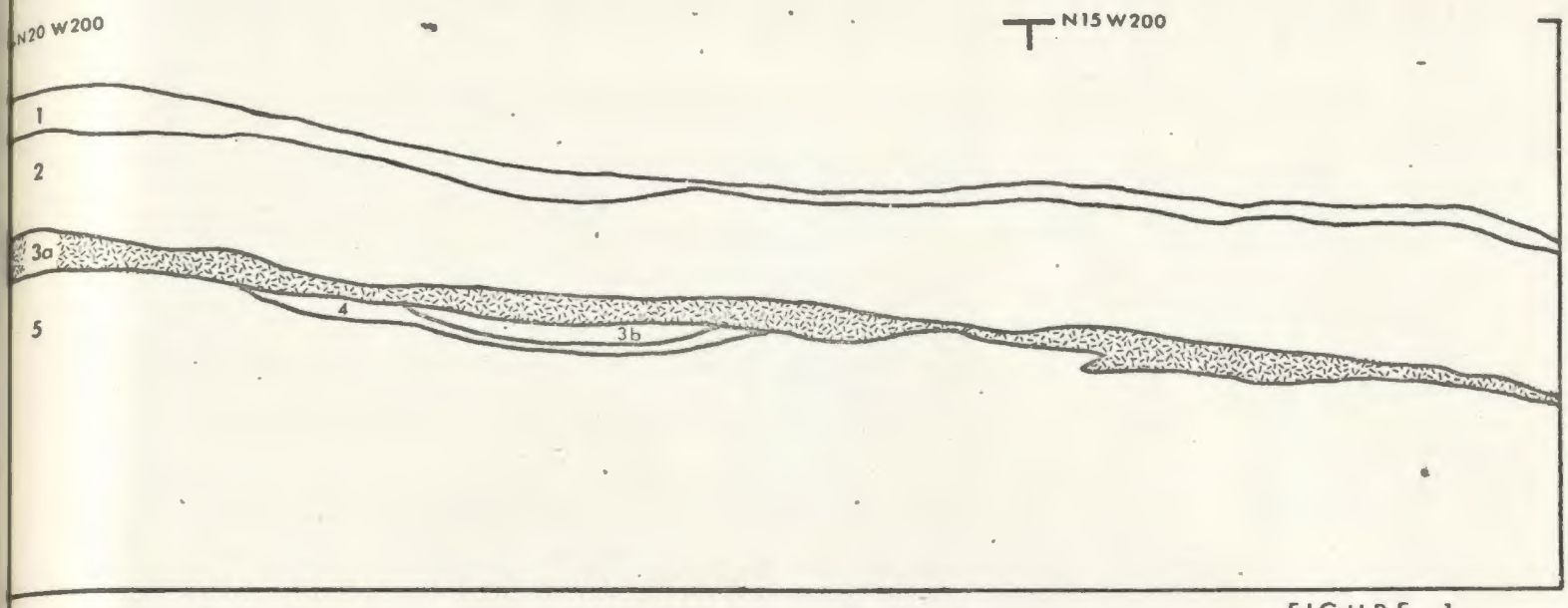


FIGURE 1

1 SOD
2 PEAT
3a BLACK CULTURAL DEPOSIT — 1
3b GREY CULTURAL DEPOSIT — 2
4 WHITE LEACHED ZONE
5 BROWN. SCHISTOISE GRAVEL SUBSOIL

BEACHES SITE
DeAk-I

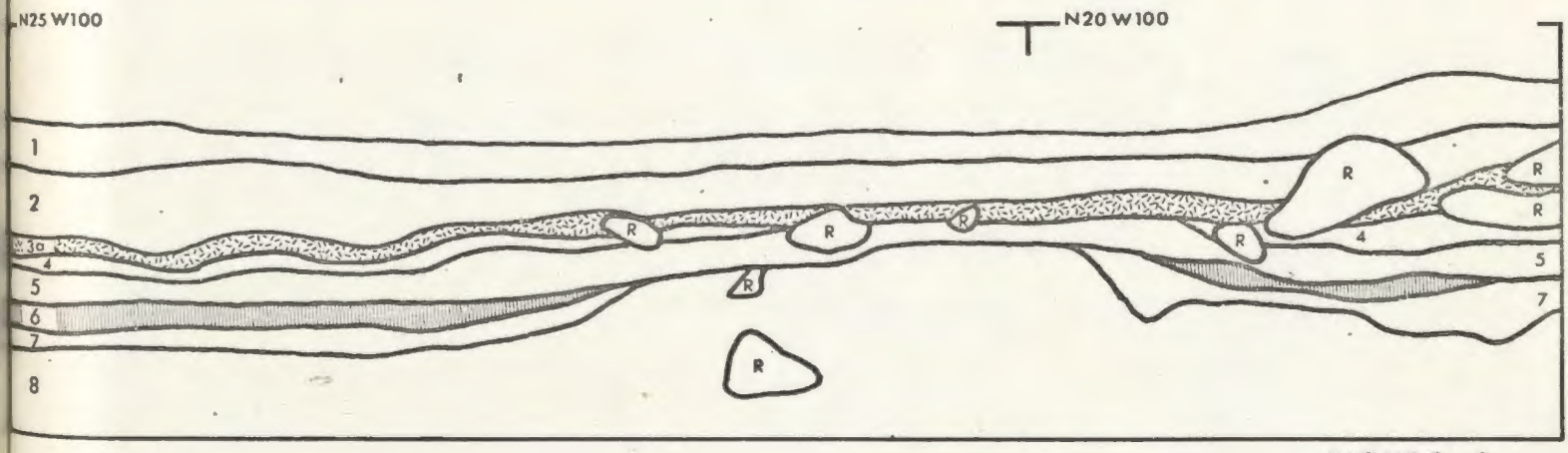


FIGURE 2

1 SOD
2 PEAT
3a BLACK CULTURAL DEPOSIT - 1
4 SMALL ROUNDED PEBBLES
5 SANDY CLAY
6 BLACK CULTURAL DEPOSIT - 2
7 WHITE LEAGHED ZONE
8 BROWN SCHISTOISE GRAVEL SUBSOIL
R ROCK

and artifacts and the numerous waste flakes were collected and recorded only as being within the various five foot squares.

The stratigraphic relationship of these two cultural strata, Cultural Layer 1 and Cultural Layer 2, was obscured along this beach frontage by a twenty-foot section of disturbance. However the bottom cultural layer occurring in the northeast corner of Area 1 was interpreted as being one and the same as that found in Area 2, that is, Cultural Layer 2. Excavations during the subsequent field season 1973 confirmed this interpretation of stratigraphy and that portion of the site between the two designated areas of excavation proved to contain these two overlaping cultural layers.

Settlement Patterns

In the settlement or site the size and location are strongly limited by the subsistence technology and by ecological factors. This view is shared by Chang (1962: 30) who sees "ecological potential of the locale on the one hand and the exploitative ability of the human occupants on the other" as determining the settlement pattern.

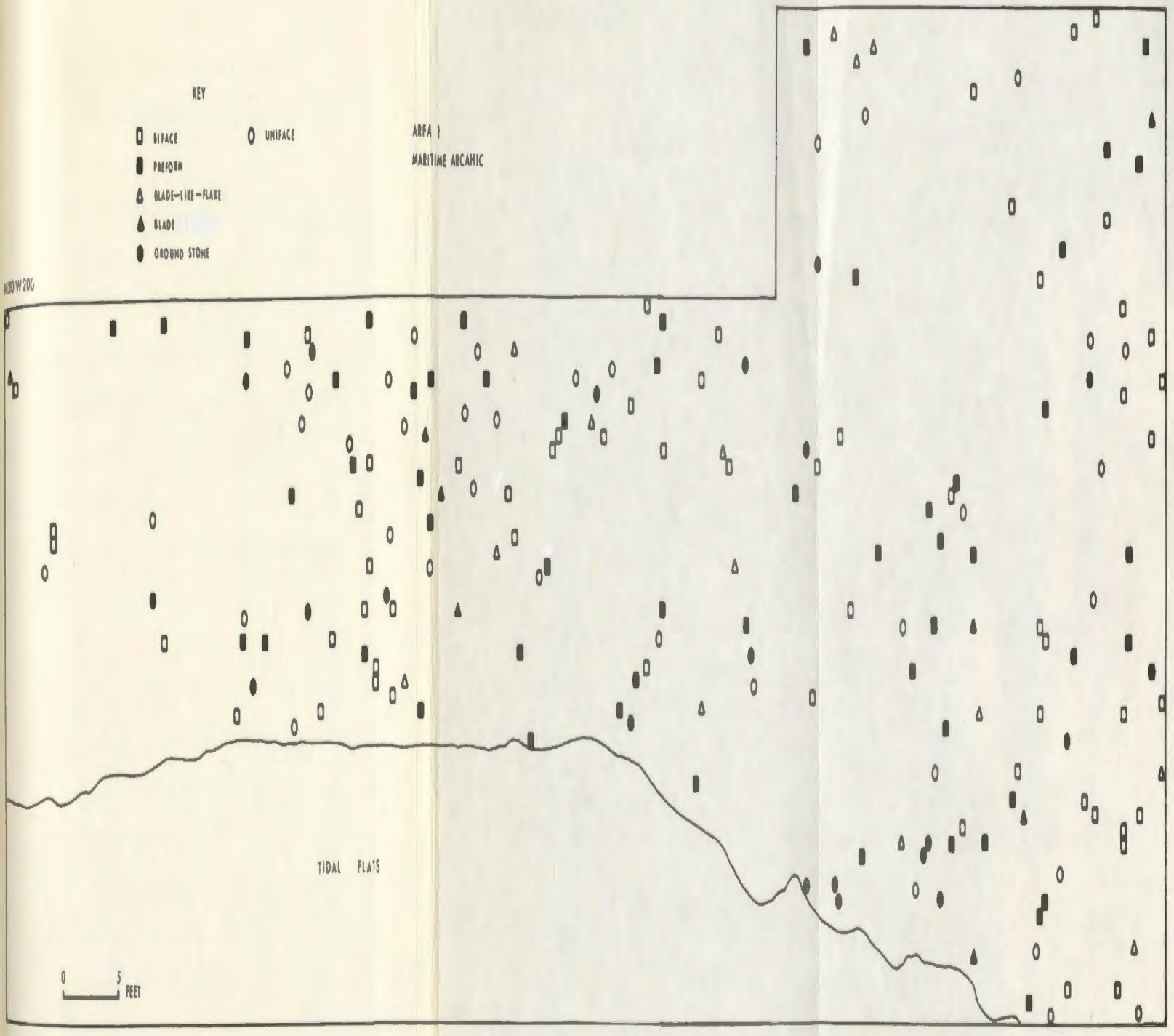
The determinants of the settlement pattern, then, not only includes its areal size and ecological location but seasonality, duration of occupation, exploitive and maintenance patterns as reflected in the spatial distribution of the material culture,

At the Beaches site excavation in two separate areas has uncovered occupational evidence in the formsof two distinct cultural layers. In Area 1, Cultural Layer 1 produced entirely lithic artifacts identified as pertaining to Maritime Archaic, Dorset and Beothuck groups. A fourth group of artifacts of unknown affiliation is termed Undetermined Cultural

Affiliation. This may be a reflection of this area's continuous usage from Maritime Archaic to Beothuck times with no major temporal break or gap. In interpreting the settlement data contained in the spatial arrangements of artifact classes and features for these groups the extent of site erosion should be remembered. The present area of excavation has revealed a site that originally was probably several hundred feet from the shoreline. Moreover the area uncovered probably represents less than five percent of the original extent of the site.

Horizontal distribution for six classes of Archaic artifacts were plotted: bifaces, preforms, blade-like flakes, ground stone and flake unifaces (Distribution Map 1). These are felt to reflect the wide range of domestic, hunting and maintenance activities associated with this occupation.

The settlement patterns for Maritime Archaic contained in this distribution study reveals primarily a fairly uniform and random occurrance of the artifact classes with no noticeable concentrations. None of the site's activities - hunting and butchering identified with numerous biface forms, stone tool manufacturing with the preforms and fragments, hide preparation with the scrapers (flake unifaces), or woodworking with the ground stone forms such as celts and gouges can be associated with any selective activity area within this Area 1. No hearths, structures or other features attributable to these people were uncovered. The cultural layer did contain numerous and widely scattered bits of charcoal and the occasional isolated pocket of charcoal did occur. This is probably a reflection of the sites intensive occupation and the probable destruction and scattering of features and other settlement data pertaining to these Archaic people by later inhabitants.



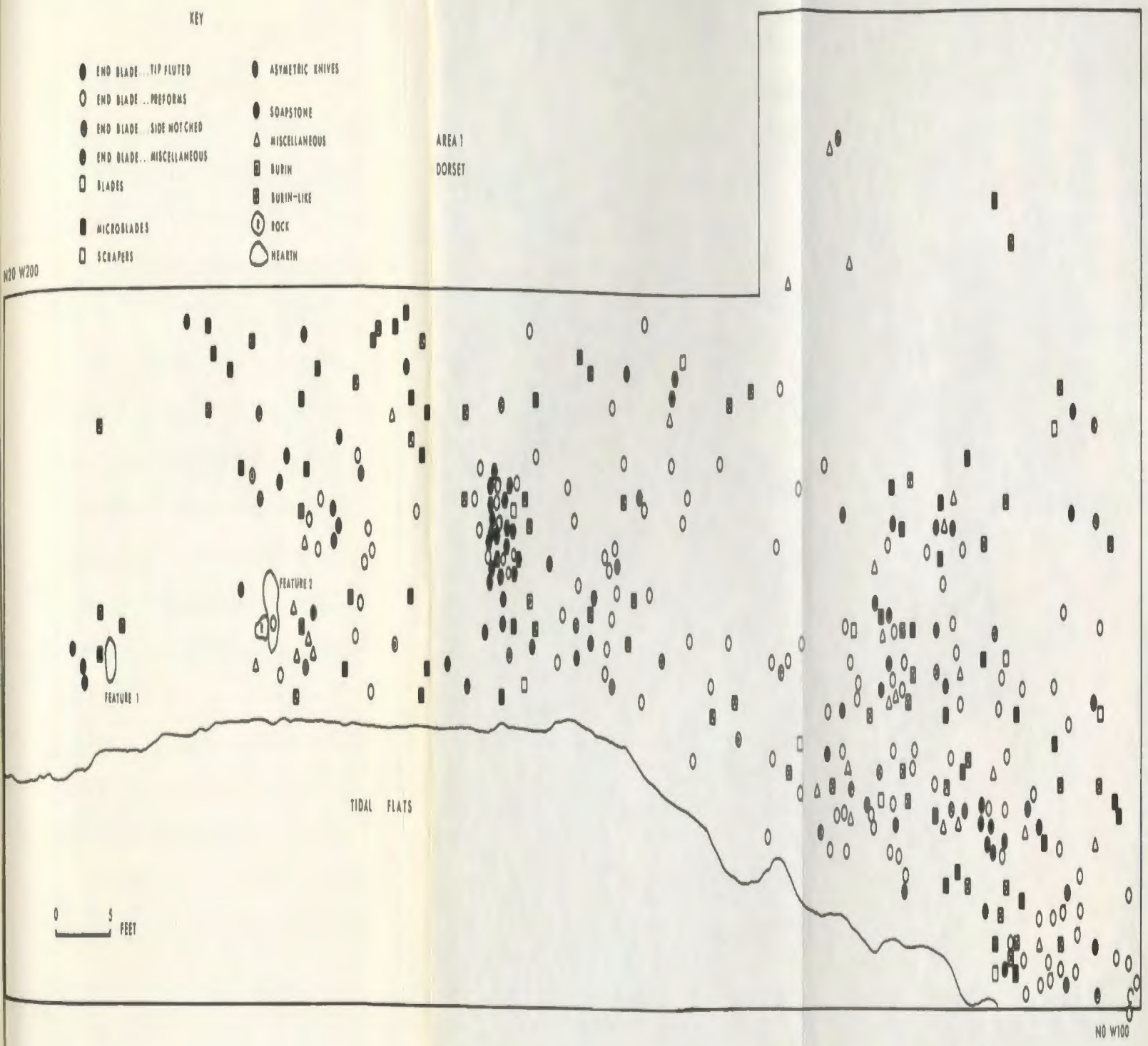
DISTRIBUTION MAP 1

One observable trend in this distribution is the relative abundance of Archaic material in the northeastern section of the excavations relative to Dorset and other groups. Further excavations in this area may uncover an area inhabited primarily by Archaic people.

This map, then, indicates an intensive Archaic occupation over a wide section of the Beaches site. Excavations have uncovered only a portion and have not delineated the boundaries of their occupations. Actual living areas are not discerned in this distribution and the size and composition of Archaic groups utilizing this site remains obscure. While this absence may be due to the disturbance caused by the successive cultural inhabitants it may also be due to the fact that this excavation uncovered a peripheral area in the total site's utilization by the Archaic population.

The settlement patterns revealed for the Dorset inhabitants are also inconclusive. Twelve categories of artifacts are included in the Distribution Map 2. The distribution shows a tendency to be clustered near the bank perhaps revealing this to be the northern extension of the original occupied area for these people. Some or all of the rock slabs shown in Distribution Map 3 may have been utilized by these people but none indicate any house structure. Two hearths, Feature 1 and 2, are the only conspicuous attribute of a habitation centre. Whether these were interior central hearths known for Newfoundland Dorset houses or some exterior feature is unknown. The isolated nature of Feature 1 makes the latter interpretation a possibility.

Feature 1 is a fairly shallow, oval deposit isolated from the main distribution of Dorset artifacts. The main concentration of charcoal, covering an area two by one and a half feet, contained granitic and quartz cobbles, all fire-cracked. A distinct but thin, one quarter to one half



DISTRIBUTION MAP 2

inches, white ash lens lay beneath the charcoal and scattered rocks. This concentration was underlain in one corner by a large flat rhyolite slab at a depth of four tenths. Charcoal from the bottom of this deposit produce a radiocarbon date of A.D. 300±95 (SI-1383). Some charcoal from the surface of this feature had diffused into the immediate surrounding area in a thin deposit. Six Dorset artifacts, three end blades, one chert microblade, and two scrapers, are found in this charcoal association.

Feature 2 is a larger, one by two and a half feet, and slightly deeper hearth reaching eight inches maximum depth and protruding into the gravel subsoil. A number of rhyolite and green schist rocks are near the bottom with a large slab along the west edge possibly serving to line this hearth. No ash lens was present. The hearth is in an area of heavy Dorset artifact concentration and contained a Dorset end blade preform. However with the presence of a number of points near the hearth of undetermined cultural affiliation and an Archaic preform fragment in one corner of the heart itself, the possibility of contamination for the charcoal sample made its value doubtful.

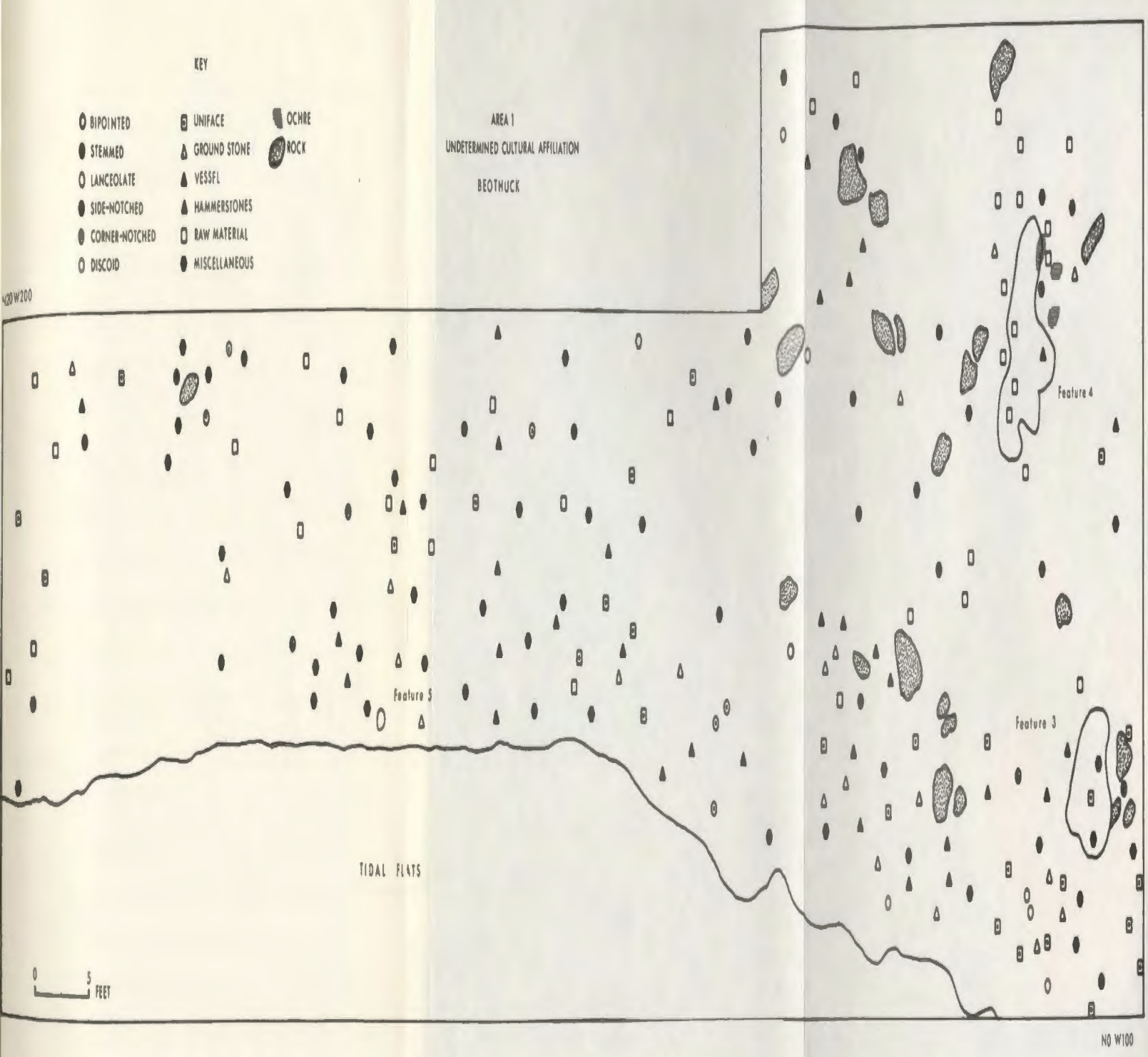
The division of labour is attested to in the domestic, hunting and manufacturing lithic assemblages but no further correlation can be made with either specific areas or structures. The concentration of soapstone fragments while representing a single domestic vessel cannot be equated with a house interior. Neither does the spatial distribution of tool manufacturing activities reflected in the numerous end blade preforms indicate a specific locus of activity for these tool makers. This lack of data makes inferences on the size and composition of occupational groups and population density fairly negligible.

The Beothuck component is represented by six corner-notched points

(Distribution Map 3). These have a restricted non-random distribution clustering in two areas. Three points are near square N10W135 and two others near N20W180. The sixth is in the area of double stratigraphy previously described. While it is tempting to associate each of these separate locales with discrete habitation centres nothing approximating the hexagonal housepits known for interior sites (Devereux 1970, LeBlanc 1973) or oval housepits associated with coastal occupation (Devereux 1969) can be identified. How many of the surrounding artifacts of unidentified affiliation are part of this component cannot be determined because of the mixed nature of this cultural layer and our inadequate knowledge of Beothuck archaeology. While only hunting activities are indicated by these points the Beothuck groups probably occupied the site as a major habitation area and utilized a wide range of domestic and maintenance activities as seen in the other cultural occupations.

Besides these identified components, a number of artifacts exist which cannot be positively associated with any of the above cultural groups. This category of Undetermined Cultural Affiliation includes such cultural non-diagnostics as hammerstones, abraders, rhyolite cores and fragments and the numerous flakes. While these individual flakes are too numerous to include in this Distribution Map 3, two distinct flake concentrations, Feature 3 and 4, are shown located in the northeast section of Area 1.

Feature 3, the smaller of the two, is roughly oval measuring four by five feet. It consists of thousands of pieces of waste chippage predominately banded rhyolite in a distinct concentration separated from the flakes found scattered in every square. Its thickness was four-tenths of a foot extending the entire depth of the cultural deposit. Flakes from the bottom of the deposit tended to be the largest with a noticeable



DISTRIBUTION MAP 3

gradation to smaller and thinner flakes near the top. Artifacts from both cultural traditions plus a number from the undetermined category were found within and around its periphery.

Feature 4 is larger and more irregular in outline measuring eight by five feet along its maximum dimensions. Flakes again numbered thousands and are predominately banded rhyolite but a minority, less than five percent are the dark grey, rhyolite tuff. Its thickness spans the entire cultural deposit of three and one half inches. No depth relationship to flake size as in Feature 3 was noted, with flakes here being of various sizes scattered randomly throughout. Along the east side traces of red ochre stain the cultural layer. As is the case with Feature 3 artifacts from several cultures are found both in and surrounding the deposit. However those of the Maritime Archaic tend to predominate in this area and with the presence of the red ochre, it is possible to consider that this deposit at least might be attributed to people in this tradition.

Neither hammerstones nor the chunks of raw material clustered around these flake deposits as might be expected but were fairly randomly distributed throughout the total site area. Moreover the preforms identified for Maritime Archaic and Dorset groups show no affinity for these features making their cultural affiliation unverifiable.

One other feature, Feature 5, consists of a cache of fifteen bifaces, preforms, and unifaces. These were clustered one atop another in a very restricted one by one and one quarter foot area and may represent the work of a single tool maker. These were not associated with a pit or depression but simply within the cultural layer which is two and one half inches thick in this area of the site.

Large rocks were occasionally found in the cultural stratum and tend to be concentrated in the eastern section of the site. No pattern

either in tent-ring fashion for a temporary shelter or for permanent structure was evident. These are slabs of local green schist possibly related to those from the talus slope against the cliff wall. The presence of a few are possibly due to human manipulation, especially those near the flake deposits, Feature 3 and 4.

The most important items in the Undetermined category are the bifaces or projectile points; small bipoints, stemmed, lanceolates and side-notched. This group of thirty-one points and fragments also reflect the general random distribution of the other artifacts and unfortunately cannot be identified with artifacts of any known group.

In Area 2, only Cultural Layer 2 was located which proved to be entirely Archaic in content. Excavation was hampered by the fact that this layer is submerged at high tide and wind and tidal conditions did not permit the luxury of adequate recording to enable a spatial distribution reconstruction. That portion of this layer in Area 1 contained only two artifacts and were considered insufficient for a meaningful pattern.

An intensive occupation however is indicated by the abundance of artifacts. The hundreds of flakes and numerous preforms indicate that this Archaic occupation included a workshop factor and tool making activities. The artifact classes are basically similar to those of Archaic groups in Cultural Layer 1 and probably represent similar hunting, domestic and maintenance activities. While no structures or hearths were observed, two isolated occurrances of charcoal were located. The dates obtained, if valid, indicate a maximum occupational span of fifteen hundred years for this stratum.

Feature 1 was an isolated pocket of charcoal in square S20W15 within a slight two inch depression in the cultural layer. It occurs over a very

small ten by six inch area. A single carbondate of 2950±230 B.C. (SI-1384) was obtained.

Feature 2 was another discrete occurrance of charcoal in square S15W35 within the cultural layer. This was in a slightly larger area, one by one and a half feet, and produced a date of 1740±100 B.C. (I-6761).

Subsistence

Evidence for the subsistence base for the various inhabitants at this site suffered the same fate as the tools and weapons based on wood bone and ivory. Due to the highly acidic soil conditions only seventeen bone fragments have survived. Attributing these to a particular cultural occupation is difficult but it is felt that these could not survive from any earlier than Dorset times. These fragments are identified as seal from the tympanic and petrous portion of the temporal bones. Specific identification as to species was not possible. Minimal animal count, based on the left petrous mastoid portion, showed at least five individuals. Four were adults and the last was an immature seal.

While this is the only direct evidence for subsistence the coastal orientation of this site indicates marine resources as the major economic focus. The resource potential of this area includes not only six species of seals but thirteen varieties of whales and dolphins.

Although the seasons of occupation cannot be positively identified the presence of at least one immature seal indicates it was taken during spring or summer. Unfortunately it cannot be further identified as being juvenile which would more definitely indicate a spring occupation. All of the sea mammals known for this area are available at least from spring to late fall as were most of the sea and shore birds. Young seals especially

are extremely plentiful and easily obtainable in the spring. A spring occupancy would also be desirable for the eggs and young birds, available by the thousands from rookeries.

In interpreting seasonal subsistence, then, on the basis of available resources it is expected that a marine oriented economy based primarily on marine mammals, sea and shore birds is indicated. To utilize this potential to its maximum an early spring to late fall occupation would be advantageous.

This interpretation is valid for Beothuck groups at least, which according to ethnographic accounts (Howley, 1915) follow this coastal seasonal-subsistence pattern. This is also supported by archaeological data (Devereux 1969). On the northern half of the Beaches site four Beothuck housepits were identified. Analysis of the faunal remains from the midden of one of these indicated a subsistence based on juvenile Harp and Harbour seal and at least two polar bears. These are available as early as February to late May. The additional presence of adult seal plus other species such as black bear and caribou is interpreted as indicating an occupational span to late fall. This seasonal subsistence pattern seems valid, then, for Beothucks during the early historic period (ibid.: 54) and probably accurately reflects the prehistoric pattern for these people in Bonavista Bay.

CHAPTER 4

Artifact Analysis and Description

Methodology

The artifacts described in this chapter are entirely lithic. They are grouped according to their stratigraphic position and cultural affiliation.

In Cultural Layer 1, artifacts pertaining to groups in the Maritime Archaic tradition, Arctic Small Tool (Dorset) tradition and Beothuck were identified. These three account for 26.8, 42.9 and 0.8% respectively, the greater bulk of the total from this stratum. A fourth group of artifacts, those of undetermined affiliation are listed separately. While these account for 29.5% of the total it should be remembered that most of these consist of such cultural non-diagnostics as abraders, hammerstones, rock crystals, and miscellaneous biface fragments. The critical artifacts are the thirty-one bifaces: the stemmed, side-notched, triangular and other point forms.

Artifacts from Cultural Layer 2 were entirely Maritime Archaic. All but two came from the excavations in Area 2, these coming from the second cultural layer present in the northeast corner of Area 1.

In the actual artifact classification and description, a basic dichotomy exists between the treatment of the Dorset assemblage on the one hand, and those of the Archaic and other groups on the other.

Artifact descriptions of Dorset artifacts has evolved a terminology

based on categories (Taylor 1968). The categories have been divided further into several classes. This categorization system has been organized mostly according to form, chipping technique and material utilized. This system has been continued in this analysis and seven categories are listed. Description of artifacts in these categories or classes is according first to form, then technique of manufacture. Finally dimensions are listed with metric attributes given to the nearest 1/100 th of a centimeter.

Dorset blades and microblades are distinguished metrically according to Taylor (1962). Attributes for these are derived from the Blade-Core Conference (Sanger, McGhee and Wyatt 1970) and those for ridge flakes are from Sanger (1968).

In contrast to the Dorset assemblage is the classification for the Archaic, Beothuck and Undetermined artifacts. Each group is treated individually and artifacts are listed under three major headings: Chipped Stone, Ground Stone and Miscellaneous. Chipped stones are divided into a biface and uniface series. Bifaces are flaked on both surfaces usually with accompanying marginal retouch. They are grouped into as many as eight classes according to their basic form outline. A separate class for preform consists of those complete and fragmentary preforms which exhibit only initial shaping manufacture that does not facilitate their being included into any other class.

The uniface series is divided according to the basic tool blank: Flake, Blade and Blade-like flake. Flake unifaces having flaking and marginal retouch restricted to one surface. Occasionally, the opposite surface exhibits discontinuous marginal retouch as well. Blades are parallel-sided retaining a portion of the prepared striking platform.

The presence of multiple arris indicate successive blade removal and a true blade-core technology. Blade-like flakes meet the above criteria with the exception of having a single arris. This makes their inclusion in a true blade industry doubtful and these retain the cautious label of blade-like flakes.

Descriptions given for these artifacts follows that given for Dorset, i.e., form and technique of manufacture. All metric attributes are again in centimeters to the nearest 1/100 th. Means are given in brackets.

Material and Technology

The profusion of flakes, exhausted cores, and chunks of raw material testify to the workshop operations present in both cultural strata at the Beaches site. Quarried material - the banded rhyolites, rhyolite tuffs, and cherts are locally available in the Bonavista Bay area. None occur in the immediate site vicinity however. Material was probably carried to the site as large blocks or chunks especially the rhyolite as indicated by their remnants.

In the basic material utilized by the various cultural occupations a marked distinction can be observed. This may reflect an actual cultural preference, raw material availability or, more like, a combination of these. The clearest is between the Archaic components in cultural layers of one and two. The earlier occupation in layer two utilized almost exclusively a fine grained, dark grey rhyolite tuff (81.1%) as a source for chipped stone. For the later occupation in layer one chipped stone artifacts are predominately based on a light grey, banded variety of rhyolite (82.3%) with the darker tuff accounting for only 3.2%. This factor is probably due to quarrying availability through time, for the banded rhyolites are coarser grained and would seemingly be less

desireable. Ground stone artifacts from both areas are based on argillite.

The Dorset peoples made use of both dark rhyolite tuff (7.2%) and the banded rhyolite (62.4%). However there is a definite preference for fine grained cherts, quartz, and quartzites and here these account for 27.7% of the Dorset artifacts. The use of Ramah quartzite from northern Labrador is restricted to these Dorset people at this site.

The analysis and description of the lithic artifacts leads to a few initial observations on the technologies of the various cultural traditions.

For the Archaic peoples, the numerous preforms indicate a preference for large, thick, expanding or "winged" flakes as the initial blank for chipped stone bifaces. These flakes usually have their large flat striking platform oriented near the mid-point along one lateral side of the intended tool. Primary chipping is characterized by a wavy or "sinuous" edge formed by the removal of deep expanding flakes alternately from either surface along the edge. Secondary treatment removes the sinuous nature of the edges usually by shallow expanding and irregular flake removal which tends to end in hinge scars. This tendency to hinge fracture is a distinct characteristic of the rhyolite material. This material does not lend itself to easy observation or use wear and this characteristic is listed in the artifact description only where use wear is obvious.

Examples of cores have not been identified for these Archaic groups. Numerous rhyolite cores and fragments listed under Undetermined Cultural Affiliation possibly belong to these people. However, they are simply large chunks with flakes removed from any surface that would provide a striking platform. None of these flake scars approximate the size of some of the massive expanding flakes noted above and perhaps these chunks were exhausted as suitable cores.

Probably the most interesting part of the Archaic technology is the presence of a blade-core industry. In Cultural Layer 2 which contained only artifacts attributed to the Maritime Archaic tradition, four true macroblades were part of the assemblage. Complete specimens ranged from 5.10 to 13.70 cms. in length with a mean width for all blades of 1.99 cms. Platform angles on these two complete pieces are 115 and 95 degrees. All have multiple arris indicating successive blade removal. This criteria is used by Sanger (1970) as evidence of a blade technology. His statement that at least 25% be non-triangular is certainly met in this sample although those with single arris, two examples, retain the cautious label of blade-like flakes.

Mention should be made of the artifact sample obtained from Cultural Layer 2 during the following 1973 field season. Preliminary analysis of these identified a total of eleven blades ranging from 7.90 to 11.46 cms. in length. These multiple arris specimens have a mean width of 1.98 cms. Five blade-like flakes are also included here with lengths ranging from 5.80 to 10.90 cms.

Only one possible blade core fragment is identified, which unfortunately does not retain the top striking platform. This basal fragment may originally have been a conical or cylindrical core. Other criteria expected for a true Blade-Core technology such as ridge flakes, core preparation flakes, etc., are absent to date.

In Cultural Layer 1 seven macroblades are included in the Archaic assemblage, the two complete forms having lengths of 9.00 and 10.11 cms. and a mean width of 2.94 cms. Platform angles range from 70 to 80 degrees. These tend to have retouch for use as cutting/scraping tools. Fifteen blade-like flakes are also part of this assemblage.

Ground stone techology for celts and gouges in this same layer indicates that the Archaic groups preferred tabular argillite or slate blanks with the flat natural cleavage plane approximating the final outline form. This may be true for those ground stone fragments in Cultural Layer 2 although the sample is too small and fragmentary to determine.

Dorset technology with its microblade-core industry and microlithic assemblage reflects its inclusion in the Arctic Small Tool tradition. Small size, fine workmanship, and the use of fine-grained lithic materials typifies the assemblage at this site. The use of rhyolites which was probably the most easily available locally does not seem to influence any tendency for increased tool size.

This becomes especially apparent in the microblade industry when in comparing them based on material utilized. Complete rhyolite microblades are smaller in length than chert with mean dimensions for these materials being 3.58 and 4.03 cms. respectively. For the total microblade sample widths are slighly greater for rhyolite (mean width 0.85 cm.) as compared to chert (mean width 0.75 cm.). The reverse is true as regards mean thickness (0.25 and 0.41 cms. respectively). Clear quartz microblades tend to be the smallest with mean measurements being lengths 2.53 cm., widths 0.74 cm., and thickness 0.18 cm. The technological control over the coarser-grained rhyolites is also reflected in the application of fine pressure-flaking to the end blades and scraper forms.

The workshop character of the site is also reflected in the Dorset artifact sample and one hundred and twenty-six preforms for end blades are identified. All are based on flakes with the striking platform at the base. The preparation of the tip as a striking platform for the "fluting" technique gives a slight concavity to this area. The great

number of broken and discarded end blades (88) during the fluting process reflects the delicate nature of this technique.

TABLE 6

Lithic Material Utilized by Cultural Groups - Cultural Layer 1

Material	Maritime Archaic		Dorset		Beothuck		Undetermined	
	No.	%	No.	%	No.	%	No.	%
Banded Rhyolite, light grey	177	82.32	216	62.43	4	66.68	89	37.86
Rhyolite tuff, dark grey	7	3.25	25	7.22			12	5.10
Banded Rhyolite, reddish	2	0.93	2	0.58			5	2.18
Rhyolite, green	-		-		-		-	
sub-total	186	86.51	243	70.23	4	66.68	106	45.14
Chert - grey	5	2.32	27	7.80			8	3.40
green	4	1.87	24	6.94			7	2.98
brown			15	4.33	1	16.67		
black			10	2.89	1	16.67		
Quartz			8	2.32			4	1.70
Quartzite			5	1.45				
Ramah Quartzite			7	2.02			2	0.85
sub-total	9	4.19	96	27.75	2	33.34	21	8.93
Argillite-Slate	16	7.44	4	1.16			2	0.85
Soapstone			3	0.86				
Sandstone							19	8.08
Crystals							52	22.12
Granite							30	12.76
Miscellaneous	4	1.87					5	2.12
sub-total	20	9.31	7	2.02			108	45.93
GRAND TOTAL	215	100	346	100	6	100	235	100

Artifact total exclude Raw Material and Flakes.

TABLE 7

Lithic Material Utilized - Cultural Layer 2

Material	Maritime No.	Archaic %
Banded Rhyolite, light grey	4	3.28
Rhyolite tuff, dark grey	99	81.15
Banded Rhyolite, reddish	1	0.82
Rhyolite, green	1	0.82
sub-total	105	86.07
Chert - grey		
green		
brown	1	0.82
black		
Quartz		
Quartzite		
Ramah quartzite		
sub-total	1	0.82
Argillite Slate	11	9.01
Soapstone		
Sandstone		
Crystals	1	0.82
Granite	1	0.82
Miscellaneous	3	2.46
sub-total	16	13.11
GRAND TOTAL	122	100

TABLE 8

Maritime Archaic

Cultural Layer 1

Chipped Stone

Biface Series:

Bipointed - small		8
Ovate	- large	4
	small	4
Stemmed	- large	2
	small	8
Trianguloid		3
Lanceolate		6
Rectangular		1
Miscellaneous -		
	complete	5
	fragments	18
Preforms -		
	complete	18
	fragments	56

Uniface Series:

Flake - Ovate		1
	Stemmed	1
	Lanceolate	1
	Side-notched	1
	Miscellaneous	1
	Convex Working Edge	14
	Straight Working Edge	17
	Concave Working Edge	3
	Irregular Working Edge	2
Blades - Plain		6
	Retouched	1
Blade-like flakes - Plain		6
	Retouched	4
End of blade scraper		5

Ground Stone

Celts	8
Gouges	3
Gouge-slips	6
Miscellaneous	2

Biface Series

Bipointed - Small

Sample: 5 complete; 3 preforms. Place 1, a-c.

Form:

These specimens exhibit symmetrical to slightly asymmetrical lateral sides converging to a rounded, blunt tip at each end. One end is blunter than its opposite. Cross-sections are mostly biconvex with one preform being asymmetrically biconvex. Maximum width is at the mid-point. Material is banded light-grey rhyolite.

Technique:

These have been made on thick, expanding or "winged" flakes with the striking platform on the lateral edge of the specimen, approximately mid-way. The preforms exhibit initial shaping by deep expanding flaking which tend to end in hinge fractures. The more complete forms show shallower flaking both expanding and parallel, plus finer marginal treatment especially near the tips. Weights are from 32.5 to 88.1 gm. (49.2).

Dimensions:

L:	W:	Th:
5.93 - 9.54 cm. (7.44)	3.29 - 4.40 cm. (3.65)	1.45 - 2.10 cm. (1.73)

Ovate - Large

Sample: 4 complete. Plate 1, d-e.

Form:

These large bifaces have convex lateral margins which are asymmetric in three specimens. Tips are well defined (1) or blunt (3). Bases are from slightly to markedly convex. Cross-sections are asymmetrically biconvex. Maximum width is from 1/3 to 1/2 its length from the base.

Material is banded light-grey rhyolite.

Technique:

These specimens are shaped by large expanding flaking which leave a wavy or "sinuous" edge. Finer marginal treatment ends mostly in hinge scars. The largest biface has its one markedly convex margin exhibiting this finer preparation and this one edge may have served as a cutting-scraping edge. These rather crude and chunky bifaces may also be blanks for one of the other categories of bifaces. The orientation of the original flake is obscured. Weights are from 145.2 to 306.5 gms. (211.8).

Dimensions:

L: 11.51 - 17.21 cm. (14.33)	W: 6.05 - 7.31 cm. (6.56)	Th: 1.81 - 2.00 cm. (2.03)

Ovate - Small

Sample: 3 complete; 1 fragment. Plate 1, f-g.

Form:

These exhibit the same outline described above and differ basically in their metric attributes. Material is banded rhyolite (2), light-grey chert (1), and greenish chert (1).

Technique:

The two rhyolite specimens are made from flakes with their striking platform at the base in one case and at the juncture of base and one lateral side in the other example. Initial shaping is as described above, but in the chert biface, the hinge fractures have left a large irregular knob on one surface. Weights are from 37.6 to 103.4 gms. (65.4).

Dimensions:

L: 7.58 - 9.98 cm. (8.34)	W: 4.10 - 5.71 cm. (4.59)	Th: 0.85 - 2.31 cm. (1.66)

Stemmed - Large

Sample: 2 basal fragments. Plate 2, a-b.

Form and Technique:

These bifaces have large thick stems, wide straight shoulders and broad blades. Stem outlines are slightly expanding with straight base. The one complete stem is bifacially thinned. Blade margins are straight, slightly contracting. Shaping is by shallow expanding flake removal and fine marginal retouch. Cross-section is asymmetrically biconvex. Material is banded rhyolite.

Dimensions:

L: 6.19 cm. 1.83 cm. (stem)	W: 5.05 cm. 2.63 cm. (stem)	Th: 0.90 cm.	
5.19 cm. 1.61 cm. (stem)	4.45 cm. 3.21 cm. (stem)	1.01 cm.	

Stemmed - Small

Sample: 6 complete, 1 preform, 1 basal fragment. Plate 2, c-j.

Form and Technique:

Five complete specimens present similar outlines (Plate 2, d-h): small contracting stems with straight bases, rounded shoulders with margins from slightly to widely convex, and a well defined tip. Stems are broken in three specimens. The striking platform of the original flake is along one lateral edge near the base in two cases. Cross-sections are biconvex and material is banded rhyolite. All exhibit small shallow expanding flake scars on their surfaces with sporatic marginal retouch. Weights are from 5.2 to 11.9 gms. (9.38).

The preform (Plate 2, c) probably belongs to this group and exhibits a straight contracting stem with rounded base and shoulders, and convex

margins meeting at a blunt tip. Chipping is by large deep expanding flake removal leaving a sinuous edge. The striking platform is along one lateral margin. Cross-section is asymmetrically biconvex and material is banded rhyolite. Weight is 51.9 gms.

Dimensions:

	L: 3.68 - 6.05 cm.		W: 1.58 - 2.53 cm.		Th: 0.80 - 0.99 cm.
	0.50 - 1.10 cm. (stem)		0.89 - 1.44 cm. (stem)		(98)
	(4.73)		(2.19)		
Preform	L: 8.49 cm.		W: 3.78 cm.		Th: 2.08 cm.
	3.54 cm. (stem)		1.59 cm. (stem)		

Form and Technique:

Of the two remaining stemmed bifaces, the complete form (Plate 2, i) is made on an expanding flake with the striking platform along one lateral side. Its outline presents a straight contracting stem with rounded base, symmetrically convex lateral margins meeting at a sharp tip. The stem has been entirely flaked on one surface and only marginally on the opposite. The blade element exhibits only marginal retouch. Cross-section is asymmetrically biconvex. Its longitudinal section is concave-convex exhibiting the curvature of the original flake. Material is buff-coloured chert. Weight is 6.1 gms.

The basal fragment (Plate 2, j) has an asymmetrically formed basal element that presents an expanding stem or, almost low wide side-notched outline with straight base. The blade element has straight contracting margins. Shaping is by shallow expanding and irregular flaking and finer marginal retouch. Base is bifacially thinned. The specimen exhibits an overall water-worn smoothness. Cross-section is asymmetrically biconvex. Material is banded rhyolite. Weight is 10.0 gms.

Dimensions:

L:	5.11 cm. 2.03 cm. (stem)	W:	2.05 cm. 1.04 cm. (stem)	Th:	0.60 cm.
	4.10 cm. 1.65 cm. (stem)		2.63 cm. 1.93 cm. (stem)	Th:	0.72 cm.

Trianguloid

Sample: 3 fragments. Plate 3, a.

Form:

These are defined by their straight lateral sides converging to a well defined tip. Bases are missing. Cross-sections are biconvex. Material is banded rhyolite.

Technique:

These exhibit shallow expanding and parallel flaking. The orientation of the original flake is unknown. Mean weight is 21.8 gms.

Dimensions:

L:	7.00 - 12.62 cm. (9.07)	W:	2.49 - 3.01 cm. (2.60)	Th:	0.89 - 0.99 cm. (0.93)

Lanceolate

Sample: 1 complete; 5 basal fragments. Plate 3, b-c.

Form:

These bifaces are straight based with convex lateral sides, the complete piece converging to a well-defined tip. Maximum width is at its mid-length. Cross-sections are biconvex. Material is banded light-grey rhyolite.

Technique:

Two fragments have the striking platform of the original flake at their base. These fragments tend to be thicker and are probably unfinished. Initial shaping is typical for this biface series as described

previously. The complete specimen however is unique for its finish and workmanship. This fine piece has been treated to a series of short, shallow, parallel and expanding flaking that has left thin sharp edges and a well-defined tip. Weight for complete specimen is 66.0 gms.

Dimensions:

L: 13.41 cm. W: 4.83 cm.
5.12 - 7.49 cm. (fragments)

Th: 0.89 cm.
1.10 - 2.31 cm. (fragments)

Rectangular

Sample: 1. Plate 3, d.

Form and Technique:

This biface presents a rectangular outline and is based on a large thick flake with its striking platform along one short side or base. The long parallel margins meet a straight distal end. Chipping is crude leaving sinuous edges. The specimen is unique in that it exhibits a water-worn smoothness on all surfaces and edges. Cross-section is bi-convex and the material is banded rhyolite. Maximum thickness is at the base and tapers to a thinned distal end. Weight is 100.1 gms.

Dimensions:

L: 10.31 cm. W: 3.65 cm. Th: 1.90 cm.

Miscellaneous Bifaces

Sample: 5 complete; 12 tip; 5 medial; 1 basal fragments.
Plate 3, e-g. Plate 4, a-f. Plate 5, a-b.

Form and Technique:

The first complete specimen (Plate 3, e) is a narrow, elongate

biface with one straight and one widely convex lateral edge converging to a sharp well-defined tip. This tip exhibits slight use wear and may have been used as a drill. The base is rounded and bifacially thinned. Lateral bifacial treatment has left a high longitudinal ridge which follows the curvature of the convex edge. This treatment consists of a shallow expanding flaking followed by finer marginal retouch especially along the convex edge. Cross-section is asymmetrically biconvex. Material is banded rhyolite. Weight is 30.4 gms.

Dimensions:

L: 9.90 cm. W: 2.41 cm. Th: 1.35 cm.

Form and Technique:

Two of the complete specimens (Plate 3, f-g) have straight bases, slightly convex margins meeting in a round, blunt tip. Both are based on large expanding flakes with the striking platform along one lateral margin near the mid-point. Both appear unfinished with flaking on the light-grey chert piece ending mostly in hinge scars, especially on the bulb of percussion. The other banded rhyolite specimen exhibits short shallow expanding and parallel flaking which only partly obliterates the original surface of the flakes. Maximum thickness is at the mid-point and cross-sections are asymmetrically biconvex. Weights are 59.7 and 74.0 gms.

Dimensions:

L: 12.30, 13.06 cm. W: 3.39, 3.80 cm. Th: 1.24, 1.30 cm.

Form and Technique:

The remaining two complete artifacts in this category (Plate 5, a-b) have straight bases with asymmetrically convex margins converging to a well-defined tip. The smaller has its base bifacially thinned and

exhibits finer flaking and finish. The blade may have been resharpened accounting for its asymmetry and this may originally have been a lanceolate biface. Cross-section is plano-convex. The other is based on a thick flake with its striking platform at the straight, slightly oblique base. The specimen tappers in thickness from the base to the tip. Basal thinning is on the flat ventral surface. Shaping is by large expanding flaking with finer marginal retouch occuring towards the tip on the thinned top third of its length. Cross-section is plano-convex. Weights are 194.7 and 46.7 gms.

Dimensions:

L: 10.42, 14.80 cm. W: 3.81, 5.79 cm. Th: 1.29, 2.54 cm.

Form and Technique:

These tip fragments (Plate 4, a-d) are considered to be from finished specimens. Lateral sides range from straight, slightly to widely convex, and asymmetrically convex. This latter probably is due to resharpening. All are thin, exhibiting fine secondary marginal treatment. Cross-sections are biconvex and metric attributes indicate a wide range of complete bifaces. Material is banded rhyolite, light-grey (11) and red (1).

Dimensions:

L: 5.14 - 11.06 cm. W: 4.36 - 9.73 cm. Th: 0.95 - 1.34 cm.

Form and Technique:

The medial fragments (Plate 4, e-f) exhibit straight contracting or in one case, a widely convex lateral margin. This latter specimen also retains a portion of a straight base. All are thin, with fine shallow parallel and expanding flakes removed from their surfaces and marginal retouch leaving a sharp edge. Cross-sections are thinly

biconvex. Material is banded rhyolite.

Dimensions:

L: 3.90 - 8.10 cm. W: 4.28 - 7.21 cm. Th: 0.89 - 1.22 cm.

Form and Technique:

This single basal fragment has a rounded base with convex margins. Most expanding flakes have ended in hinge scars and short marginal retouch is discontinuous. Cross-section is asymmetrically biconvex. Material is banded rhyolite.

Dimensions:

L: 5.00 cm. W: 5.12 cm. Th: 1.48 cm.

Preforms - complete

Sample: 18. Plate 5, c-e.

Form and Technique:

These complete specimens are roughly oval or rounded in outline with convex bases and irregular blunt tips. They are made on massive expanding flakes with the large striking platform along one lateral side (13) or less frequently at the base (3) or tip (2). Shaping is accomplished by the bifacial removal or large deep expanding flakes from along its entire marginal area. A few specimens exhibit this on one surface only with marginal retouch on the other. This flaking leaves a wavy, "sinuous" edge characteristic of this stage or manufacture. This technique frequently leaves a high irregular knob on both surfaces formed by flakes ending in hinge fractures. A few also exhibit sporadic marginal retouch but the overall impression is that of an unfinished biface unidentifiable as to its intended form. Weights range from 214.1 to 321.0 gms. (274.1).

Dimensions:

L: 7.91 - 12.40 cm. (10.56) W: 5.39 - 7.81 cm. (6.92) Th: 2.75 - 4.59 cm. (3.75)

Preforms - Fragments

Sample: 56.

Form and Technique:

These preform fragments exhibit the crude initial flaking with "sinuous" edges which characterized this category. Most retain enough of their outline to be identified into groups. These are: tips - 9, medial sections - 18, basal - 20, and miscellaneous - 9. Tip fragments have moderately convex margins with a distinct but rounded point. Medial sections have straight contracting or slightly convex margins. Basal fragments exhibit similar margins with a rounded base. All cross-sections are irregular and distinctly asymmetrically biconvex. The miscellaneous group consists of lateral fragments retaining bifacial retouch over a part of their surfaces.

Dimensions:

	Length	Width	Thickness
Tips:	3.28 - 9.91 cm.	4.80 - 5.46 cm.	1.69 - 2.71 cm.
Basal:	4.80 - 7.81 cm.	4.18 - 5.01 cm.	1.42 - 2.60 cm.
Medial:	3.72 - 8.14 cm.	4.63 - 7.54 cm.	1.39 - 1.91 cm.

Uniface Series

Ovate

Sample: 1. Plate 6, a.

Form:

This specimen presents an oval outline with rounded base and widely

convex lateral sides. The tip and portions of the sides are missing. Cross-section is asymmetrically biconvex. Material is banded rhyolite.

Technique:

The striking platform of this large expanding flake is at the base. Retouch is entirely marginal occuring dorsally along its entire periphery. Ventral retouch consists of thinning of the bulb of percussion plus marginal retouch extending approximately 1/3 along each side. Weights is 102.3 gms.

Dimensions:

L: 8.98 cm. W: 7.69 cm. Th: 1.70 cm.

Stemmed

Sample: 1 basal fragment. Plate 6, b.

Form and Technique:

Outline presents an expanding stem with rounded irregular base and convex lateral blade margins. The base retains the striking platform. Retouch is entirely unifacial and dorsal, exhibiting shallow expanding flake removal and marginal retouch. Cross-section is asymmetrically biconvex. Material is banded rhyolite.

Dimensions:

L:	3.89 cm. 1.87 cm. (stem)	W:	4.03 cm. 2.40 cm. (stem)	Th:	0.81 cm.

Lanceolate

Sample: 1. Plate 6, c.

Form:

This uniface is straight-based with asymmetrically convex lateral sides converging to a blunt tip. Cross-section is plano-convex. Maximum

width is just above the base. Material is brownish siltstone.

Technique:

Formed on a large expanding flake with the striking platform at the base, the ventral surface is unaltered save for a slight thinning of the bulb of percussion. The dorsal surface has been roughly trimmed from both sides almost to a longitudinal ridge. This ridge has a stretch of the original flat cortex remaining. The base has been dorsally trimmed. The lateral margin exhibit finer dorsal retouch especially along the one widely convex edge which is probably the working edge. This retouch has mostly ended in hinge fractures. Weight is 89.1 gms.

Dimensions:

L: 10.29 cm. W: 5.00 cm. Th: 1.39 cm.

Side-notched

Sample: 1. Plate 6, d.

Form:

This flake knife has a slightly rounded base with asymmetrically convex lateral margins meeting at a blunt tip. One side is notched while the opposite side has a slight concavity at the same area. Cross-section is asymmetrically biconvex. Material is banded rhyolite.

Technique:

This specimen is made on an expanding flake with its striking platform at the tip. Retouch is entirely marginal and occurs dorsally along its entire outline. Ventral marginal retouch occurs on one blade edge only forming the slight concavity. The notch has been formed ventrally. Weight is 28.2 gms.

Dimensions:

L: 8.19 cm. W: 5.18 cm. Th: 0.71 cm.

Notch D: 0.31 cm. Notch W: 0.70 cm.

Miscellaneous

Sample: 1 fragment. Plate 6, e.

Form and Technique:

This tip fragment has convex margins and a blunt rounded tip. Flaking is crude and marginal retouch has removed most of the sinuous edges. The specimen appears unfinished and may be a preform for a uniface or possibly a biface. Cross-section is plano-convex. Material is banded rhyolite.

Dimensions:

L: 8.15 cm. W: 6.03 cm. Th: 1.85 cm.

Convex Working Edge

Sample: 14. Plate 7, a-e.

Form and Technique:

Four specimens in this category are made on large thick expanding flakes with continuous marginal retouch at their wide distal end opposite to the striking platform. These end scrapers (Plate 7, a-b) are dorsally retouched with a bevel from 45 to 70^{o} and a curvature from slight to moderately convex. Two exhibit lateral retouch consisting of continuous dorsal flaking along both sides. On one specimen, this continues around the striking platform. Ventral retouch occurs on two scrapers in the form of marginal flaking along the convex working edge. Cross-sections are asymmetrically biconvex (2) plano-convex (1) and lenticular (1).

Use wear is evident on only one specimen. Height of the working edge ranges from .72 to .98 cms. (.88). Weights range from 71.5 to 100.6 gms. (90.5). Material is banded rhyolite.

Dimensions:

L:	5.80 - 9.15 cm. (8.03)	W:	5.41 - 7.10 cm. (5.97)	Th.:	1.15 - 2.30 cm. (1.57)

Form and Technique:

Nine specimens exhibit retouch along one lateral side and may be described as side scrapers. These are made on large thick expanding, parallel or amorphous flakes. Four have the opposite lateral margin formed by a straight cleavage plane of the rhyolite material. These somewhat "backed" scrapers (Plate 7, d-e) have a moderate to markedly convex working edge with a bevel from 25 to 50 degrees. Retouch is dorsal, mostly terminating in hinge fractures. The working edge is continuous along at least 3/4 of its length. Height of the working edge ranges from .54 to .82 cms. (.64). The straight backed margin has been trimmed on two specimens, one dorsally by large deep expanding flaking, the other ventrally by marginal retouch. Weights range from 37.1 to 111.4 gms. (89.8). Metric attributes for this group are listed first below. Use wear is present on one specimen. Material is banded rhyolite (2) and banded chert (2).

The remaining five scrapers have dorsal retouch along one convex margin. This retouch is continuous and ranges from 4.21 to 7.90 cm. in extent. Scraping bevel is from 20 to 45 degrees. Height of working edge is from .41 to .92 cms. (.54). Weights are from 41.7 to 63.1 gms. (50.0). Use wear is evident on two pieces. Metrics for this group are listed last below.

Dimensions:

L: 8.13 - 13.41 cm. (10.05)	W: 3.00 - 5.59 cm. (4.38)	Th: 1.19 - 2.21 cm. (1.90)
L: 5.65 - 8.90 cm. (7.15)	W: 5.16 - 7.08 cm. (6.16)	Th: 0.63 - 1.39 cm. (0.99)

Form and Technique:

The remaining specimen (Plate 7, c) is on a large expanding flake and has been marginally retouched along both its widely convex lateral edge and distal end, plus the straight lateral edge. This outline presents a multi-functional cutting/scraping tool with the basic working angles along its straight (40^{o}) and convex (60^{o}) margins. Cross-section is plano-convex. Height of working edge is 0.30 cm. Weight is 38.0 gm. Material is banded rhyolite.

Dimensions:

L: 8.49 cm. W: 4.50 cm. Th: 0.71 cm.

Straight Working Edge

Sample: 17. Plate 8, a-b.

Form and Technique:

Five specimens exhibit a single straight working edge distal to the striking platform (Plate 8a). All are made on large thick expanding flakes. Retouch is marginal and unifacial either dorsal (4) or ventral (1) and continuous from 6.19 to 15.25 cm. along this edge. Bevel is moderate ranging from 20 to 50 degrees with a mean of 30 degrees. Height of the working edge is from .52 to .79 cm. with a mean of .65 cm. Weights are from 114.1 to 284.7 gms. (207.5). Material is banded rhyolite. Two exhibit use wear.

Dimensions:

L: 7.01 - 15.25 cm. (11.19)	W: 5.30 - 6.71 cm. (6.51)	Th: 1.29 - 3.60 cm. (2.53)

Form and Technique:

Eight specimens with a single, straight working edge have the retouch along the lateral side (Plate 8, b). These thick flakes are parallel (1), expanding (6) or amorphous (1). Unifacial retouch is dorsal (7) or ventral (1) and continuous, from 5.18 to 7.23 cm. Working bevel ranges from 20 to 60 degrees with a mean of 35 degrees. Material is banded rhyolite.

Dimensions:

L: 5.34 - 9.23 cm.	W: 5.28 - 9.11 cm.	Th: 1.25 - 2.81 cm.

Form and Technique:

Four exhibit marginal retouch along two edges either bilateral (2) or lateral and distal (2). Retouch is dorsal (3) or dorso-ventral (1) and continuous, from 5.00 to 8.29 cm. Bevel angle ranges from 25 to 60 degrees with a mean of 40 degrees. Material is banded rhyolite and greyish chert (1). Heights of working edge is from .29 - .58 cm. (.36). Weights range from 27.0 to 74.2 gm. (51.0).

Dimensions:

L: 5.41 - 6.59 cm. (6.13)	W: 5.00 - 8.29 cm. (6.16)	Th: 1.40 - 3.19 cm. (1.91)

Concave Working Edge

Sample: 3. Plate 8, c.

Form and Technique:

These exhibit a slightly concave working edge along one lateral margin. In two specimens, the opposite edge is also crudely retouched and these are probably multi-functional cutting/scraping tools (Plate 8, c). Retouch on these parallel and expanding flakes is dorsal and continuous, from 6.05 to 20.73 cm. Working bevel ranges from 25 to 50 degrees with a mean

of 40 degrees. Heights of working edge is from .22 to .70 cms. (.42). Weights range from 27.4 to 48.3 gm. (37.2). Material is chert (1) and banded rhyolite (2).

Dimensions:

L: 6.90 - 10.79 cm. W: 4.01 - 4.81 cm. Th.: 0.73 - 1.05 cm.

Irregular Working Edge

Sample: 2.

Form and Technique:

These two large amorphous flakes have two irregular margins dorsally retouched to a moderate bevel from 20 to 30 degrees. Retouch is discontinuous from 2.81 to 6.30 cm. Material is banded rhyolite. Height of working edge averages 0.63. Mean weight is 110.0 gm.

Dimensions:

L: 6.49, 9.95 cm. W: 7.81, 8.30 cm. Th: 1.01, 1.81 cm.

Blades - Plain

This sample includes one complete, three proximal sections and two medial sections. All exhibit two longitudinal arris along their lengths. The margins of the striking platforms are extremely battered and the angle formed between the platform and the dorsal surface is from 70 to 80 degrees. Material is rhyolite (5) and chert (1). Complete specimens weighs 99.7 gms.

Dimensions:

L_c:	10.11 cm.	W:	4.21 cm.	Th:	2.48 cm.
L_p:	4.81 - 9.06 cm.	W:	2.65 - 3.32 cm.	Th:	1.02 - 1.81 cm.
L_m:	4.21 - 5.11 cm.	W:	2.51 - 2.95 cm.	Th:	0.85 - 1.38 cm.

Blades - Retouched

Sample: 1. Plate 9, c.

Form and Technique:

This complete blade has been marginally retouched from the ventral surface along the entire right edge. There is double arris and the striking platform is prepared by marginal battering. An angle of 70^{o} is formed between the platform and the dorsal surface. Material is banded rhyolite. Weight is 25.5 gms. Height of working edge is .31 cm.

Dimensions:

L: 9.00 cm. W: 2.20 cm. Th: 0.45 cm.

Blade-like Flakes - Plain

Sample: 6. Plate 9, d.

Form and Technique:

Three are complete, two are proximal sections and one is medial. All possess a single longitudinal arris. The angle between the striking platform and dorsal surface is from 70 to 85 degrees. This platform exhibits extensive marginal battering. Material is chert (1), banded rhyolite (4) and dark grey rhyolite tuff (1). Complete forms weigh from 22.4 to 62.0 gms. (36.1).

Dimensions:

L_c:	7.81 - 11.49 cm. (9.51)	W: 2.70 - 3.15 cm. (2.57)	Th: 0.41 - 1.30 cm. (.93)
L_p:	7.14 - 8.50 cm.	W: 2.89 - 3.11 cm.	Th: 0.92 - 1.22 cm.
L_{pd}:	6.28 cm.	W: 2.28 cm.	Th: 0.94 cm.

Blade-like Flakes - Retouched

Sample: 4. Plate 9, e-g.

Form and Technique:

Three are complete and one is a proximal fragment. Retouch is marginal and occurs ventrally (1), dorsally (1) or dorsal-ventral (2) either laterally (1) or bilaterally (3). Two have been further retouched, one

ventrally along the striking platform, the other distally in the form of a single notch. The angle between the striking platform and the dorsal surface is from 80 to 120 degrees. This platform exhibits battering. Height of working edge is from .10 to .41 cm. (.27). Weights are from 30.2 to 48.0 gms. (36.9).

Dimensions:

L_c:	9.35 - 11.61 cm. (10.59)	W:	2.10 - 2.83 cm. (2.44)	Th:	0.60 - 1.53 cm. (1.01)
L_p:	9.10 cm.	W:	4.10 cm.	Th:	1.51 cm.

Blade-like Flakes - Scrapers

Sample: 5. Plate 9, h-i.

Form and Technique:

These are end scrapers with distal retouch to form a straight to widely convex scraping edge. The retouch is marginal and dorsal forming a scraping bevel of from 40 to 70 degrees. Height of working edge is from .20 to .69 cm. (.39). Retouch occurs bilaterally in four specimens. All exhibit single arris. Angle of the platform is from 85 to 100 degrees. Weights range from .70 to 36.4 gm. (16.7)

Dimensions:

L:	4.72 - 8.91 cm. (5.80)	w:	1.83 - 3.25 cm. (2.39)	Th:	0.59 - 0.71 cm. (.68)

Ground Stone

Celts

Sample: 5 complete; 2 fragments, 1 blank.

Plate 10, a-d. Plate 11, a.

Form and Technique:

Four specimens have their bit elements symmetrically ground bevelled with a biconvex cross-section. These have straight parallel margins and

rectangular outline (3) or widely convex margins with oval outline (1). The latter is on a cobble-spall with the striking platform along one lateral edge of the celt (Plate 10, d). One surface retains the natural cortex, the other has been extensively flaked with only the bit end exhibiting marginal grinding. The other three have been chipped and pecked to various degrees displaying grinding on the bit and surfaces of the body. Cross-sections at mid-length are biconvex (3) and rectangular (1). Polls are from slightly to widely rounded with extensive battering either from shaping or use. No hafting grooves or notches are evident. Material is greenish argillite. Weights range from 168.1 to 435.6 gm. (29.59).

Dimensions:

L:	22.95 cm.	W:	5.75 cm.	Th:	2.61 cm.
	11.15 cm.		4.83 cm.		2.65 cm.
	9.23 cm.		5.56 cm.		2.40 cm.
	13.21 cm.		7.39 cm.		2.83 cm.

Form and Technique:

Two of the remaining celts have their bit ends missing (Plate 11, a). They display straight expanding margins from a rounded poll. Both polls show extensive battering. They have been extremely pecked along the margins and ground on the upper surfaces. Cross-section is biconvex. Material is argillite. Weights are 432.1 and 177.2 gms.

The final finished celt has been asymmetrically bevelled by grinding on the bit with a plano-convex section (Plate 10, c). Lateral margins are straight and parallel and present a rectangular outline. One margin exhibits pecking, the other is an unaltered flat cleavage plane. This specimen was probably made on a flat tabular piece of argillite. It has been extremely ground. The poll is missing. Longitudinal section is plano-convex and cross-section is rectangular. Weight is 332.5 gm.

The single blank has straight margins expanding from a straight poll. All surfaces exhibit the flat natural cleavage plane of the original slate slab. Modification consists of slight marginal chipping and pecking. The wide bit end has been extensively chipped. No grinding is evident. Cross-section is rectangular. Weight is 352.6 gms.

Dimensions:

L:	W:	Th:
19.22 cm.	5.70 cm.	3.41 cm.
10.20 cm.	5.80 cm.	2.83 cm.
17.40 cm.	4.93 cm.	2.41 cm.
20.50 cm.	6.08 cm.	1.53 cm.

Gouges

Sample: 3 fragments. Plate 11, b.

Form and Technique:

These fragments represent two, possibly three, separate specimens. All retain a portion of the grooved surface, two being small lateral edge fragments, the other, a bit edge fragment. This cutting edge is rounded and battered, exhibiting a deep groove. It has been extensively ground on all surfaces with pecking only on the groove edges. The marginal fragments exhibit similar treatment. Material is argillite. Metric attributes refer to the larger bit-element fragments.

Dimensions:

L: 5.06 cm. W: 3.94 cm. Th: 3.01 cm.

Max. depth of groove: 1.61 cm.

Gouge - Slips

Sample: 6. Plate 11, c.

Form and Technique:

These rounded elongate rod-like specimens are based on cobbles with their smooth surfaces due both to their natural smoothness and their particular abrading use for grooves or gouges. No other modification is visible. Material is micaeous schist (1), sandstone (1),

slate (3) and basalt (1). Mean weight is 189.1 gm.

Dimensions:

L:	W:	Th:
8.91 - 16.12 cm. (10.1)	2.05 - 5.19 cm. (3.05)	1.63 - 2.15 cm. (1.94)

Miscellaneous

Sample: 2 fragments.

Form and Technique:

These are poll end fragments from celts or gouges. Lateral sides are straight expanding from rounded polls. Ends are battered. Surfaces and margins are completely ground smooth. Cross-sections are rectangular and asymmetrically biconvex. Material is argillite.

Dimensions:

L:	W:	Th:
9.28 - 11.58 cm.	4.41 - 5.32 cm.	2.45 - 3.70 cm.

TABLE 9

Dorset

Cultural Layer 1

Category 1 - Bifacial End Blades

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Category 2 - Ground Slate

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Category 4 - Scrapers

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Category 1 - Bifacial End Blades

Triangular, concave base

Sample: 23 complete, 14 tip fragments, 10 basal fragments.
Plate 12, a-f.

Form:

End blades in this category are characterized by their triangular outline, a "Keeled" ventral surface and by a concave base. Cross-sections are plano-convex and longitudinal sections are plano-convex (20) or concave-convex (3). The twenty-three complete specimens are based on rhyolite (22) and green chert (1). Fragments are all of rhyolite. All or part of the tip fragments could belong to the following category.

Technique:

The ventral keel is the result of the removal of two longitudinal thinning or channel flakes from the tip. This "tip-fluting" technique leaves this longitudinal keel that originally may span the entire length of the specimen. Subsequent ventral thinning from the base reduces this keel to only 1/3 to 1/2 of its length. This basal, ventral surface thinning occurs on all twenty-three end blades. It can be the removal of a single flat flake from the entire surface (1) or a series of successive flakes, up to three as indicated by the hinge scars, that may also leave a longitudinal keel where they overlap.

The dorsal surface is finely pressure flaked leaving a slight serration to the lateral sides. This flaking terminates in the high, rounded median ridge that characterizes this surface. Basal thinning on this surface has been accomplished by the removal of one or several

longitudinal flakes that extend to ½ its length and removes a portion of this median ridge. This basal thinning from both the dorsal and ventral surface has removed the central portion of the basal platform resulting in the slight concavity that characterizes the base. Occasionally marginal flaking to this concavity has been applied either from the ventral (7) or dorsal (3) surfaces.

Dimensions:

Rhyolite	L.	W.	Th.	Depth of Concavity
number	23	23	23	23
range	2.30 - 5.04 cm.	1.20 - 1.89 cm.	0.31 - 0.84 cm.	0.15 - 0.35 cm.
mean	3.66 cm.	1.43 cm.	0.53 cm.	0.28 cm.

Chert	L.	W.	Th.	Depth of Concavity
number	1	1	1	1
range	3.49 cm.	1.79 cm.	0.49 cm.	0.20 cm.

Triangular, straight base

Sample: 7. Plate 12, g-k.

Form:

These triangular "tip-fluted" points are distinguished by the presence of a straight base. These are plano-convex in cross-section and concavo-convex (2) or plano-convex in longitudinal section. Five are made of rhyolite, and two of Ramah quartzite.

Technique:

The distinguishing attribute, that of the straight base, is due to the fact that the basal platform has not been totally obliterated by the dorsal-ventral thinning and has retained its original straight form.

Further edge retouch occurs in six cases on its ventral surface. In two cases, the ventral surface has been subjected to further pressure flaking from the lateral sides covering the area that has been basally thinned.

Dimensions:

Rhyolite	L.	W.	Th.
number	5	5	5
range	3.02 - 4.10 cm.	1.49 - 1.80 cm.	0.49 - 0.80 cm.
mean	3.72 cm.	1.64 cm.	0.60 cm.

Quartzite	L.	W.	Th.
number	2	2	2
range	2.74 - 3.46 cm.	1.34 - 1.46 cm.	0.44 - 0.66 cm.
mean	3.06 cm.	1.40 cm.	0.55 cm.

Preform

Sample: 126. Plate 13, a-l.

Form and Technique:

This category is entirely composed of preforms for the triangular, tip-fluted end blades. Material is based on rhyolite (114), chert (10) and Ramah quartzite (2). Several degrees of manufacture are reflected in this sample and three stages are arbitrarily defined and discussed.

Initially, a large thick flake is crudely shaped by percussion along both lateral sides into a rough triangular outline. The striking platform is at the base in all cases. This treatment produces a dorsal surface with a high irregular median ridge. The ventral surface is

marginally retouched or left untouched, producing a plano-convex or assymetrically biconvex cross-section. The base exhibits minor dorsal and ventral thinning. The tip is left blunt either flat or irregularly round. Twenty-seven specimens meet this description, all of rhyolite (Plate 13, a-d).

Preforms in the next stage are characterized by overall refinement of form. The high dorsal median ridge becomes a distinctive feature. The ventral surface becomes entirely worked but again is left flat or slightly rounded. Basal thinning, both dorsal and ventral is marked, although the original striking platform is not yet obliterated at this stage. These specimens are also characterized by the preparation at the tip for the eventual removal of thinning flakes. This is accomplished by dorsally flaking this blunted tip to produce a slight concavity. This concave tip has almost an "eared" appearance in outline. Eleven rhyolite specimens meet this description. (Plate 13, e-h)

The last stage of this arbitrary classification involves those specimen which have undergone the actual "tip-fluting" process. Most of these are fragmentary, perhaps reflecting the delicate nature of this technique. Except for one case of both dorsal and ventral fluting, this technique occurs solely on the ventral surface. The two thinning flakes removed from opposite edges reduce the tip platform leaving only a portion of the concavity. These longitudinal flakes may span the entire length of the specimen, but generally are only 1/3 to 1/2 of its length. In several cases, successive flakes have been removed after the initial fluting. These may be called secondary thinning flakes. Hinge scars indicate the removal of up to three on one edge alone. These successive flakes remove the remaining portion of the tip platform.

Both dorsal and ventral surfaces are subjected to fine pressure

flaking, transverse to slightly oblique, that complete the triangular outline.

Basal thinning from the ventral surface can be either a slight marginal pressure flaking, removal of a single flake that spans the entire ventral surface in two cases, or the actual "fluting" by the removal of two thinning flakes leaving a keel or longitudinal ridge. Dorsal retouch along the base is initially a marginal retouch that meets the median ridge. This is apparently a preparation of this edge as a platform for the final thinning. This consists of the removal of a series of centrally located longitudinal flakes from this base that removes the dorsal median ridge to a length ranging from 1/3 to 1/2 its length. Eighty-eight specimens are reflected in this stage. (Plate 13, i-l) These include seventy-six based on rhyolite, ten on chert and two of Ramah quartzite.

Dimensions:

Stage one	L.	W.	Th.
number	27	27	27
range	5.56 - 8.61 cm.	2.70 - 4.30 cm.	1.30 - 2.49 cm.
mean	7.01 cm.	3.14 cm.	1.89 cm.

Stage two	L.	W.	Th.
number	11	11	11
range	4.28 - 6.25 cm.	2.31 - 3.15 cm.	0.98 - 1.78 cm.
mean	5.54 cm.	2.69 cm.	1.47 cm.

Stage three	L.	W.	Th.
number	88	88	88
range	2.91 - 4.10 cm.	1.80 - 2.05 cm.	0.38 - 0.60 cm.
mean	3.39 cm.	1.91 cm.	0.47 cm.

Side-Notched, single

Sample: 3. Plate 12, 1-n.

Three specimens are placed in this general category. They are described individually, as follows:

Form:

The first (Plate 12, 1) is somewhat lanceolate, having parallel sides that converge near the top third of its length to a rounded tip. Notches are near the base, the latter being straight and bifacially thinned. Both longitudinal and cross-sections reveal a biconvex outline. Material is light-grey chert.

Technique:

The entire specimen has been finely pressure flaked with an irregularly serrated lateral edge. Functionally, it may have served as a knife.

Dimensions:

L: 5.45 cm. W: 1.80 cm. Th: 0.43 cm.

Notch D: 0.20 - 0.23 cm. Notch W: 0.59 - 0.61 cm.

Form:

This second specimen (Plate 12, m) is triangular in outline with straight margins contracting to a point. The base is straight, notches are shallow and wide and located near the base. It is biconvex in longitudinal and cross-section. Material is a dark to light-grey chert.

Technique:

Both surfaces have been subjected to irregular pressure flaking that has left a serration along its lateral edge. The base has been bifacially

and marginally thinned. Functionally, it may have served as a knife rather than as a projectile.

Dimensions:

L: 3.59 cm. W: 1.69 cm. Th: 0.42 cm.

Notch W: 0.88 cm. Notch D: 0.20 cm.

Form:

This triangular piece (Plate 12, n) has its straight margins contracting to a rounded blunt tip. Notches are shallow, located near the slightly convex base. Cross-section is plano-convex. Material is patinated buff-colored chert.

Technique:

One surface has been entirely flaked with a few ending in marginal hinge fractures. Pressure flaking is only irregularly spaced on this surface. The flat surface of the original flake characterized the opposite surface with the only alteration being continuous marginal retouch.

Dimensions:

L: 2.99 cm. W: 2.20 cm. Th: 0.38 cm.

Notch D: 0.08 - 0.11 cm. Notch W: 0.41 - 0.56 cm.

Side-Notched high, single

Sample: 2. Plate 12, o-p.

Form:

The first end blade (Plate 12, o) is characterized by symmetric notches placed high above a straight base. Combined with steep marginal retouch, this produces a box-like outline for this hafting element. The

tip is missing from the blade element but the margins appear to be straight and contracting. Cross-section is plano-convex and longitudinal section may have been plano-convex. Material is light-grey chert.

Technique:

This specimen is bifacially worked characterized by fine pressure-flaking both obliquely and transversely. The dorsal surface is characterized by steep marginal retouch and a high, rounded median ridge that runs the length of this fragment. The planar ventral surface is entirely pressure flaked with no grinding.

Dimensions:

L: 2.71 (incomplete) W: 1.38 cm. Th: 0.51 cm.
4.18 (estimated)

Notch D: 0.20 - 0.21 cm. Notch W: 0.58 - 0.61 cm.

Notch Height from Base: 0.62 cm.

Form:

The second fragment (Plate 12, P) probably had a triangular blade with straight contracting margins. Notches are deep, slightly assymetrically placed, leaving an irregular box outline for the hafting element. Material is a patinated-white chert.

Technique:

Both surfaces are marked by an irregular pressure flaking that has left a thin, biconvex outline.

Dimensions:

L: 3.21 (incomplete) W: 1.71 cm. Th: 0.49 cm.
4.50 (estimated)

Notch D: 0.22 - 0.31 cm. Notch W: 0.41 - 0.52 cm.

Notch Height from Base: 0.55 and 0.80 cm.

Side-Notched, multiple

Sample: 1. Plate 12, q.

Form:

This specimen is lanceolate in outline with straight base and convex lateral sides converging to a well-defined tip. Three shallow notches are regularly placed along each lateral edge up to 1/3 its length. Cross-section is plano-convex. Material is coarse-grain greyish chert.

Technique:

The dorsal surface has been finely pressure flaked to a distinct median longitudinal ridge. This ridge has been slightly ground. The ventral surface is marginally flaked and grinding appears sporatic over the unaltered ventral surface of the original flake. The base which is probably the original striking platform is ventrally thinned. Functionally, it may have served as a knife.

Dimensions:

L? 7.60 cm. W: 2.89 cm. Th: 0.61 cm.

Notch D: 0.11 - 0.21 cm. Notch W: 0.39 - 0.51 cm.

Asymmetric, side-notched

Sample: 8 complete, 3 basal fragments, 2 tip fragments.
Plate 16, a-d.

Form and Technique:

Complete specimens of these "Asymmetric Knives" vary greatly in their outline asymmetry. The lateral sides can be slightly to widely convex, straight contracting or slightly concave with some showing a combination of these. Tips are rounded and blunt. All notches are

placed low near the base. Most are shallow and rounded but wide, irregular and almost square notches occur sometimes on the same specimen.

Bases are thinned usually bifacially, but in four cases, only from one side. Two are straight and nine slightly concave. Four retain a portion of their original striking platform.

A shallow pressure flaking has been applied to all surfaces leaving a slight serration. All but one are biconvex in longitudinal and cross-section, this exception being concavo-convex.

Ten specimens are based on rhyolite, two are of light-grey chert - one complete and one tip fragment, and one tip fragment in Ramah quartzite.

	L.	W.	Th.	Notch D.	Notch W.
Rhyolite:					
number	7	10	10	10	10
range	5.16 - 9.16 cm.	2.90 - 4.41 cm.	0.51 - 0.79 cm.	0.24 - 0.36 cm.	0.50 - 1.50 cm.
mean	6.61	3.33	.59	.28	.72
Chert:					
number	1	2	2	1	1
range	5.50 cm.	2.28 - 3.31 cm.	0.31 - 0.80 cm.	0.21 -	0.45 -
Quartzite:					
number		1	1		
range		1.91 cm.	0.72 cm.		

Category 2 - Ground Slate

Triangular End Blades

Sample: 2. Plate 12, r-s.

These are described individually, as follows:

Form and Technique:

This is a finished triangular point with only its extreme tip missing (Plate 12, r). Both surfaces have three ground facets. One from each lateral side meet the facet from the base towards the upper 2/3 of its length. Cross-sections are therefore 4-faceted or a flat diamond at the tip third and 6-faceted at its base. The lateral edges have a light continuous serration.

Dimensions:

L: 4.10 cm. (incomplete) W: 1.61 cm. Th: 0.39 cm.
4.60 cm. (estimated)

Form and Technique:

The second (Plate 12, S) is a thin triangular slate piece with its lateral edges ground flat. The surfaces are only partly ground, mostly exhibiting the flake scars from its initial shaping. Both tip and base are missing. Cross-section is rectangular.

Dimensions:

L: 6.81 cm. (incomplete) W: 2.85 cm. Th: 5.0 cm.
7.52 cm. (estimated)

Flat-bevelled edge knife

Sample: 1. Plate 12, t.

Form and Technique:

This fragment is the base of a large ground slate point. Both surfaces are ground smooth partly obliterating the natural flat cleavage plane. The base and lateral edges are bifacially bevelled to a sharp straight edge. These edges expand slightly from the straight base.

Four hafting holes have been gouged from both surfaces. Two are near the base, the other two at the top where they are partially obliterated by the transverse breakage.

Dimensions:

L: 5.61 cm. (incomplete) W: 5.10 cm. Th: 4.54 cm.

Chisel, flat-bladed

Sample: 1. Plate 16, e.

Form and Technique:

This slate specimen is a flat, tapering blade uniformly ground on both surfaces and bevelled along the lateral sides. Its thickness tapers towards the tip where it has been ground to a sharpened chisel-like convex edge. Its basal end is unfinished and appears broken.

Dimensions:

L: 10.59 cm. W: 1.85 cm. Th: 0.45 cm.

Adze

Sample: 1. Plate 17, b.

Form and Technique:

This specimen has been partially ground smooth on its two flat surfaces formed by the natural cleavage plane of the argillite material. The straight lateral sides and base have been flaked and only sporadically

ground. Its cutting edge is asymmetrically ground bevelled. Overall shape is rectangular as is its cross-section.

Dimensions:

L: 7.91 cm. W: 4.35 cm. Th: 1.06 cm.

Category 3 - Blades and Microblades

Microblades - Plain

Sample: 41. Plate 14, a-f.

Form:

These plain or non-utilized microblades are based on a variety of cherts, rhyolites, and quartzites. The sixteen chert specimens include two complete, six proximal, six medial, and two distal fragments. Nine have a single arris, six with double and one with triple arris. Colors are mottled brown, green and grey.

Dimensions:

	L_c	L_p	L_{pd}	L_d	W	Th	T/W	P. Angle
Chert:								
number	2	6	6	2	16	16	16	80^o
range	3.74 - 4.33 cm	1.46 - 4.25 cm.	1.61 - 4.14 cm.	2.29 - 2.78 cm.	0.41 - 1.05 cm.	0.12 - 0.48 cm.	23 - 68 cm.	65^o - 91^o
mean	4.03 cm	2.70 cm.	2.62 cm.	2.53 cm.	0.75 cm.	0.41 cm.	36.88 cm.	81^o

Form:

The thirteen rhyolite specimens are either a dark-grey tuff or light-grey banded rhyolite. Three are complete with nine proximal and one medial sections. A single arris occurs on eight, double on five specimens.

Dimensions:

	L_c	L_p	L_{pd}	W	Th	T/W	P. Angle
Rhyolite:							
number	2	9	2	13	13	13	12
range	3.12 - 4.05 cm.	1.95 - 4.41 cm.	2.34 - 2.56 cm.	0.62 - 1.08 cm.	.20 - .38 cm.	21 - 39 cm.	69 - 92°
mean	3.58 cm.	3.11 cm.	2.45 cm.	0.85 cm.	0.25 cm.	29.31 cm.	85°

Form:

The two quartzite microblades are both medial sections with a single arris on each.

Dimensions:

	L_{pd}	W	Th	T/W
Quartzite:				
number	2	2	2	2
range	1.51 - 2.31 cm.	0.71 - .89 cm.	.15 - .17 cm.	16 - 23
mean	1.91 cm.	0.80 cm.	0.16 cm.	19.5

Microblades - Retouched

Sample: 6. Plate 14, g-i.

Form:

All six specimens occur on chert proximal sections with lateral retouch along one (3) or both (3) sides. Single lateral retouch can occur ventrally along the entire length, dorsally at the distal end or in the last specimen as double notches near the proximal end. Bilateral retouch occurs along the entire length from both the ventral and dorsal surfaces. Three have a single arris, one a double and two a triple.

Dimensions:

	L_p	W	Th	T/W	P. Angle
number	6	6	6	6	6
range	1.97 - 3.81 cm.	.68 - 1.05	.24 - .34cm	28 - 42 cm.	67^o - 87^o
mean	2.54 cm.	0.95 cm.	0.31 cm.	34.20 cm.	85^o

Microblade - Graver

Sample: 2. Plate 14, j-k.

Form:

These two proximal sections are on quartz and rhyolite. Both have been subjected to burin blows, which in the rhyolite specimen, occurs obliquely across the distal end leaving a single large hinge scar. The quartz specimen has an oblique scar across its distal end with irregular retouch obscuring the number of burin spalls removed. Its engraving edge has been sharpened by the removal of a single burin small along its lateral edge.

Dimensions:

	L_p	W	Th	Platform Angle
Rhyolite	3.61 cm.	0.95 cm.	0.29 cm.	85^o
Quartz	1.79 cm.	0.68 cm.	0.14 cm.	78^o

Microblades - stemmed

Sample: 4. Plate 14, n-o.

Form:

The four complete specimens are on clear quartz. All have been dorsally retouched at the bullar or proximal end along one (1) or both (3) sides to give a stemmed appearance. This retouch extends from 0.51 to 0.74 cms. along the sides. Irregular use wear occurs along a single

margin in two specimens. All have a single arris.

Dimensions:

	L	W	Th	T/W	Platform Angle
number	4	4	4	4	4
range	2.25 - 2.79 cm.	0.61 - 0.91 cm.	0.12 - 0.23 cm.	13 - 35	78° - 93°
mean	2.53	0.74	0.18	24.7	83°

Blades

Sample: 5. Plate 14, p-s.

Form:

These parallel-sided blades are grouped according to material. The single piece of brownish-grey chert (Plate 14, 4) is a proximal fragment with dorsal retouch along its entire right side and irregular use wear on the opposite side. Of the four rhyolite specimens, one is a plain proximal fragment (Plate 14, p); two are medial fragments with dorsal retouch along one lateral edge (Plate 14, q); and the last, also a distal fragment, has wide side-notches with use wear on its asymmetrical cutting edge (Plate 14, s).

Material	Length	Width	Th.	T/W	Platform L.	Arris
chert	3.32 p	1.39	0.40	28	79°	2
rhyolite	3.41 p	1.32	0.22	18, 25	-	2, 1
	1.89, 2.15 pd	1.20, 1.24	0.32,	28, 38	-	1
	2.11 d	1.60	0.46		-	

Category 4 - Scrapers

Triangular

Sample: 19 complete, 3 fragments. Plate 15, a-b.

Form and Technique:

All these scrapers are based on expanding flakes with narrow to fairly wide striking platforms at the base opposite to the convex working edge. This edge has been dorsally retouched to a moderate bevel (52 - 73°). This consists of parallel pressure flaking. Lateral retouch is essentially marginal but extends across the dorsal surface in ten cases. These lateral sides are straight except in two cases, where they are slightly concave. Ventral retouch consists of sporatic marginal retouch and thinning of the bulb of percussion. Longitudinal section is plano-convex (4) or concave-convex (15). Material is rhyolite (6), black chert (3), greenish-brown chert (9), quartz (3) and Ramah quartzite (1).

Dimensions:

L:	W:	Th:
2.01 - 4.32 cm. (3.51)	1.72 - 3.84 cm. (2.21)	41 - 98 cm. (.57)

Snubnosed

Sample: 8. Plate 15, c-d.

Form and Technique:

These scrapers are primarily characterized by their high, steep-edged scraping bevel, 87 - 95 degrees. This edge is the area of maximum thickness and is from slightly to widely convex. Retouch is dorsal and consists of fine parallel flaking with finer marginal retouch usually ending in hinge fractures. Use wear is apparent in only three cases.

The striking platform is at the opposite end to the scraping edge and the lateral sides are straight expanding, giving a somewhat triangular outline. The lateral sides are dorsally retouched but this does not extend over the dorsal surface itself. The ventral surface has been altered in one case where irregular pressure flaking occurs across the

bulb of percussion. Longitudinal section is markedly concavo-convex. Three appear to be made on blades; the others on expanding flakes. Material is rhyolite (5), black chert (2) and green chert (1).

Dimensions:

L:	1.40 - 3.29 cm.	W:	1.32 - 1.91 cm.	Th:	0.31 - 0.92 cm.
	(2.89)		(1.41)		(.79)

Circular:

Sample: 6. Plate 15, e-f.

Form and Technique:

These specimens have a convex lateral edge expanding from a narrow to fairly wide striking platform at the base. The working edge is moderately convex and general outline is a circular to slightly oval shape. The scraping bevel ranges from 52 - 70 degrees. Lateral retouch is dorsal and marginal with at least one side of each specimen exhibiting continuous or sporatic pressure-flaking. The opposite side is left irregular and unmodified in three specimens. Only one exhibits vertical retouch, this being at the bulb of percussion. Longitudinal section is evenly divided between plano-convex and slightly concavo-convex. Material is black chert (3), grey chert (1), rhyolite (1) and Ramah quartzite (1).

Dimensions:

L:	2.34 - 3.25 cm.	W:	2.41 - 3.39 cm.	Th:	0.52 - 0.91 cm.
	(2.54)		(2.89)		(.65)

Stemmed

Sample: 6. Plate 15, g-j.

Form and Technique:

These are characterized by an abrupt expansion of their lateral side symmetry at 1/3 to 1/2 their length to give the appearance of a

distinctive stem element. This expanded margin is straight to widely convex and is frequently asymmetrical. In one case, it is almost rectangular in outline. Stems are straight and slightly expanding from a fairly wide base which is the striking platform of the original flake. Stems are retouched dorsally along the margins and flaking extends across the surface in three cases. One specimen has, in addition, two longitudinal flakes removed from the base. Ventral retouch is restricted to marginal thinning of the bulb in two specimens. The scraping edge is moderately convex with a bevel of 71 to 86 degrees. Retouch is by fine pressure flaking which extends along the margins to the stem. Longitudinal section is slightly concavo-convex. Material is rhyolite (5) and brown chert (1).

Dimensions:

L:	W:	Th:
2.10 - 4.12 cm. (3.84)	1.55 - 3.56 cm. (2.71)	0.38 - 0.85 cm. (.59)

Flared or expanding corner

Sample: 4. Plate 15, k.

Form and Technique:

These specimens have one or both margins flaring at its juncture with the scraping edge. This flare is sharp in two pieces and may be engraving edges. They are on either expanding flakes (3) or a blade (1) with the striking platform at the base. Lateral sides are straight expanding with retouch only marginal. The scraping edge is convex with a bevel from 68 to 79 degrees. Use wear is evident in one specimen only. Retouch is by fine parallel pressure-flaking. Ventral retouch is absent. Longitudinal section is plano-convex (2) or concavo-convex (2). Material is grey chert (2), black chert (1) and quartz (1).

Dimensions:

L:	W:	Th:
1.79 - 2.48 cm. (2.13)	1.83 - 2.78 cm. (2.37)	0.31 - 0.95 cm. (.81)

Rectangular

Sample: 3. Plate 15, l.

Form and Technique:

The two quartz specimens are rectangular in outline with dorsal retouch on its four margins and dorsal surface. Ventral surface is unaltered. They appear to be made on flakes with the striking platform at one corner. They are plano-convex in section. The single black chert specimen is made on an expanding flake with the platform (missing) at its base. Retouch is marginal by pressure flaking along the lateral sides and scraping edge. The bevel is 54 degrees. Cross-section is plano-convex.

Dimensions:

L:	W:	Th:
1.32 - 1.50 cm. (1.45)	1.19 - 1.29 cm. (1.21)	0.30 - 0.33 cm. (.31)

End of Blade Scraper

Sample: 5. Plate 14, l-m, t-u.

Form:

This class of end scraper is based on blades (2) and microblades (3). Of the microblades the chert specimen is a proximal section with dorsal retouch along its distal end. The bevel of this scraping edge is 62 degrees. A wide shallow notch occurs along one lateral edge. The remaining two are on rhyolite; the proximal fragment with a retouch bevel of 41 degrees, the distal fragment with one of 45 degrees. Continuous dorsal and ventral retouch occurs along one lateral side of this last specimen.

Dimensions:

	L	W	Th	Platform angle	Arris
Chert	2.39 cm.	0.91 cm.	0.38 cm.	79°	1
Rhyolite	3.50, 4.55	1.06, 0.99	0.41, 0.32	67°	1, 2

Form:

Scrapers made from blades are based on rhyolite and quartzite. The single rhyolite specimen is a distal blade fragment with the scraping bevel of 38 degrees.

Dimensions:

	L	W	Th	T/W	Arris
Rhyolite	1.50 cm.	1.45 cm.	0.35 cm.	18	2
Quartzite	2.06 cm.	1.43 cm.	0.31 cm.	21	1

Category 5 - Soapstone

Soapstone Vessels

Sample: 28 fragments. Plate 17, a.

Form:

These fragments can be identified as to rim-7, rim and corner-2, wall-16, base and wall-3 and can further be reconstructed into three individual vessels.

Vessel one is formed by twenty-six fragments. These indicate a deep square or rectangular vessel with a total height of 16.1 cm. Walls are out-flaring. The rims are flattened and obliquely angled inwards. Junctures of walls from rim to base are also flattened. The flat base is the thickest part (1.00 - 1.25 cm.). Walls are thickest at the base (0.98 - 1.02 cm.) and tapper slightly approaching the rim (0.72 - 0.89). Wall

to base angle is indicated by three pieces with a range from 100 to 122 degrees. Wall to wall angle is represented in six fragments ranging from 90 to 95 degrees. Mend holes occur, these being biconically gouged and connected to an adjacent hole by a rectangular groove on the inside of the vessel.

The second vessel is indicated by one rim and corner fragment. This differs from the above not only in the microscopic qualities of the soapstone but in the rounded rim and corner. The form of this vessel approximates the above, i.e., square or rectangular with flat straight walls tapering to the rim (0.73 - 0.81 cm.); total height upwards of 5.35 cm.; wall to wall angle of 102 degrees; base to wall angle of 107 degrees.

The third vessel is represented by a single rim fragment. Walls are smooth yet slightly rounded. Thickest portion is near the rim (1.30 cm) and tapers towards the centre to 1.10 cm. The rim is flattened obliquely outwards. The general impression is of a shallow oval bowl.

Category 6 - Burins

Burin

Sample: 1. Plate 16, h.

Form and Technique:

This side-notched piece has its blade element formed by one straight oblique and one convex margin converging to a sharp engraving edge. This straight edge has three successive burin spalls removed. Their lengths are 1.90, 1.42, and 0.92 cm. with widths varying from 0.12 to 0.50 cm. Retouch occurs on the first and second burin scars along the lateral edge. Bifacial retouch occurs on the hafting element and along the convex lateral margin. Wide, shallow notches are

asymmetrically situated near the straight base which is thinned bifacially. The surfaces of the blade element has been bifacially ground smooth. This implement is based on a brownish-grey chert flake with its striking platform at the base.

Dimensions:

L: 3.05 cm. W: 2.08 cm. Th: 0.83 cm. Notch W: 0.61 - 0.87 cm. Notch D: 0.18 - 0.21 cm.

Burin-like Implement

Sample: 1. Plate 16, i.

Form and Technique:

This side-notched implement has been bifacially pressure-flaked with its upper blade portion ground smooth on both surfaces. Notches are placed low just above the straight base. The straight lateral sides are slightly contracting. A transverse breakage has removed the bevelled end of the working edge.

Dimensions:

L: 2.25 cm. W: 2.12 cm. Th: 0.30 cm. Notch W: 0.40 - 0.43 cm. Notch D: 0.08 - 0.12 cm.

Category 7 - Miscellaneous

Flake Knives

Sample: 2. Plate 16, f-g.

Form and Technique:

Both these pieces are based on patinated-white triangular chert flakes and exhibit only minor retouch.

The first has one edge dorsally retouched to be a straight, contracting cutting or scraping plane. This edge has also a wide notch removed dorsally at its juncture with the base. The base is straight and retains a large portion of its striking platform. The convex opposite edge is battered and converges to a blunted tip. The ventral surface is unaltered and marked by a prominent bulb of percussion.

This piece is asymmetrically side-notched from the dorsal surface. Retouch is marginal and occurs bifacially only along the lateral sides above the notches where the curvature is widest. Discontinuous ventral retouch occurs on the irregular shaped base. Tip is rounded and use wear occurs along both lateral sides.

Dimensions:

L:	5.60 cm.	W:	4.00 cm.	Th:	0.69 cm.
	5.49 cm.		3.50 cm.		0.55 cm.

Thinning flakes

Sample: 19.

Form and Technique:

These flakes are the manufacturing by-products of the triangular concave and straight based end blades. Two types are distinguished: those resulting from the "tip-fluting" technique and those resulting from the basal thinning process either dorsally or ventrally.

The first group are distinguished as to primary or secondary depending on whether they are the result of the initial "fluting" blow or one of the subsequent or secondary. Seven are considered primary and all are on rhyolite. These are triangular in outline and display a portion of the tip platform at its bulbar end. The dorsal surface retains the pressure-flaking which this surface of the end blades undergoes.

One lateral edge may retain a portion of the end blades dorsal surface. These indicate primary flake removal from either the left (3) or the right (4).

Secondary thinning flakes are triangular but show the prior removal of the primary flake from the opposite side as a narrow longitudinal scar along an otherwise pressure-flaked dorsal surface. Four have been removed from the right and four from the left side of the ventral surface of various end blades. Seven are of rhyolite, one is quartzite.

The second group, those removed basally, are all from the dorsal surface. All four retain a portion of the pressure flaked median ridge that characterized the dorsal surface of the end blade. All are parallel-sided, plano-convex in cross-section and on rhyolite.

Dimensions:

Class	L	W	Th
tip-fluted - 1y	2.20 - 5.48 cm.	0.72 - 1.94 cm.	0.17 - 0.40 cm.
- 2y	2.31 - 4.12 cm.	0.81 - 1.35 cm.	0.23 - 0.32 cm.
basal	2.25 - 2.73 cm.	0.20 - 1.25 cm.	0.18 - 0.35 cm.

Ridge Flakes

Sample: 5. Plate 17, c - e.

Form and Technique:

These core preparation flakes or edge spalls are parallel-sided flakes which exhibit the initial microblade-core shaping. This initial preparation consists of flake removal transversely or slightly obliquely to the microblade platform from the lateral sides to the core. This leaves one or two longitudinal ridges which are the battered and slightly crushed platform remnants.

The ridge flakes themselves are struck off in the same manner as microblades and the initial or primary flake is directed to remove this longitudinal ridge. Subsequent or secondary ridge flakes retain only a portion of the transverse flaking.

Dimensions:

Material	Class	L	W	Th	T/W	Cross-Section	Flaked Surfaces	Platform Angle
Chert	2y	3.60_{p}	0.71 cm.	0.30 cm.	42	trapizoidal	1	87^{o}
	2y	3.06_{p}	0.56 cm.	0.18 cm.	32	trapizoidal	1	87^{o}
	2y	2.75_{pd}	0.55 cm.	0.32 cm.	60	triangular	1	--
Rhyolite	1y	4.30_{c}	0.92 cm.	0.33 cm.	34	triangular	2	73
Quartzite	1y	4.20_{p}	0.75 cm.	0.32 cm.	42	triangular	2	79

TABLE 10

Beothuck

Cultural Layer 1

Chipped Stone

Biface Series:

Corner-Notched	6

Biface Series

Corner-Notched

Sample: 6. Plate 18, 1-q.

Form and Technique:

These points present triangular outlines with straight bases; from straight to slightly convex blade margins converging to a sharp, well defined tip; and asymmetric corner notches resulting in slight barbs to the blade element. The two chert specimens exhibit fine parallel pressure flaking with thin sharp edges. Those based on rhyolite tend to be thicker. Bases are bifacially thinned. The striking platform is at the base. Cross-section is biconvex. Weights range from 2.7 to 3.4 gms. (2.91).

Dimensions:

L:	3.30 - 3.55 cm. (3.48)	W:	1.89 - 2.11 cm. (1.94)	Th:	0.36 - 0.54 cm. (.41)

Notch D: 0.32 - 0.51 cm.

W: 0.40 - 0.51 cm.

TABLE 11

Undetermined Cultural Affiliation

Cultural Layer 1

Chipped Stone

Biface Series:		Uniface Series:	
Bipointed - Small	3	Stemmed	2
Stemmed	5	Ovate - Small	4
Triangular	1	Lanceolate - Small	6
Discoid	6	Miscellaneous	2
Side-Notched	14	Convex Working Edge	9
Pentagonal	2	Straight Working Edge	10
Miscellaneous			
- cache	15		
- fragments	49		

Ground Stone

Abraders	17
Miscellaneous	3

Miscellaneous

Raw Material	36
Flakes and fragments	>5000
Vessels	3
Hammerstones	32
Crystals	52

Biface Series

Bipointed

Sample: 3. Plate 18, a-b.

Form and Technique:

These small points have slightly convex margins meeting in two sharp points. Maximum width is at the lower third of its length. They are made on expanding flakes with the striking platform along one lateral side. Only one appears complete exhibiting fine marginal retouch. This has a biconvex section. Material is dark to light-grey banded rhyolite. Weights range from 4.5 to 13.0 gms. (10.1).

Dimensions:

L:	5.00 - 6.91 cm. (6.15)	W:	1.51 - 2.50 cm. (2.14)	Th:	0.64 - 0.89 cm. (.75)

Stemmed

Sample: 5. Plate 18, c-g.

Form and Technique:

Four specimens are extremely small points with triangular blade outline, sharp tips and slight barbs (Plate 18, c-f). Stems are slightly expanding with straight to slightly rounded bases. Pressure flaking has left thin sharp margins. Cross-sections are plano-convex (1) and biconvex (3). Material is grayish chert (3) and dark-grey rhyolite (1). Weights range from .5 to .6 gms.

Dimensions:

L:	1.31 - 2.00 cm. (1.67)	W:	0.90 - 1.30 cm. (1.14)	Th:	0.22 - 0.31 cm. (.28)
	0.43 - 0.45 (stem)		0.44 - 0.46 cm. (stem)		

Form and Technique:

This large specimen (Plate 18, g) presents a wide concave-convex

blade margins with a blunt tip. A single rounded shoulder is present along the convex edge. The stem is convex contracting to a rounded base. Bifacial treatment is restricted to the stem with the blade entirely flaked on the dorsal surface and only marginally on the ventral. Cross-section and longitudinal-section are concavo-convex exhibiting the curvature of the original flake. Its striking platform was probably basal. Weight is 13.9 gms.

Dimensions:

L: 7.91 cm. W: 2.39 cm. Th: 0.61 cm

2.54 cm. (stem)

Triangular

Sample: 1. Plate 18, h.

Form and Technique:

Outline is triangular with slightly convex margins, straight base and sharp tip. Expanding flakes removed from the surfaces tend to end in hinge scars as does marginal retouch. Section is asymmetrically bi-convex. The specimen is possibly a blank for a notched biface. Material is banded rhyolite. Weight is 16.1 gms.

Dimensions:

L: 5.69 cm. W: 3.01 cm. Th: 1.02 cm.

Discoid

Sample: 6. Plate 18, i-k.

Form and Technique:

These are flat circular bifaces with plano-convex cross-sections. In three specimens, this circular outline is broken by the straight edge

of the striking platform. Bifacial treatment consists of edge flake removal from along at least 3/4 of its periphery. This leaves a high central peak on the convex surface which in one specimen has been further flattened by a single flake removal. Finer marginal treatment in four specimens presents a steep cutting-scraping edge. Material is rhyolite (4) and chert (2). Weights range from 20.0 to 47.1 gms. (40.3).

Dimensions:

L: 3.41 - 5.44 cm. (4.85) W: 3.39 - 5.31 cm. (3.98) Th: 1.56 - 2.31 cm. (2.10)

Side-Notched

Sample: 14. Plate 19, a-n.

Form and Technique:

Three in this sample (Plate 19, a-c) have deep, oblique notches, slightly convex bases, and straight contracting blade margins. Tips are missing but were sharp and well defined. Bases are bifacially thinned and both surfaces exhibit shallow parallel and expanding flake scars resulting from pressure flaking. Cross-sections are biconvex and material includes banded chert, Ramah quartzite and vein quartz. Weights are 5.0, 4.2 and 5.4 gms.

Dimensions:

Length	Width	Thickness	Notch D.	Notch W.
3.26 cm. (4.40 estimated)	2.51 cm.	0.51 cm.	0.49 cm.	0.39 cm.
3.19 cm. (3.98 estimated)	2.05 cm.	0.49 cm.	0.42 cm.	0.48 cm.
3.45 cm. (3.90 estimated)	2.00 cm.	0.60 cm.	0.29 cm.	0.25 cm.

Form and Technique:

This unique triangular (Plate 19, d) specimen has slightly asymmetrical notches and straight base, and straight blade margins contracting

to a sharp point. The striking platform is at the base which is essentially unifacially thinned. The surfaces show shallow expanding flakes removal by pressure flaking. Cross-section is biconvex. Material is Ramah quartzite. Weight is 3.5 gms.

Dimensions:

L: 4.00 cm. W: 1.90 cm. Th: 0.42 cm. Notch D.: 0.22 - 0.28 cm.
Notch W: 0.44 - 0.60 cm.

Form and Technique:

This basal fragment (Plate 19, e) probably had a triangular outline and has slightly convex base, high deep asymmetrical notches, and straight contracting blade margins. Orientation of the original flake is obscured. Shaping is by expanding flake removal which tend to end in hinge fractures plus marginal retouch. Base is bifacially thinned. Cross-section biconvex. Material is an unusual conglomerated chert. Weight is 3.3 gms.

Dimensions:

L: 4.75 cm. (6.90 estimated) W: 3.40 cm. Th: 0.70 cm.
Notch D: 0.50 cm. Notch W: 0.72 - 1.10 cm.

Form and Technique:

This unusual basal fragment (Plate 19, f) has a widely convex basal outline, high asymmetrical notches with either straight or slightly convex blade margins. The removal of expanding and irregular flakes has tended to end in hinge fractures. Cross-section is biconvex. Material is reddish, banded rhyolite. Weight is 7.0 gms.

Dimensions:

L: 2.95 cm. W: 3.20 cm. Th: 0.61 cm. Notch D: 0.31 cm.
Notch W: 0.61 - 0.96 cm.

Form and Technique:

This is based on a red sandstone flake with the striking platform at the base (Plate 19, g). Notches are asymmetric, base is straight, blade margins are straight but oblique to the longitudinal axis, tip is sharp. Surfaces exhibit shallow expanding flake scars with a finer marginal retouch. Cross-section is asymmetrically biconvex. Weight is 4.7 gms.

Dimensions:

L: 5.02 cm. W: 1.89 cm. Th: 0.50 cm. Notch D: 0.22 cm.

Notch W: 0.64 - 0.89 cm.

Form and Technique:

Two specimens (Plate 19, h-i) have oblique side notches with straight bases and convex margins converging to a well-defined point. One has its striking platform at the tip and subsequent thinning has resulted in a longitudinal break. Flaking is similar to the above. Cross-section is biconvex. Material is greyish chert and rhyolite. Weights are 24.5 and 23.0 gms.

Dimensions:

L: 6.55, 6.91 cm. W: 3.65, 3.49 cm. (estimated)

Th: 0.91, 1.00 cm. Notch D: 0.39, 0.41 cm. Notch W: 1.11, 1.05 cm.

Form and Technique:

Outline of this piece (Plate 19, j) presents a concave based specimen with wide, asymmetrical side notches, slightly convex margins and blunt tip. Expanding flake scars typify the surface treatment with marginal retouch leaving a slight serration. Cross-section is biconvex. Material is banded rhyolite. Weight is 20.0 gms.

Dimensions:

L: 8.89 cm. W: 3.02 cm. Th: 0.70 cm. Notch D: 0.28 - 0.40 cm. Notch W: 0.90 - 1.60 cm.

Form and Technique:

The four remaining specimens (Plate 19, k-n) include one complete, two fragments and one preform fragment. The former (Plate 19, K) has a straight base, low moderate notches and asymmetrically convex margins with a blunt tip. Cross-section is biconvex. One fragment (Plate 19, l), has similar blade attributes. The last fragment has a straight base, wide shallow notches and slightly convex margins. Cross-section is asymmetrically biconvex. The preform (Plate 19, n) presents a smaller point with asymmetrical notches, straight base and irregular margins. Complete specimen weighs 12.5 gms.

Dimensions:

Length	Width	Thickness	Notch D.	Notch W.
7.12 cm.	2.50 cm.	0.60 cm.	25 cm.	0.71 cm.
6.50 cm. (incomplete)	2.55 cm.	0.70 cm.	-	-
4.20 cm. (incomplete)	2.68 cm.	0.71 cm.	20 cm.	1.00 cm.
3.49 cm. (incomplete)	2.00 cm.	0.73 cm.	25 cm.	0.43 - 0.60 cm.

Pentagonal

Sample: 2. Plate 20, a-b.

Form and Technique:

Outline is five-sided with margins straight, parallel, or slight expanding from the straight base. Near its mid-length, these diverge obliquely to a blunt tip. Use wear along these tips probably indicates their use as drills. The larger is plano-convex with the convex surface retaining a high ridge formed by hinge fractured flakes. The smaller

is biconvex with extensive marginal retouch. The striking platform of the original flake is at the base. Material is banded rhyolite. Weights are 20.0 and 6.11 gms.

Dimensions:

L: 6.90, 5.22 cm. W: 2.51, 1.81 cm. Th: 1.41, 0.71 cm.

Miscellaneous - Cache

Sample: 15. Plate 21, a-j.

Form and Technique:

This cache represents a variety of shaped bifaces, preforms and unifaces. Material is banded rhyolite.

Five are formed bifaces (Plate 21, a-d) with outlines ranging from oval to triangular. Bases are slightly convex and bifacially thinned. Margins are straight (1) and slightly convex (4). Tips are from blunted to sharp and well defined. Orientation of the original flake is obscured. Sections are asymmetrically biconvex. Weights range from 15.2 to 38.1 gms. (26.2).

Four are preforms (Plate 21, e-g) with initial shaping by deep expanding flakes. Three are oval, based on thick expanding flakes; the last has its striking platform at the tip presenting a triangular outline. Weights range from 54.7 to 94.4 gms. (78.8).

One uniface (Plate 21, h) has a rounded base, one straight side with its opposite widely convex diverging obliquely mid-length to a blunt tip. The dorsal surface exhibits shallow flaking with marginal retouch. The ventral surface has been thinned along the bulb of percussion at one corner. Weight is 27.8 gms.

The remaining unifaces (Plate 21, i-j) are flakes with a convex working edge along one lateral side. Retouch is dorsal and continuous, 2.49 - 3.12, with a shallow bevel, 10 - 25 degrees. Mean weight is 28.1 gms.

Dimensions:

	Length	Width	Thickness
Bifaces	5.71 - 6.80 cm. (5.86)	3.81 - 4.22 cm. (3.96)	1.12 - 1.30 cm. (1.15)
Preforms	5.90 - 8.30 cm. (6.41)	5.59 - 9.41 cm. (7.13)	2.29 - 2.90 cm. (2.48)
Unifaces	6.59 - 8.10 cm. (6.81)	4.03 - 7.32 cm. (5.79)	0.90 - 1.41 cm. (1.22)

Miscellaneous - tip fragments

Sample: 34.

Form and Technique:

These fragments are small and are indicative of a range of bifacial implements. Margins are straight contracting to slightly convex. Tips are predominately sharp and well defined. All are thinned by shallow expanding flakes and marginal retouch. A few exhibit pressure flaking. Material is banded rhyolite (30) and chert (4). Cross sections are biconvex.

Dimensions:

L: 2.80 - 6.21 cm. W: 2.01 - 3.35 cm. Th: 0.40 - 0.89 cm.

Miscellaneous - basal fragments

Sample: 15.

Form and Technique:

These present straight (4) or rounded (11) base with convex lateral sides. Five have their striking platform along the base. Shaping is by shallow parallel expanding flake removal with marginal retouch. Cross-sections are biconvex. Material is chert (2) and banded rhyolite (13).

Dimensions:

L: 2.74 - 7.12 cm. W: 2.23 - 4.40 cm. Th: 0.61 - 1.01 cm.

Uniface Series

Stemmed

Sample: 2. Plate 20, e-f.

Form and Technique:

These implements have straight parallel stems with slightly convex blade margins along one or both sides. Thickness tapers to the distal ends which are straight but irregular, possibly from use. The straight base retains the striking platform and only the margins and dorsal surface exhibit rough flaking. Cross-sections are biconvex. Material is rhyolite. Weights are 11.4 and 29.1 gms.

Dimensions:

L: 5.83, 7.12 cm. W: 2.71, 3.45 cm. Th: 0.61, 1.05 cm.

Ovate

Sample: 4. Plate 20, g-h.

Form and Technique:

These present oval outlines with rounded bases, widely convex margins converging to a blunt tip. The striking platform is along one lateral side either near the mid-point or towards the base. Flaking is essentially marginal, dorsal and ventral, only partially extending onto the surfaces. Sections are asymmetrically biconvex. Material is banded rhyolite. Mean weight is 24.0 gms.

Dimensions:

L:	W:	Th:
5.71 - 6.50 cm. (6.12)	3.75 - 4.38 cm. (3.91)	1.28 - 1.40 cm. (1.32)

Lanceolate - Small

Sample: 6. Plate 20, c-d.

Form and Technique:

These small bifaces are based on parallel or expanding flakes with the striking platform at the tip. Its distal end or base is straight either bifacially thinned (3) or unmodified (3). Lateral margins are slightly convex. Bifacially thinning is by shallow expanding flaking and sporadic marginal retouch. Cross-sections are biconvex. Material is banded rhyolite. Mean weight is 28.1 gms.

Dimensions:

L:	5.91 - 7.68 cm. (6.42)	W:	3.60 - 4.19 cm. (3.79)	Th:	0.83 - 1.10 cm. (0.94)

Miscellaneous

Sample: 2. Plate 20, i.

Form and Technique:

These two present slightly convex bases with one margin straight, the other convex to about the mid-length where it diverges obliquely to the tip. Striking platform is at the base. One surface has parallel and expanding flake scars across only a portion of its surface. The other has been solely marginally retouched, especially along the straight oblique edge. Cross-section is biconvex. Material is banded rhyolite. Weights are 30.9 and 28.8 gms.

Dimensions:

L:	6.67 , 7.51 cm.	W:	3.85 , 4.10 cm.	Th:	1.30 , 1.51 cm.

Convex Working Edge

Sample: 9.

Form and Technique:

These expanding and irregular flakes have marginal dorsal retouch along the distal (5) or one lateral side (4) to the striking platform.

Retouch is continuous along the edges, from 4.31 to 7.82 cm., with a shallow bevel of 10 to 20 degrees. Use wear is present on five specimens. Material is banded rhyolite (7) and argillite (2). Height of scraping face is from .22 to .52 (.31). Weights range from 19.0 to 55.5 gms. (32.1).

Dimensions:

L:	2.83 - 8.19 cm. (5.81)	W:	4.28 - 8.41 cm. (7.15)	Th:	0.70 - 1.51 cm. (.98)

Straight Working Edge

Sample: 10.

Form and Technique:

These parallel and expanding flakes exhibit marginal dorsal retouch distally (2) or along one or both lateral sides (8). This produces a shallow bevel from 15 to 25 degrees with a fairly continuous working edge, from 2.95 - 5.60 cm. Only one has distinct use wear. Material is banded rhyolite (9) and chert (1). Height of scraping face is from .20 to .45 cm. (.25). Weights range from 26.1 to 59.7 gm. (45.1).

Dimensions:

L:	3.64 - 6.40 cm. (4.81)	W:	1.93 - 6.35 cm. (5.12)	Th:	0.30 - 1.49 cm. (.79)

Ground Stone

Abraders

Sample: 17.

Form and Technique:

These are based on tabular slabs of reddish sandstone and exhibit a wide variety of outlines. Use wear is evident, either on one (13) or both (4) surfaces. Two of these have been utilized to a wide shallow depression. Margins are predominately unmodified with only six exhibiting grinding scars. Eleven specimens in this sample are fragmentary. Cross-sections are rectangular. Weights are from 16.7 to 749.0 gms. (141.4).

Dimensions:

L:	4.70 - 15.12 cm. (9.72)	W:	2.31 - 14.87 cm. (10.12)	Th:	1.12 - 1.89 cm. (1.54)

Miscellaneous

Sample: 3.

Form and Technique:

The first is a thin, flat rectangular piece of reddish slate, ground on both surfaces and margins. Use wear is evident at two corners and functionally it may have been used as a boot-crease. Cross-section is rectangular. Weight is 42.5 gms.

The second is a long rectangular piece of grey schistoise material partially ground on the four flat surfaces. One distal end is battered and has a deep V indentation. Functionally, this may be the shaft or handle for a hafted implement. The shaft exhibits several deep incisions along its length. Weight is 412.7 gms.

The last specimen is based on an elongate cobble and may be a sinustone. Modification is along the smooth margins where there is a series of transverse narrow grooves possibly as a result of sinu stretching along their surfaces. Cross-section is lenticular and material is granitic. Weight is 412.7 gms.
Dimensions:

L:	11.23 cm.	W:	2.21 cm.	Th:	0.95 cm.
	18.41 cm.		3.81 cm.		3.21 cm.
	7.98 cm.		5.74 cm.		1.71 cm.

Miscellaneous

Raw Material

Sample: 36.

Form:

Thirty-six large chunks of banded rhyolite, probably exhausted cores and slabs of raw material were scattered throughout the site. The largest measures 17.5 x 10.1 x 5.9 cms. In addition, five large slabs of greyish slate were found together. The largest measures 25.5 x 10.2 x 3.8 cms. These rectangular slabs were unmodified and probably served as raw material for ground stone artifacts. Flake removal on the rhyolite core fragments were random along the edges with no apparent platform preparation.

Flakes and fragments

Sample: >5000

Upwards of 5,000 flakes and fragments were distributed throughout the site. Roughly ¼ of these were random, the rest associated with the two large concentrations in the northwest corners of Area I. The material reflect the general trend indicated by the finished artifacts, roughly 80% banded rhyolite, 10% dark grey tuff and 10% cherts.

Vessels

Sample: 1 complete; 2 fragments.

Form and Technique:

The complete specimen is a shallow rectangular bowl or vessel made on soft green micaeous schist. The surfaces retain many sharp incisions and narrow grooves from its manufacture. The rim is irregular but generally flattened with outward sloping walls. The flat bottom has been modified only by a number of deep sharp incisions. Sporadic grinding occurs especially at the corners. Wall angles range from 95 to 150 degrees. Weight is 360.0 gms.

The other two pieces are fragments of the same material both with a small shallow circular depression on one surface. They exhibit none of the manufacturing incisions of the above and may be natural.

Dimensions:

L:	12.25 cm.	W:	8.00 cm.	H:	2.45 cm.	Wall Th:	2.10 cm.
	5.50 cm.		4.69 cm.		1.39 cm.		
	2.80 cm.		2.03 cm.		0.89 cm.		

Hammerstone

Sample: 32.

Form and Technique:

These cobbles are generally rounded, either oval (23) or elongate(7). The remaining two have rectangular outlines. Use wear in the form of a flattened, pitted surface or edge occurs on either one (6) or two surfaces (26). In the latter case, these are opposite ends of the cobble. Only three are vein quartz, the rest being granite.

Dimensions:

L:	3.60 - 11.39 cm.	W:	2.98 - 6.60 cm.	Th:	1.69 - 6.30 cm.
	(7.12)		(4.51)		(5.12)
Wt:	59.0 - 409 gms.				
	(82.5)				

Crystals

Sample: 52.

Form and Technique:

Twenty-three are quartz crystals and fragments. Ten of these six-faceted crystals have their tips battered and flattened. One other specimen has had flakes removed from along its sides. Metrics refer to complete crystals.

Dimensions:

L: 2.91 - 5.11 cm. W: 0.72 - 4.79 cm. Th: 0.54 - 3.71 cm.

Form and Technique:

The twenty-nine pieces of amethyst consist of large chunks of crystal clusters and minute individual crystal fragments. No use wear is evident. Metrics refer to clusters.

Dimensions:

L: 3.51 - 6.40 cm. W: 2.91 - 5.42 cm. Th: 2.89 - 3.71 cm.

TABLE 12

Maritime Archaic

Cultural Layer 2

Chipped Stone

Biface Series:

Bipointed	- large	5
	- small	6
Ovate	- small	2
Stemmed		2
Trianguloid		1
Lanceolate		2
Discoid		1
Miscellaneous	- complete	3
	- fragments	16
Preforms	- fragments	45

Uniface Series:

Flake	- Ovate	1
	Miscellaneous	1
	Convex Working Edge	3
	Straight Working Edge	11
Blade	- End of Blade Scraper	1
	Retouched	2
	Plain	1
Blade-like Flakes	- Retouched	2

Ground Stone

Stemmed Point	1
Preforms	3
Abraders	1
Miscellaneous	7

Miscellaneous

Blade Cores	1
Flakes and fragments	1626
Hammerstone	3
Quartz Crystal	1

Biface Series

Bipointed - Large

Sample: 1 complete; 1 fragment; 3 preforms. Plate 22, a.

Form:

Only one of these is fairly complete exhibiting symmetrically convex lateral sides converging to a fairly sharp point. Cross section is asymmetrically biconvex with the maximum width at the mid-point. The preforms portray a roughly bipointed outline with an irregular asymmetrically biconvex section. Material is on a dark grey rhyolite tuff (4) and banded rhyolite (1).

Technique:

The preforms indicate that these bifaces were made on a large expanding or "winged" flake with the bulb of percussion along what become one lateral edge of the biface. Initial shaping was accomplised by removal of irregularly spaced, deep expanding flakes. Several have ended in hinge fractures near the margins. The complete form exhibits shallower expanding flaking as secondary treatment over one entire surface and only parts of the other. Here, a series of large primary flakes have hinge fractured leaving a large irregular knob on this surface near one end. Finer marginal retouch occurs sporatically but predominates at the tips. Weights range from 131.2 to 175.0 gms. (154.3).

Dimensions:

L:	W:	Th:
11.83 - 14.65 cm. (12.79)	4.50 - 5.84 cm. (5.33)	1.81 - 3.12 cm. (2.54)

Bipointed - Small

Sample: 1 complete; 5 preforms. Plate 22, b.

Form:

The one complete form has asymmetrically biconvex sides merging into slightly rounded tips at each end. Maximum width is at the mid-point and cross-section is biconvex. The five preforms are extremely asymmetrically biconvex in outline with their tips only roughly formed. Cross sections reflect their incomplete character ranging from plano-convex to asymmetrically biconvex. These exhibit a uniformity in metric attributes which have led to their separation into this category. Material is on a dark grey to slightly reddish rhyolite tuff.

Technique:

All exhibit the bulb of percussion of the original "winged" flake along 1/3 to half of one lateral side. Initial flaking was by large expanding flake removal most of which have ended in hinge fractures, especially those attempting to remove the initial bulb of percussion. These deep expanding flakes tend to leave a wavy or sinuous edge along the margins of these bipointed forms that is only removed by finer secondary retouch. This has only been partially accomplished in the one fairly complete specimen especially at the tips. Complete form weights 83.1 gms.

Dimensions:

L:	7.81 - 9.15 cm. (8.40)	W:	3.50 - 4.44 cm. (3.89)	Th:	1.30 - 2.50 cm. (1.95)

Ovate - Small

Sample: 1 complete; 1 preform. Plate 22, c-d.

Form:

These are markedly convex along the lateral margins which in the complete specimen meets in a sharply defined point. Base outline is also convex. Cross-section is plano-convex in the completed specimen

and asymmetrically biconvex in the preform. Maximum width is at the mid-point and maximum thickness is near the base. Material is dark-grey rhyolite tuff.

Technique:

Both are made on the "winged" flakes previously discussed which in these specimen exhibit their striking platform 1/3 its length from the base. Initial shaping is by deep parallel and expanding flaking that leave a sinuous edge. Attempts to thin the bulb area of the original flake have resulted in a number of hinge fracture scars, even in the more complete specimen. Weights are 70.2 and 82.1 gms.

Dimensions:

L: 6.73, 7.91 cm. W: 4.50, 4.62 cm. Th: 2.28, 2.40 cm.

Stemmed

Sample: 2 fragments. Plate 22, e-f.

Form:

These two basal fragments differ greatly. The first has its stem element with margins contracting to a point. Shoulders are well defined and the blade element has straight and slightly contracting margins. This specimen is on a greenish rhyolite which is unique for the collection. The other has its stem with parallel sides and a rounded base. The one remaining shoulder is distinct but small and the margin of the blade element is straight and probably parallel. Material is dark grey rhyolite. Maximum thickness in both bases is along the longitudinal median ridge.

Technique:

The first is probably a fragment of a finished point. Shallow expanding flakes terminate along the mid-line, followed by parallel pressure flaking, have completed this specimen. The second appears unfinished and has been formed by shallow expanding flaking. Attempts to thin the margin has resulted in a series of stepped hinge fractures. The base of the stem is whitened possibly from heat treatment. Orientation of the original flake has been obliterated in both specimens.

Dimensions:

L:	5.96 cm. (incomplete)	W:	2.81 cm.	Th:	0.94 cm.
	8.01 cm. (incomplete)		2.54 cm. (estimated)		1.12 cm.

Trianguloid:

Sample: 1. Plate 22, g.

Form:

Lateral sides on this single specimen are straight, converging to a well-defined tip. The base is partly broken but appears to have been convex. Cross-section is plano-convex. Material is dark grey rhyolite.

Technique:

This expanding flake has its striking platform along the lateral side near the base. Flaking is marginal with few flakes spanning the entire surface. These mostly terminate in hinge fractures. Basal thinning is unifacial. Weights is 56.9 gms.

Dimensions:

L: 10.31 cm. W: 3.98 cm. Th: 1.12 cm.

Lanceolate

Sample: 2. Plate 23, a-b.

Form:

Both these specimens are basal fragments. Bases are straight with convex lateral sides. Cross-sections are biconvex. Material is dark grey rhyolite tuff.

Technique:

These two fragments exhibit the finest degree of manufacture for artifacts from this area. Shallow expanding flake removal is the predominant treatment on both surfaces. Basal treatment is marginal from one surface.

Dimensions:

L: 7.62, 8.05 cm. W: 6.54, 6.38 cm. Th: 1.30, 1.04 cm.

Discoid

Sample: 1. Plate 23, c.

Form:

Outline is generally circular with bifacial treatment extending only partially on its surfaces and along 3/4 of its circumference. The remainder exhibits pecking and battering. Cross-section is an irregular biconvex with the battered section having the maximum thickness. Material is dark grey rhyolite tuff.

Technique:

This biface may have been intended as a hand-held chopper with its curvature exhibiting minute marginal hinge fractures. Initial flaking removed a series of expanding flakes leaving a stepped appearance on both faces. Weight is 84.7 gms.

Dimensions:

L: 6.13 cm. W: 5.48 cm. Th: 2.50 cm.

Miscellaneous

Sample: 3 complete; 15 tip-fragments; 1 medial fragment.
Plate 23, d-f. Plate 24, a-j.

Form and Technique:

Two of the complete specimens (Plate 23, d-e) are relatively small, with asymmetrically convex lateral sides, one actually slightly concave. Tips are blunt and almost straight. One has a straight base, the other being irregular where the striking platform of the original flake is located. Shaping is by shallow expanding flake removal with finer sporadic marginal retouch. Weights are 12.6 and 27.5 gms.

The third complete specimen (Plate 23, f) is parallel sided and converges almost to a point. This base retains the striking platform and appears unfinished. The tip is missing. Shaping is by irregular expanding flaking with occasional marginal retouch. Weight is 40.8 gms.

Dimensions:

L: 4.61, 6.45, 9.86 cm. W: 2.80, 3.54, 2.90 cm.
Th: 0.81, 0.95, 1.05 cm.

Form and Technique:

This category also includes fifteen tip fragments (Plate 24, a-e) which exhibit slight to markedly convex lateral sides which meet in a well-defined tip. Dimensions vary indicating a range of finished bifaces. Cross-sections are biconvex. All these points exhibit the finer secondary treatment described previously that has removed the bulk of the sinuous edge and resulted in a thin finished product. The orientation of the original flake is not apparent. Material is a dark grey rhyolite tuff.

Dimensions:

L: 4.32 - 9.56 cm. W: 2.85 - 5.05 cm. Th: 0.70 - 1.50 cm.

Form and Technique:

This remaining fragment (Plate 24, d) is a medial section with straight contracting lateral sides. Cross-section is biconvex and has been finished by a series of secondary expanding flake removal that has left the well-thinned margins. Material is banded rhyolite.

Dimensions:

L: 6.87 cm. W: 3.68 cm. Th: 0.70 cm.

Preforms

Sample: 45 fragments. Plate 24, g-j.

Form:

This category consists of preforms or reject fragments discarded during manufacture. Whole preforms representative of the initial stages of production were not found. The fragments here retain a semblance of this outline and can be divided into the following groups: tips - 12; basal - 8; medial fragments - 8. Seventeen miscellaneous fragments exhibiting bifacial retouch over part of their surfaces are part of this category. Tip fragments (Plate 24, g, i) have from slightly to widely convex sides that converge to a definite but irregular point. Sections are thick, irregular and asymmetrically biconvex. Basal fragments (Plate 24, h, j) have rounded outlines. Larger specimens have convex sides while smaller ones have straight parallel or expanding margins, as do the medial sections. Both groups have asymmetric biconvex outlines.

Technique:

Tip fragments are shaped by large expanding flake removal from the margins,

that leaves a wavy "sinuous" edge. This is a characteristic of all the fragments in this preform category. The orientation of the original flake is revealed only in the basal fragments where four specimens have the striking platform along one lateral side near the base and two others have it at the base itself.

Dimensions:

	Length	Width	Thickness
Tips:	5.60 - 10.35 cm.	2.39 - 5.50 cm.	1.79 - 2.31 cm.
Basal:	4.80 - 6.32 cm.	3.60 - 5.90 cm.	1.30 - 3.62 cm.
Medial:	2.05 - 7.50 cm.	4.00 - 5.31 cm.	1.81 - 1.92 cm.

Uniface Series

Flake

Ovate

Sample: 1. Plate 25, a.

Form:

This ovoid tool has a rounded base with asymmetrically convex lateral sides converging to a rounded tip. Cross-section is biconvex. Material is dark grey rhyolite tuff.

Technique:

This cutting-scraping tool has been formed from a flake with its bulb of percussion at the base near one lateral side. Modification to the ventral surface is restricted to the thinning of this bulb. The dorsal surface has been thinned by the removal of a number of thin parallel and expanding flakes. The edges exhibit continuous marginal retouch. These tend to end in hinge fractures especially at the base. Weight is 88.0 gms.

Dimensions:

L: 9.61 cm. W: 6.95 cm. Th: 1.12 cm.

Miscellaneous

Tip fragments. Sample: 1.

Form:

This fragment has one convex and one straight lateral side ending in a well defined tip. Cross-section is plano-convex and material is dark grey rhyolite tuff.

Technique:

The orientation of the original flake is not revealed in this fragment. The straight side has been trimmed by a series of expanding flakes, most of which have hinge fractured. This edge has an almost serrated appearance. The convex edge has been treated to a series of parallel flake removal that has eliminated the serration. The overall impression is that this fragment is from an incompleted form.

Dimensions:

L: 4.51 cm. W: 5.20 cm. Th: 1.72 cm.

Convex Working Edge

Sample: 3. Plate 25, b-d.

Form:

These specimens are made on large expanding flakes with the working edge at the wide distal end opposite striking platform. This edge is roughly convex and in the first two cases has been modified by a number of flakes removed dorsally to give a bevel of 75 to 62 degrees. This modification has left an irregular outline and is not the unusual finish

expected for end scrapers. Obvious use wear is apparent on only one specimen.

Technique:

The striking platforms are prominent and rounded exhibiting previous battering prior to flake detachment. The dorsal surfaces exhibit scars of prior flake detachment from the core, which in one end scraper, has left a single longitudinal median ridge. Lateral edges exhibit bifacial marginal retouch. The third specimen is on a stemmed-expanding flake with the ventral surface of the wide distal edge marginally retouched to form an irregular convex working edge. Neither the lateral side nor the stem area has been modified. The dorsal surface exhibits scars of previous flake removal from the core. The basal-platform is flat with no battering or grinding. Height of scraping edge is from .59 to 2.00 cm. (1.23). Weights range from 27.8 to 73.0 gms. (54.4).

Dimensions:

L: 7.45, 6.92, 5.65 cm. W: 6.72, 5.48, 5.42 cm.
Th: 1.83, 1.60, 1.24 cm.

Straight Working Edge

Sample: 11. Plate 25, e-f.

Form and Technique:

These present a single straight retouched margin along either a lateral (7) or distal (2) end. Retouch is continuous, 4.60 - 11.35 cm. along the margins and the bevel ranges from 35 to 50 degrees. One is based on a preform fragment, the others on flakes: five parallel, one expanding, three amorphous and two undetermined. This retouch in three specimens has left a serrated working edge. Use wear is evident on five specimens. Height of working edge is from .21 to .50 cm. (.35). Weights range from 47.1 to 202.1 gms. (88.2).

Dimensions:

L: 4.40 - 12.35 cm. (8.3) W: 3.91 - 7.32 cm. (4.89) Th: 0.74 - 2.02 cm. (1.32)

Blades

End of Blade Scraper

Sample: 1. Plate 26, a.

Form:

Dorsal retouch forms a semi-circular scraping edge at the distal end. This forms a working bevel of 65° and use wear is evident. The dorsal surface has two arris along its length. Marginal retouch extends discontinuously along one lateral side. Material is dark grey rhyolite tuff.

Technique:

This is probably a medial section. Curvation is slight in longitudinal section, thickness is uniform and traces of the striking platform and bulb of percussion are absent. The dorsal scar of a previously removed blade has a maximum width of 1.35 cm. The scraping edge exhibits fine parallel flaking from the ventral edge terminating at this top blade scar. Height of scraping edge is .61 cm. Weight is 13.4 gms.

Dimensions:

L: 5.46 cm. W: 2.15 cm. Th: 0.62 cm.

Retouched Blades

Sample: 2. Plate 26, b-c.

Form and Technique:

The first is a large complete blade. Two arris span the entire length and represent the prior removal of four blades. One is located along the left margin. The other runs as a longitudinal medial ridge formed by three previously removed blades, one on the left, two on the

right. On this right side a previous blade has hinge fractured mid-length. The striking platform exhibits extensive battering and forms an angle of 95^{o} with the dorsal surface. Longitudinal section has a wide curvature. Retouch occurs distally in the form of a single large flake removed dorsally and subsequent dorsal and ventral marginal retouch. Marginal retouch occurs ventrally along the right lateral side from the striking platform to mid-length and again discontinuously to the distal end. Material is dark grey rhyolite tuff. Weight is 60.0 gms.

Dimensions:

L: 13.70 cm.	W: 1.97 cm. (below striking platform)	Th: 0.80 cm. (below striking platform)
	3.89 cm. (maximum)	1.38 cm. (maximum)

Form and Technique:

This specimen (Plate 26, c) is a distal fragment which has terminated in a hinge fracture. Two arris run longitudinally along its entire length. The width of the top blade scar is 11 mm. maximum. Modification occurs solely on the ventral surface along both lateral sides in the form of very fine discontinuous retouch. At the distal end one corner exhibits extensive retouch. Material is reddish brown chert. Weight is 11.8 gms.

Dimensions:

L: 5.42 cm. W: 2.15 cm. Th: 0.60 cm.

Blade

Plain

Sample: 1. Plate 26, d.

Form and Technique:

This complete specimen has two arris with the width of the top blade being 11 mm. The striking platform exhibits extensive battering

with the angle between this and the dorsal surface being 115 degrees. Material is dark grey rhyolite tuff. Weight is 6.5 gms.

Dimensions:

L: 5.10 cm. W: 1.69 cm. Th: 0.49 cm.

Blade-like Flakes

Sample: 2. Plates 26, e-f.

Form and Technique:

All three specimens have triangular sections formed by the single dorsal arris. The first is complete with one lateral edge being finely serrated from the dorsal surface. The opposite edge exhibits sporatic serration and use wear. The striking platform has been battered and forms an 85^{0} angle with the dorsal surface. Weight is 2.7 gms.

The second is a proximal fragment with extensive retouch along one lateral side. The battered platform forms an angle of 50^{0} with the dorsal surface. Material in both specimens is dark grey rhyolite tuff. Weight is 7.1 gms.

Dimensions:

L: 4.92, 4.61 cm. W: 1.39, 1.78 cm. Th: 0.76, 0.68 cm.

Ground Stone

Stemmed Point

Sample: 1. Plate 27, a.

Form:

This fragment retains the stemmed base and a portion of the blade element. The basal element is parallel sided with straight base and rectangular in cross-section. The blade has six smooth facets with a

distinct shoulder slightly sloping. The margins are straight contracting with this sharp edges. Material is greenish argillite.

Technique:

The specimen was initially shaped by flaking, then ground obliterating most of the flake scars. It may have originally been made on a thin tabular piece of argillite. Hafting scars are present in the form of thin transverse and diagonal incisions across the juncture of basal and blade elements.

Dimensions:

L: 7.05, 2.25 cm. (stem) W: 2.90 cm. (blade) 2.08 cm. (stem)
Th: 0.62 cm.

Preforms

Sample: 3. Plate 27, b.

Form and Technique:

These fragments were probably preforms for ground-slate points or bayonets. All are based on argillite and have straight parallel or slightly expanding lateral sides, two presenting triangular sections. One of these has been flaked on one surface of the natural cleavage plane. The other differs only in that the interface ridges have been slightly flattened by grinding. The third piece is biconvex with grinding only partly obliterating the initial shaping flake scars.

Dimensions:

L: 6.79 - 12.19 cm. W: 2.40 - 2.82 cm. Th: 1.28 - 1.32 cm.

Abrader

Sample: 1. Plate 27, f.

Form and Technique:

This abrader is subrectangular in outline with margins contracting slightly towards each end. Margins are completely ground smooth and flat. Both faces have been utilized exhibiting shallow grooves. This specimen is based on a thin tabular fragment of micaeous schist that presents a uniform rectangular cross-section. Weight is 102.2 gms.

Dimensions:

L: 16.65 cm. W: 4.60 cm. Th: 0.72 cm.

Miscellaneous

Sample: 7. Plate 27, c-d.

Form and Technique:

Five fragments are flakes from ground argillite pieces. Grinding is present in varying degrees on one or more surfaces. They may represent spalls from preforms or use spalls from finished specimens.

Dimensions for the largest are:

L: 7.83 cm. W: 4.52 cm. Th: 2.81 cm.

The remaining two are large pieces, fairly complete but of unknown function. The first (Plate 27, c) is a tabular rectangular fragment on dark grey slate. One surface is entirely ground smooth, the other entirely chipped from the edges to a fairly flat surface. Three of the thin sharp margins have been dulled by grinding. Cross-section is rectangular.

Dimensions:

L: 9.81 cm. W: 7.40 cm. Th: 1.00 cm.

The second is a thick rectangular piece with battering present at both ends. Roughly rectangular in cross-section, shaping has been accomplished by chipping and subsequent grinding especially on both surfaces. Material is greenish argillite.

Dimensions:

L: 12.24 cm. W: 5.06 cm. Th: 2.71 cm.

Miscellaneous

Blade Core

Sample: 1. Plate 27, e.

Form:

This tapered fragment is possibly a remnant of a blade core. The top platform is missing but with its oval cross-section and the presence of blade scars on all its faces, it may originally had been a conical or cylindrical core. Material is dark grey rhyolite tuff.

Technique:

This specimens retains the scars formed by the removal of parallel, linear flakes or blades from its entire periphery. Most span its entire length but a few have ended in large hinge fractures. The width of the largest blade indicated by these scars is 2.18 cm.

Dimensions:

L: 9.85 cm. W: 5.93 cm. Th: 3.96 cm.

Flakes and Fragments

Sample: 1626.

Chipping detritus was found throughout the cultural layer 2.

Material was almost exclusively dark grey rhyolite, 90%, with the banded varieties of rhyolite accounting for only 10%.

Hammerstone

Sample: 3. Plate 26, h-i.

Form and Technique:

These rounded oval cobbles have as their only modification two flattened battered areas at opposing ends to one another. One is also pitted along one side joining these two areas. The two basalt hammerstones have lenticular cross-sections and a number of flakes have been removed during use from the edges of the battered area. The third is a granitic cobble with oval cross-section. Battering is minimal and this specimen may have also served as a cooking stone.

Dimensions:

L:	5.11 - 6.00 cm. (5.61)	W:	3.72 - 5.95 cm. (4.65)	Th:	2.30 - 3.71 cm. (3.12)

Wt: 61.0 - 156.5 gm. (75.6)

Quartz Crystal

Sample: 1. Plate 26, g.

Form:

This natural six-sided crystal has been battered at its tip perhaps from use as an engraving tool or in a fire-making kit. One side is stained with red ochre.

Dimensions:

L:	4.31 cm.	W:	1.70 cm.	Th:	1.53 cm.

CHAPTER 5

COMPONENT SUMMARIES, CHRONOLOGY AND COMPARISONS

Maritime Archaic Component

Two Archaic components are represented in the two stratigraphically separate occupation layers. In Cultural Layer 2 the entire assemblage of 122 artifacts and 1616 flakes pertain to this tradition. A dark-grey rhyolite tuff is the predominate (81.1%) material with light-grey, banded rhyolite (3.2%) and argillite-slate (9.0%) as the major secondary types. No trace of Ramah chert or quartzite either as an artifact or in the hundreds of flakes appears. The use of fine quality chert is restricted to one artifact.

The chipped stone industry is represented by bipointed, ovate, stemmed, triangular and discoid bifaces. The stemmed and triangular forms probably served as large projectiles while the others performed a variety of cutting/scraping functions as large knives. Flake scrapers tend to be made on large somewhat massive, expanding flakes with retouch usually along one lateral edge. A formal flake end scraper category is not present. The three unifaces with a convex working edge are crudely fashioned lacking the characteristic flaking and finish associated with these scrapers.

The technology utilized for these bifacial and unifacial forms is characterized by the use of large thick expanding flakes as the primary tool blank. In the biface series, the striking platform of the flake blank is usually found along one side of the artifact near the mid-point.

The large number of preforms and fragments indicate that primary flaking is accomplished by alternating deep expanding flake removal from along the margins leaving a sinuous edge. Secondary flaking removes this characteristic usually by shallow expanding and irregular flake removal.

Part of the uniface series is represented by macroblades from a blade-core industry that is definitely part of this assemblage. Blades are characterized by multiple arris which indicate successive blade removal. Those with a single arris are considered part of this industry but retain the cautious label of blade-like flakes. Only two specimens are complete with lengths of 5.10 and 13.70 cms. Mean width for all blades is 1.99 cms. These tend to be retouched, with one being an end of blade scraper. In fact, this is the sole representative of a formal end scraper in this component. A total of four blades and two blade-like flakes came from this layer. During the following field season in 1973 eleven more blades and five blade-like flakes were added to this component supporting the identification of this industry.

Only one possible blade core fragment was located. This does not retain its top striking platform however. This specimen exhibits the scars of previously removed blades along its circumference.

The ground stone industry based on argillite-slate is present in small amounts. The sample includes one ground slate stemmed point fragment with flattened hexagonal blade cross section and square stem. A number of miscellaneous fragments with grinding on at least one surface represents fractures during manufacture or utilization. The one abrader is somewhat elaborate being made on a soft micaeous schist with margins ground flat and uniformly tapered at both ends. The preforms indicate that blanks tend to be tabular argillite pieces with outlines approximating the shape of the intended tool.

In Cultural Layer I the 215 artifacts and an undeterminable amount of chipping debris are based predominately on banded rhyolite (81.3%) while the dark rhyolite tuff which characterizes layer 2 accounts for only 3.2%. The use of Ramah chert or quartzite cannot be attributed to this occupation.

The lithic assemblage indicates that in this component we are dealing with the cultural descendants of those groups in Layer 2. Chipped stone forms are identical in the bipointed, triangular ovate and lanceolate bifaces. New styles of stemmed bifaces are represented in the small points with contracting stems. While these continue the contracting stem tradition known for Maritime Archaic, the large, broad bladed points with slightly expanding stems are entirely new. This component also includes a wider range of flake knives - side-notched, lanceolate and stemmed. Retouched flakes constitute the majority of the flake unifaces. These are similar to those in Cultural Layer 2 in that they are based on large expanding flakes with retouch along one straight lateral margin. Both concave and irregular retouched flakes appear in this stratum. How many of the smaller retouched flakes listed in Undetermined Category constitute part of this Archaic horizon is difficult to assess till more pure components at the same temporal level are available.

A blade-core industry is also present in this occupational stratum. The sample of seven blades and fifteen blade-like flakes is larger but at the same time the total Archaic assemblage in this layer is also almost double. The overall impression is one of cruder, poorer quality blades. While this may be a reflection of the use of a coarser grained banded rhyolite it should be remembered that technological control over this material was accomplished by the Dorset people in their microblade industry.

The ground stone industry is well represented by numerous celts with both symmetrically and asymmetrically ground bits, and gouges. A wide variety of abraders are undoubtedly part of this assemblage but the large number of these culturally indistinguishable forms in this mixed horizon are listed in the undetermined group.

A chronology for these two separate components is based on three radiocarbon dates. In Cultural Layer 2 two separate pockets of charcoal, features 1 and 2, produced dates of 2950±250 B.C. and 1740±100 B.C. A third sample obtained from the 1973 excavations of this occupation layer produced a date of 1890±100 B.C. (I-7509). These dates if accurate reflect a maximum occupational span of 1500 years. In Cultural Layer 1 no dates are available for the Archaic occupation. Considering the dates for the lower component a guess date of 1500 B.C. as the initial Archaic inhabitation of this area of the Beaches is possible. The termination of this occupation may be just prior to early Dorset penetration into Bonavista Bay.

Comparison of the Beaches components with other Maritime Archaic sites reveals mostly disimilarities with only a few shared traits. The ground stone industry illustrates its shared characteristic with this tradition. In Newfoundland both the Port au Choix (Tuck 1970, 1971a) and Twillingate (MacLeod 1967) cemeteries contain numerous celts and gouges comparable to the small Beaches sample. The ground slate point from Cultural Layer 2 shares its morphological attributes with those from the earliest burials at Locus II at Port au Choix dated 2340±110 B.C. Those from Twillingate have a flattened diamond or biconvex cross-section and a narrow contracting stem. The Beaches specimen and those from Locus II have a flattened hexagonal cross section and broad square stem.

The chipped stone industry represented at Port au Choix is small consisting of two points neither of which is positively attributed to these people. The Twillingate burials contain many shared forms. These include large bipoints, basal section of a lanceolate biface, contracting stemmed points, large biface tip fragments, small stemmed flake points, expanding stemmed points, and side notched flake knives. The last three traits are unique to Cultural Layer 1 at the Beaches while the large contracting stemmed point is found solely in Cultural Layer 2. Moreover eight of these Twillingate specimens are based on light grey banded rhyolite, the predominate material in Cultural Layer 1. The remainder are based on Ramah chert, black chert and slate. Three dates from Twillingate range from 1770 to 1250 B.C. A fourth date of 4970 B.C. was considered unacceptable.

Both the radiocarbon dates and the use of this distinctive raw material appears to indicate that the utilization of the Twillingate cemetery occurred during a temporal period that spans a portion of both the occupational horizons at the Beaches.

This distinctive banded rhyolite is the sole material used for the chipped stone industry at the Archaic component at the Pittman site, White Bay (Devereux 1969). The sixty-two chipped stone specimens are exact duplicates of the Beaches sample: bipoints both large and small, oval bifaces, large biface tip fragments, numerous preform fragments, an expanding stem point fragment and large retouched flakes. The few "ridge flakes" appears to be similar to the parallel sided, single arris blade-like flakes from the Beaches. These may attest to the presence of a Blade-Core industry at this site. The ground stone forms include axes, adzes and gouges. One ground slate point with flattened hexagonal cross-section and tapered stem is reported from subsequent excavation (Linnamae,

personal communication). This component occurred as a separate occupation layer stratigraphically beneath a Dorset component. No date is available for this Archaic occupation but the use of this identical raw material would seem to equate it with Cultural Layer 1 at the Beaches.

Whether the utilization of this distinctive banded rhyolite is a reflection of its wide geographic availability or represented an actual cultural preference and possible time-marker for Maritime Archaic groups along the northeast coast of Newfoundland remains for future consideration. In this regard Fitzhugh (n.d.) notes the use of a rhyolitic raw material in his Black Island complex which he feels is intrusive in his Labrador sequence and indicates affiliations with Newfoundland and southern Labrador. This alien material is accompanied by new point styles, "corner-notched" and "side-notched", and a number of scraper and biface forms.

At the Twillingate habitation sites, DjAq-4 and DjAq-5, few similarities are to be found. Artifactual remains are predominately based on argillite-slate, and finished forms reflect predominately the ground stone industry. The axes, adzes and gouges find their counterparts with those from the Beaches and other Maritime Archaic sites. The ground slate points are identical to those from the nearby cemetery and not to the one specimen from the Beaches. A high frequency of sandstone abraders accompanies this ground stone industry. Chipped stone artifacts are restricted to a few small contracting stem points and a few biface fragments based on chert. The predominance of this ground stone industry, restricted artifact assemblage and their localized distribution on these sites indicates a less intensive occupation as compared to the Beaches.

In southern Labrador these radiocarbon dates in the third and fourth millenium B.C. (Happ and Hughes 1968: 44) probably indicate an early or Middle Archaic occupation in this area. However no diagnostic

artifacts are associated. While a number of artifacts from Harp's (1964b) investigations bear similarities to the Beaches sample none appear to be from pure components. The most interesting comparison is with those blades and blade-like flakes from Blanc Sablon 1 (Plate 1, j) and Forteau Bay-3 (Plate V, n). However their small size and the apparent mixed nature of these components makes their identification as Archaic dubious. Recent investigations here have revealed a number of promising Archaic sites. A small surface collection of associated artifacts from Forteau Bay includes bifaces, expanding stem points and a large blade (single arris) of banded rhyolite (Tuck - personal communication). The latter is identical to those from the upper occupation layer at the Beaches.

The northern Labrador Saglek sequence provides little comparison in the stemmed flake knives, large stemmed points, and micropoints. The ground stone industry is represented only by fragments of slate points and knives.

In central Labrador both the Sandy Cove complex (3550-2750 B.C.) and the Rattler's Bight phase (2150-1750 B.C.) contain few specific traits comparable to the Beaches components. While the ground-stone industry compares in general form this is not the predominate tool industry present at any of these sites. The chipped stone industry which accounts for most of the assemblages in these Labrador components reflects predominately the contracting stem point tradition. Although a wide range of points, flake points and micropoints are present, none equate exactly with the Beaches' specimens. Regional and temporal variation probably accounts for this, as all but two of those from the Beaches are associated with Cultural Layer 1, having a much later temporal position.

These Labrador components lack or have in only small amounts the large biface forms that are the predominate chipped stone tool at the Beaches. Completely absent to date is any trace of the Blade-Core industry. While the Sandy Cove complex mostly predates the earliest Archaic component at the Beaches, the Rattler's Bight component seems to equate within the temporal span of Cultural Layer 2. Both the Rattler's Bight and the lower Beaches' component lack any formal flake end scrapers, the one end scraper from this Beaches component being based on a blade.

These two components probably represent very similar subsistence settlement systems (Interior-Maritime). The Rattler's Bight 1, type site for this phase, is interpreted as a large major summer base. Intensive occupation by a large number of people specializing in exploiting the marine resources is indicated. Cultural Layer 2 at the Beaches also reveals a large intensive occupation with a wide range of camp activities. Exploitation was probably based on the abundant sea mammals and coastal resources offered by this marine environment. This layer represents a major habitation site for a number of Archaic family groups during any one year. Exploitation probably occurred from spring to late fall to utilize the resource potential to its maximum. Cultural Layer 1 pertains to a later time period but at its inception it probably was similar in its economic base and group size. Through time, the number of groups using the site probably declined, and it was eventually abandoned.

Dorset Component

Two general periods of Dorset occupation were discerned for this site. The first is early indicated solely by two, and possibly three, artifacts considered time-sensitive indicators. One of these, a burin (Plate 16, h) is side-notched with grinding only on the upper surfaces.

It retains the scars of three successive burin blows. This burin is similar to one obtained from Ticoralak 2 (Fitzhugh 1972; Plate 64, d) where it is part of an assemblage dating 740±140 B.C. Similar "burin-like tools" have been found at East Pompey Island 1 dated 570±160 B.C. These burins have also occurred from recent excavations at Norris Point, Bonne Bay (Tuck - personal communication) and at the Pittman site, White Bay (Linnamae 1973). They may mark an evolutionary stage between the true pre-Dorset burins and the chipped and ground "burin-like implements" common for the late Newfoundland Dorset.

The "box-based" side-notched end blade (Plate 12, o) with a distinctive plano-convex cross-section is the second artifact reflecting an early occupation. This is identical to one illustrated for Ticoralak 3 (Fitzhugh 1972; Plate 66, c) dated 390±140 B.C. The Beaches specimen is not ground and in that respect is similar to those side-notched plano-convex points from East Pompey Island I (ibid.; Plate 82, a-c) and perhaps those from Ticoralak 5 (ibid.; Plate 68, a-b). This latter site is dated 450±160 B.C.

The third specimen, a multiple side-notched end blade is considered an early trait (Linnamae 1973: Table 3) and is present in the early sequence at Saglek (Tuck 1973a). The one example from the Beaches is somewhat atypical differing considerably in metric attributes. However it is ground along the narrow ridge of its convex surface and in this respect is similar to those from Cape Ray.

While these artifacts indicate an affinity to the early Groswater Dorset phase, dated 740±140 to 250±120 B.C., the Beaches provided no radiocarbon dates for this early component. Evidence to support this interpretation of an early Dorset stage in insular Newfoundland is indicated by only a handful of dates, widely varying and admittedly difficult to interpret.

At Port au Choix-2, an occupation towards the beginning of the first millenium B.C. is indicated (Table 13). These two samples are based on charred fat and sand. Given a correction factor of 200 advanced years (Harp 1973: 8), the first sample remains at 144 B.C. This date remains unique for this site and probably reflects a single pioneer household (ibid.:9). In White Bay, the Pittman site produced a date of 830±100 B.C. based on charcoal (Linnamae 1973: 78). However, only one artifact, a burin, ground with vague side-notches and similar to that described for the Beaches reflects this early occupation. Two other dates of A.D. 610 and A.D. 170 probably accurately reflect the site's major occupation. At Cape Ray a date of 420±85 B.C. (ibid.) based on charcoal is outstanding compared to the three other dates in the first half of the first millenium A.D. The final date, 290±210 B.C. based on charcoal, came from Long Island Neck, Placentia Bay. The artifactual sample was small and again none indicated a particularly early time period to support this date.

These few dates and the even fewer time-sensitive artifacts reflect what will probably be a growing body of evidence that indicates the presence of a Dorset population in insular Newfoundland during this early period. These pioneer and probably widely scattered groups apparently reached the southcoast and Placentia Bay by 290 B.C. It is possible then that the Beaches site was occupied at least one hundred years earlier, that is, as early as 400 B.C.

The remainder of the Dorset lithic collection pertains to the middle Dorset period of A.D. 100 to 600. Sites of this period are typical for Newfoundland Dorset. At Port au Choix-2 charcoal dates from eleven housepits average A.D. 370±13 with a central range from A.D. 214 to 629 (Wilmeth 1969). Both the Pittman and Cape Ray Light sites produced dates

TABLE 13

EARLY DORSET DATES FROM INSULAR NEWFOUNDLAND

Port au Choix-2	344±51 B.C.	P-732, House 15 Charred fat and sand
	36±51 B.C.	P-678A, House 6 Charred fat and sand
Pittman	830±100 B.C.	Charcoal
Cape Ray	420± 85 B.C.	Gx-1199, Charcoal
Long Island Neck	290±210 B.C.	NMC-444, Charcoal

indicating that their major occupations are in the first half of the first millenium B.C. In addition, the New Grove and Bordeaux-2 sites from Placentia Bay produced dates of A.D. 220±80 and A.D. 860±90 (Linnamae 1973: 79) the latter being unusually late. The Woodworth site, Notre Dame Bay produced a date of A.D. 270 (Devereux - personal communication) and at Englee on the Great Northern Peninsula, the occupation is dated at A.D. 365±95 (Tuck - personal communication). At the Beaches a single date from Feature 1 gave a date of A.D. 300±95 (SI-1383). In addition a date of A.D. 1 on charcoal was obtained from Cultural Layer 1 in 1967 (Devereux - personal communication). This bridges the temporal gap between the hypothesized early Dorset and the later main Dorset occupation.

The remaining artifactual assemblage verifies that the main Dorset occupation occurred during this later period. This sample of 346 artifacts has been divided into seven categories. These are mostly based on a light grey, banded rhyolite (62.4%) although a preference for fine grained cherts, quartz and quartzites is indicated in the high, 27.7%, total.

Tip-fluted end blades, a typical trait in Newfoundland sites occurring in high frequencies, is the predominate form at this site. They are

conspicuously absent in the Groswater Dorset phase but present in the Saglek Bay sequence. In fact, the northern Labrador sites bear a greater similarity to the Newfoundland Dorset than the Groswater Bay series. As Fitzhugh (1972: 126) notes, his early sequence does not appear ancestral to the later Newfoundland Dorset.

The late period in Saglek Bay is marked by the presence of a thinning technique whereby a single flat flake is removed from the entire ventral surface of the end blade. This technique is present in only one Beaches specimen and at Port au Choix-2 (no frequencies given) where they are described as "flat or featureless" (Harp 1964a: 36).

Triangular and leaf-shaped knives at Port au Choix-2 (ibid.: 43) appear to be preforms for triangular end blades similar to those described at the Beaches. At least one (Plate IV, 7) appears to have undergone tip-fluting. The side-notched points (ibid.: 40) account for a greater frequency and variations although the lanceolate forms find their counterparts in at least one identical form at the Beaches.

Other typical Dorset traits present at the Beaches include asymmetric side-notched knives; triangular, snubnosed and flared end scrapers; burin-like implements; flat-bladed chisels; ground triangular end blades; flake knives; rectangular and rounded soapstone vessels. Microblades and blades are part of these traits. These are based on both fine-grained cherts and a coarser banded rhyolite. Technological control over both these raw materials is indicated in the comparable metric attributes of microblades based on these. Stemmed or tanged microblades are unique in that both the Beaches and Port au Choix samples (ibid.: 50) are based on clear quartz and are retouched at the proximal ends. Tanged microblades are also of minor occurance at Cape Ray and the Pittman sites. These were probably hafted as a knife and McGhee (1970: 96) reports experimenting

successfully on soft wood utilizing their slightly curved lateral edge. Conspicuously absent from the Beaches sample are the concave-edged knife or scraper and biconvex side blades.

Sixteen traits are listed by Linnamae (1973: Table 4) as distinguishing the Newfoundland Dorset assemblages. Only one is definitely present in the Beaches Dorset component, the large flat and thin rectangular knife. This trait also occurs at both Cape Ray and Port au Choix-2 sites. A second trait, that of rectangular soapstone vessels with one wall sloping eight to fifteen degrees more than the other three walls, may be present at the Beaches. However the fragmentary nature of the two rectangular vessels in this sample precludes positive identification.

These tools reflect a wide range of activities which indicate a division of labour with various domestic, hunting, food processing and maintenance tasks. The spatial distribution of these artifact classes does not however reveal discrete clustering for any of these activities or even the location and nature of occupational units present. Size and social composition are not known although they probably do not deviate from the family and extended family units suggested from Port au Choix-2 (Harp 1973). The exact number of households present at one time is equally obscure. The present area of excavation did not delimit the boundaries of their occupation but all indications are that this was a major habitation site occupied by several family units during the first half of the first millenium A.D. The earlier occupation as represented by the few time-sensitive artifacts certainly represents the initial movement of these people in this area and this population movement probably consisted of no more than a few pioneer families in Bonavista Bay before the main population advance in the early centuries A.D.

Evidence for subsistence activities of these people is based on very few tangible results. All or some of the sealbones may pertain to these people and which indicate a spring and summer occupation. Understanding of the ecological situation in the area of Bonavista Bay suggests that marine mammal exploitation was the primary consideration for these people and optimal utilization of these resources further suggests a continued occupation till late fall.

Winter subsistence is probably based primarily on the caribou. In Bonavista Bay, deep interior penetration to this terrestrial resource is necessary and probably facilitated by the use of the Terra Nova and Gambo rivers. While interior winter sites are not yet identified along these rivers, a Dorset component has been located well into the interior along the Exploits River at what is probably a caribou crossing. European metal artifacts probably related to a historic Beothuk component also occurs at this Pope's Point site near Badger (Devereux - personal communication) and the mixed nature of the assemblages obscures the cultural affiliation of the rectangular twelve by sixteen feet housepit present.

The particular geographic setting and ecological distribution of terrestrial resources in Bonavista Bay would necessitate, then, a major seasonal movement for winter caribou exploitation. In this regard it differs from the Modified-Maritime system established for Groswater Bay Dorset phase (Fitzhugh 1972). Here caribou hunting was a necessary secondary source of food but the caribou were available near the coastal environment. This enabled the establishment of large winter settlements with small hunting groups which were sufficient to exploit the relatively close and dispersed woodland caribou. In Bonavista Bay both the deep interior locale and nature of large congregating herds meant a regional adjustment of the subsistence-settlement pattern to this particular geographic environment.

Beothuck Component

This component is represented on the basis of six corner-notched points (Plate 18, 1-q). These are identical to one described for a prehistoric Beothuck component at the Indian Point site (Devereux 1970: 44; Fig. 9b). A single date of A.D. 1595±100 (I-6562) may accurately date all or part of this Indian Point component. Similar points are described from Big Island I site, part of the Point Revenge Complex, circa A.D. 1100 (Fitzhugh 1972: 127; Plate 70 a-d). An interior site associated with this complex is the Henry Blake 1 site which produced a large corner-notched biface, fragments and scrapers all of Ramah chert. A date of A.D. 1055± 105 was obtained from mammalian bone in the hearth of this site. Fitzhugh (ibid.: 127) further envisions relationships with corner-notched points from Blanc Sablon 4 dated at A.D. 690±46 (P-686) and that they perhaps belong to a "single cultural tradition beginning in Labrador about A.D. 500 after the termination of the North West River Shield Archaic and lasting into historic Montagnais-Naskapi." In Newfoundland the Point Revenge people are postulated to follow the Dorset occupation to become those people known in historic times as Beothucks (ibid.: 193).

The presence of these small corner-notched points in Newfoundland and Prince Edward Island (Tuck - personal communication) would seem to extend Fitzhugh's complex to encompass a wider maritime area. This complex may be part of a larger cultural unit perhaps a widespread proto-Algonkian horizon that is the basis for the common cultural heritage for the Algonkian groups in the Maritime-Gulf of St. Lawrence area.

Perhaps the earlier aspects of this proto-Algonkian horizon are to be found in the southern environs of this maritime area culminating in an extension into Labrador-Newfoundland after Dorset times. The few radiocarbon

dates would seem to trace this movement. In southern Labrador these range from 124±50 B.C. to A.D. 850±46 (Harp and Hughes 1968: 44) while in central Labrador the Point Revenge complex is temporally later dating circa A.D. 1100.

Insular Newfoundland may have experienced this cultural movement from two different areas: southern Labrador across the Strait of Belle Isle, and Nova Scotia-Cape Breton across the Cabot Strait. Which was temporally earlier and culminated in the historic Beothucks remains to be resolved. Certainly the Dorset occupation was a factor in any Indian penetration. If the late A.D. 860±90 date (Linnamae 1973: 79) from Placentia Bay is valid then the possibility of co-habitation of these two cultures on the island is a distinct possibility.

The subsistence-settlement system for the Point Revenge people is basically one of interior winter hunting and summer coastal hunting and fishing (Modified-Interior system). Although no seal remains are yet identified it is probable that this species was included in the coastal subsistence pattern. If this complex is part of an early Algonkian horizon then an increasing reliance on a marine oriented economy is expected.

Beothuck settlement patterns as based on ethnographic accounts (Howley 1915) and archaeological reconstruction (Devereux 1970: LeBlanc, 1973) follows this coastal-interior dichotomy. Coastal occupations are definitely associated with specific marine mammal exploitation but also extends to other coastal resources. Species recovered from housepit 4 on the northern half of the Beaches site include juvenile and adult harp, harbour seal, polar bear and unidentified avian species (Devereux 1969). An early spring to late fall occupation is interpreted at this housepit. The small collection of seal bones from Cultural Layer 1 may be the result of economic activities by these people.

Beothuck housepits at this site are circular, ranging from twelve to twenty-three feet in diameter, each containing a central hearth. This circular semi-subterranean type may represent the coastal style of shelter utilized by these people. In the present sample of six points, five cluster in two distinct areas and the last is associated with a small occupational stratum over a restricted area. These may represent discrete habitation areas but nothing approximating the Beothuck semi-subterranean dwellings is indicated.

The importance of the Beaches locale in Beothuck settlement patterns is indicated by Lloyd's (1875) account of the bar before its extensive erosion. He lists two rows of housepits across the bar with a total of nineteen circular pits. While we can only speculate on the community patterns at the site we can expect that household and maintenance activities would include a wide range of tools. Some of these may be included in the stemmed and side-notched points, flake side scrapers, hammerstones, etc., whose cultural affiliation remain undetermined. Future research in Beothuck archaeology may establish that these points, especially the side-notched examples, are within the technological range of these Beothuck hunters.

CHAPTER 6

CONCLUSIONS

The Beaches site, DeAk-1, was a habitation site for a number of different cultural groups. Evidence in the form of lithic artifacts were identified in Cultural Layer 1 as pertaining to Maritime Archaic, Dorset and Beothuck groups. In the stratigraphically distinct Cultural Layer 2 the artifacts were entirely Maritime Archaic. Three radiocarbon dates for this lower layer range from 2950-1740 B.C. Initial occupation in the upper layer is estimated to commence circa 1500 B.C. and terminates in Beothuck times.

For the Maritime Archaic group at the Beaches no artifactual sequence can be established to parallel the temporal framework established by these radiocarbon dates. Only a few general trends are observed.

The artifactual assemblage is predominately based on a biface series - the bipointed, ovate, triangular, and lanceolate forms. These are present throughout the sequence established by the two cultural layers. Bipoints tend to decrease in size through time. The large bipoints in Cultural Layer 2 may be part of the earliest occupation circa 3000 B.C. and possibly earlier. Evidence to support the contention (Wright - personal communication) that bipoints are the precursors of the stem point style and tradition that marks the Maritime Archaic is not forthcoming from this site. They may be an integral part of the earliest Maritime Archaic tool assemblages, in the maritime Gulf of St. Lawrence area, as seems the case at Tadoussac. For the Archaic components in Bonavista Bay it appears that the use of

bipoints as a distinct form continued into Late Archaic times paralleling the stemmed point tradition. The use of this biface form as an ideal time-marker is not established for this area in any case.

Stemmed bifaces or points are well established in the temporally late Cultural Layer 1. These are generally small with almost incipient stems in some cases. Slightly expanding stem forms appear in this layer and the two examples with broad stems and wide blades are unique.

A formal category of flake end scrapers is not present in the earlier Bonavista Bay component. In fact this component contained only a single end scraper, this being based on a blade. Flake end scrapers apparently develop through time and are present in Cultural Layer 1. Flake side scrapers are present throughout the sequence here and are based on large expanding flakes.

Macroblades from a blade-core industry are definitely part of the Maritime Archaic components. The origin of this industry is a matter of conjecture but may be derived from some yet undefined Early Archaic - Palaeo Indian base. An alternative is to view the presence of this industry as the result of some trait diffusion from Palaeo-Eskimos along the Labrador coast. These people are recorded at Saglek by 1880 B.C. and farther south at Thalia Point by 1720 B.C. Contact and diffusion is a distinct possibility and Tuck (1973a) speculates as to the diffusion of toggling harpoons found in both Arctic Small Tool and Maritime Archaic traditions. As he notes, the question of Indian-Eskimo contacts has been revived but at a much earlier time level. The third alternative is that of independent invention and may account for its absence in the central and northern Labrador Maritime Archaic sequence.

The temporal depth and origins of this industry are therefore unknown and the three dates from this site do not clarify the problem.

The blade industry persists through time, however, and is part of the Late Archaic Cultural Layer 1 component. These specimens are of minor occurance in the total inventory from this stratum and tend to be cruder in form. It may be that the utility and advantage provided by this tool type lessened through time or was subsumed by other tool forms.

Comparing the Beaches Maritime Archaic components to other sites in the far northeast one is struck by the great diversity and cultural variation present in this tradition. In northern and central Labrador none of the sequences contain many cultural similarities to the Beaches sample. The stemmed point tradition persists as a major theme in these Labrador components while it occurs as a minority trait and mostly in the much later Cultural Layer 1 in the Bonavista Bay site. The ground stone industry serves to unite these but the presence of a blade-core industry is unique and has been positively identified at the Beaches. The greatest similarities are to Newfoundland sites especially to the Archaic component at Sops Island, White Bay. This site shares the large biface forms that predominate in the Beaches' chipped stone assemblage. It may be that this area, at least, formed a uniform cultural unit within the Maritime Archaic continuum.

The Dorset occupation is divided into two general periods. The first is early, possibly as early as 400-300 B.C., and is marked by only a few artifacts considered time-sensitive. Several radiocarbon dates scattered across the island support this suggested early horizon. The bulk of the Dorset assemblage pertains to the middle period which characterizes Newfoundland Dorset assemblage. A date of A.D. 300±95 confirms this association of the Beaches assemblage.

The Beothuck occupation is identified on the basis of six corner-notched points. Similar points are identified with the Point Revenge

complex, circa A.D. 1100, in central Labrador. These points may have their roots in an earlier proto-Algonkian horizon widespread throughout the maritime Gulf of St. Lawrence area. The cultural continuity of this horizon from the Shield Archaic is sketchy at best. In central Labrador there is as yet no trace of continuity from the terminal Shield Archaic to the Point Revenge complex. It may be that the main body of this evolution took place in the more southerly Maritime provinces. Once the transition to a marine economy occurred these proto-Algonkian spread throughout the Gulf area to become the Algonkian speaking tribes of historic times. Movement into Newfoundland probably occurred after the most intensive phase of the Dorset occupation, but they may have initially shared the island with the remnants of these people.

Subsistence-settlement patterns for these various cultural groups are surprisingly similar. Reconstruction is based on ethnographic accounts, the small faunal collection and interpretation of the regional interior and coastal resources. This pattern corresponds closely to Fitzhugh's Interior-Maritime system where there is a specialized marine adaptation. At the Beaches this probably occurred from spring through fall to utilize this potential to its fullest. However instead of a generalized winter adaptation as postulated for central Labrador, the prehistoric hunters in Bonavista Bay probably made use of the large congregating caribou herds of the interior. The large river systems, the Terra Nova and Gambo, probably facilitated travel to the interior barrens.

The regional distribution pattern of resources in Bonavista Bay, then, probably influenced the development of this interior-coastal dichotomy for all these cultures. Coastal resources are most abundant among the outer islands and a spring through fall occupation to maximize their harvest is suggested. The deep interior location of the large

caribou herds during the winter months necessitated an interior movement and settlement. The presence of two major riverine systems was probably a major factor in their accessibility and exploitation. The location of the Beaches site at a point accessible to both river systems and to the marine resources of Bonavista Bay, may explain the popularity of the site as an occupation area over the past 5000 years.

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PLATES

PLATE 1

Maritime Archaic - Cultural Layer 1

a-c Bipointed bifaces

d-g Ovate bifaces

PLATE 1

PLATE 2

Maritime Archaic - Cultural Layer 1

a-b Stemmed bifaces - large

c-j Stemmed bifaces - small

PLATE 2

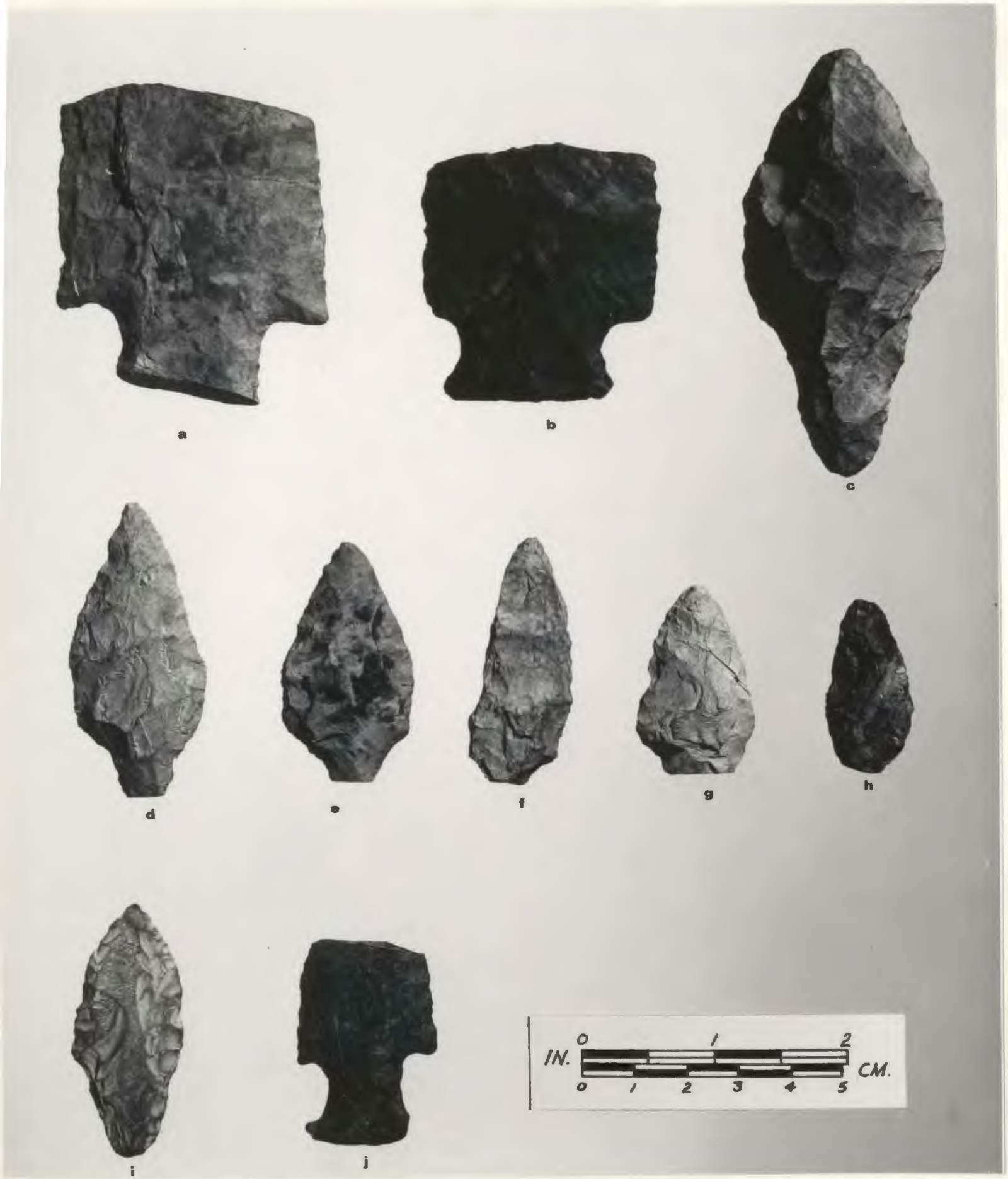


PLATE 3

Maritime Archaic - Cultural Layer 1

a Trianguloid biface

b, c Lanceolate bifaces

d Rectangular biface

e-g Miscellaneous bifaces

PLATE 3

PLATE 4

Maritime Archaic - Cultural Layer 1

a-d Biface tip fragments

e,f Biface medial fragments

PLATE 4

PLATE 5

Maritime Archaic - Cultural Layer 1

a, b Miscellaneous bifaces

c-e Biface preforms

PLATE 5

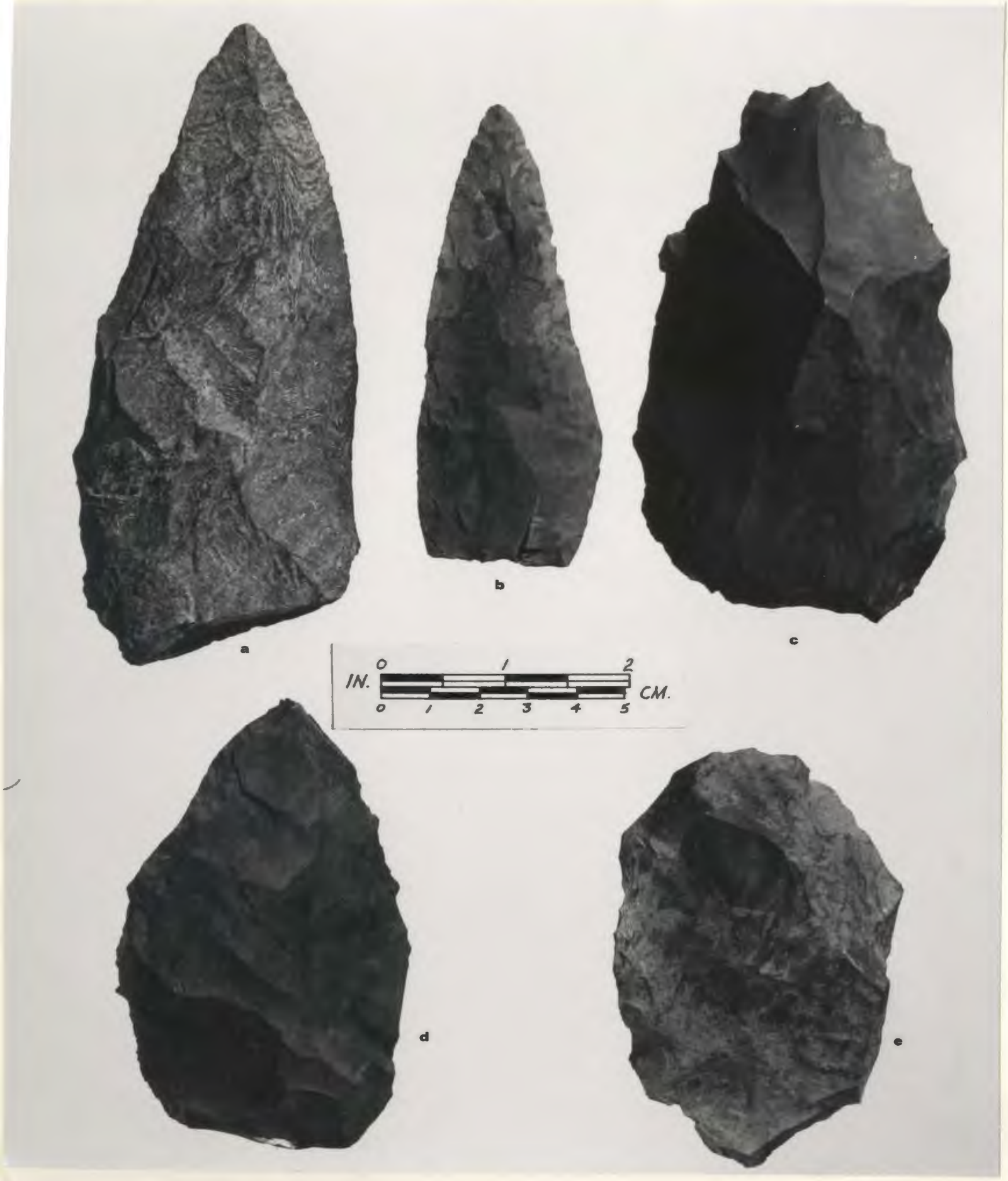
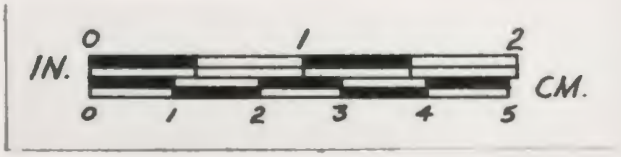


PLATE 6

a

b

c



d

e

PLATE 7

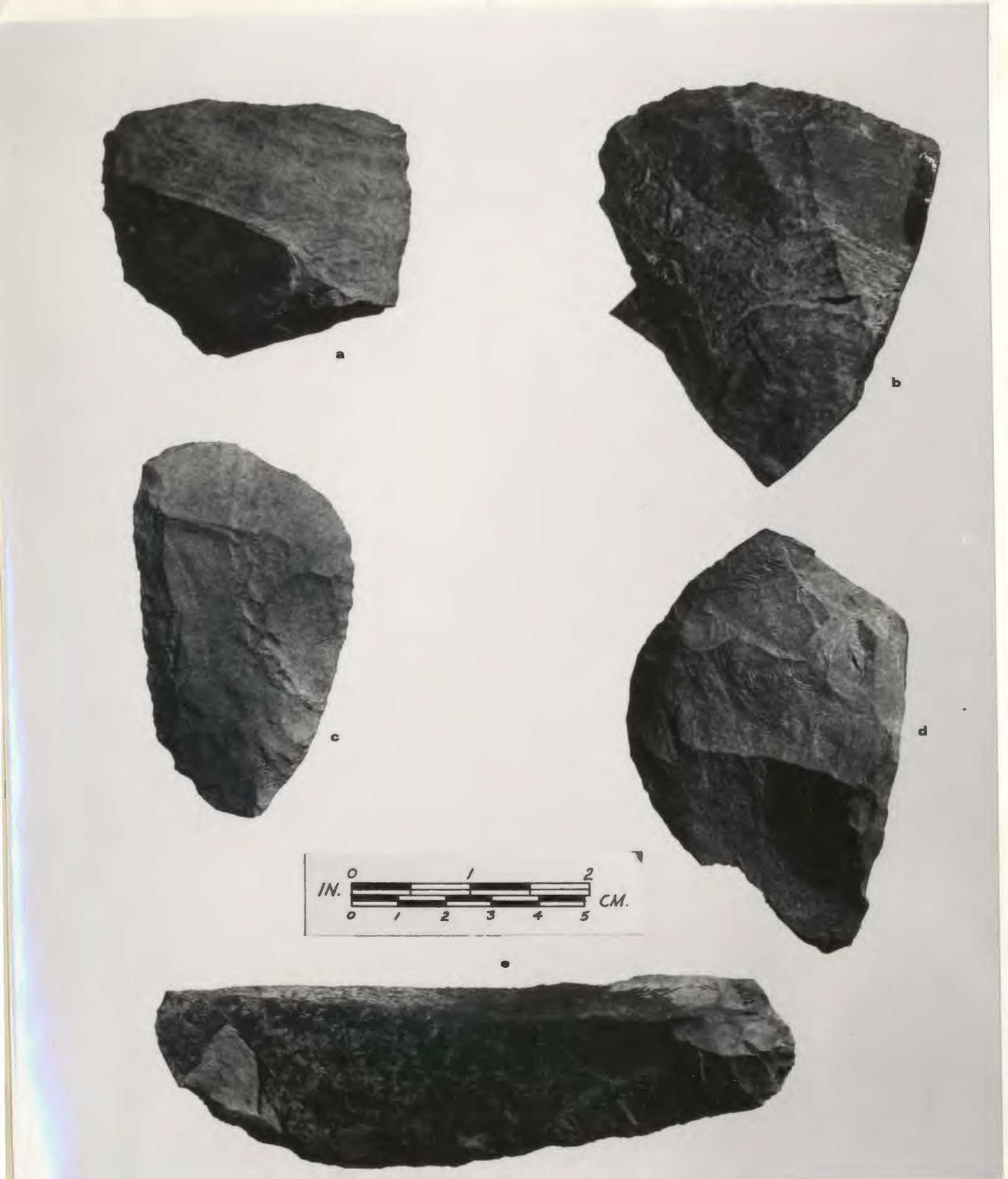


PLATE 8

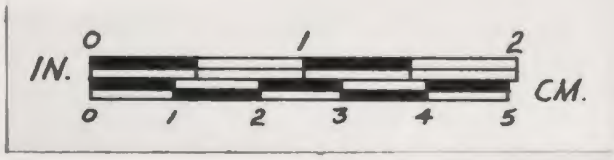
Maritime Archaic - Cultural Layer 1

a-b Uniface, Straight working edge

c Uniface, Concave working edge

PLATE 8

a



b

c

PLATE 9

Maritime Archaic - Cultural Layer 1

a, b Blades, plain

c Blade, retouched

d Blade-like flake, plain

e-g Blade-like flake-retouched

h, i Blade-like flakes, end scrapers

PLATE 9

PLATE 10

Maritime Archaic - Cultural Layer 1

a-d Ground Stone Celts

PLATE 10

PLATE 11

Maritime Archaic - Cultural Layer 1

a Ground Stone Celt

b Ground Stone Gouge

c Gouge-Slip

Maritime Archaic - Cultural Layer 2

d Bipointed biface

PLATE 11

PLATE 12

Dorset Culture - Cultural Layer 1

a-f	Bifacial end blades: Triangular, concave base
g-k	Bifacial end blades: Triangular, straight base
l-n	Bifacial end blades: Side-notched, single
o, p	Bifacial end blades: Side-notched, high, single
q	Bifacial end blades: Side-notched, multiple
r, s	Ground Slate end blades: Triangular
t	Ground Slate flat bevelled edged knife

PLATE 12

PLATE 13

Dorset Culture - Cultural Layer 1

a-l Bifacial end blade preforms

PLATE 13

PLATE 14

Dorset Culture - Cultural Layer 1

a-f Microblades, plain

g-i Microblades, retouched

j, k Microblades, gravers

l, m Microblades, end scrapers

n, o Microblades, stemmed

p-r Blades, retouched

s Blade, side-notched

t, u Blades, end scrapers

PLATE 14

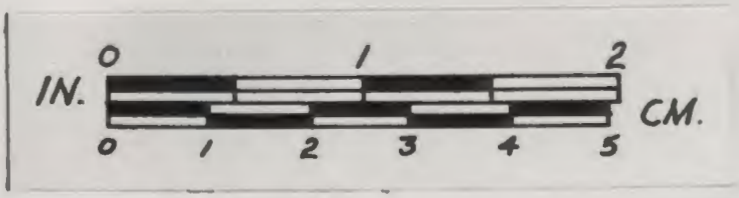


PLATE 15

Dorset Culture - Cultural Layer 1

a, b Triangular End Scrapers

c, d Snubnosed End Scrapers

e, f Circular End Scrapers

g-j Stemmed End Scrapers

k Flared End Scrapers

l Rectangular End Scrapers

PLATE 15

PLATE 16

Dorset Culture - Cultural Layer 1

a-d	Asymmetric side-notched knives
e	Flat-bladed chisel
f, g	Flake knives
h	Burin
i	Burin-like implement

PLATE 16

PLATE 17

Dorset Culture - Cultural Layer 1

a Soapstone Vessel fragment

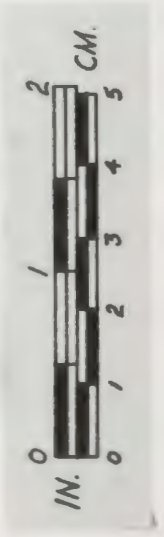
b Adze

c-e Ridge flakes

PLATE 17

a

b



c

d

e

PLATE 18

Undetermined Cultural Affiliation - Cultural Layer 1

a, b Bipointed bifaces

c-g Stemmed bifaces

h Triangular biface

i-k Discoid biface

Beothuck - Cultural Layer 1

l-q Corner-notched bifaces

PLATE 18

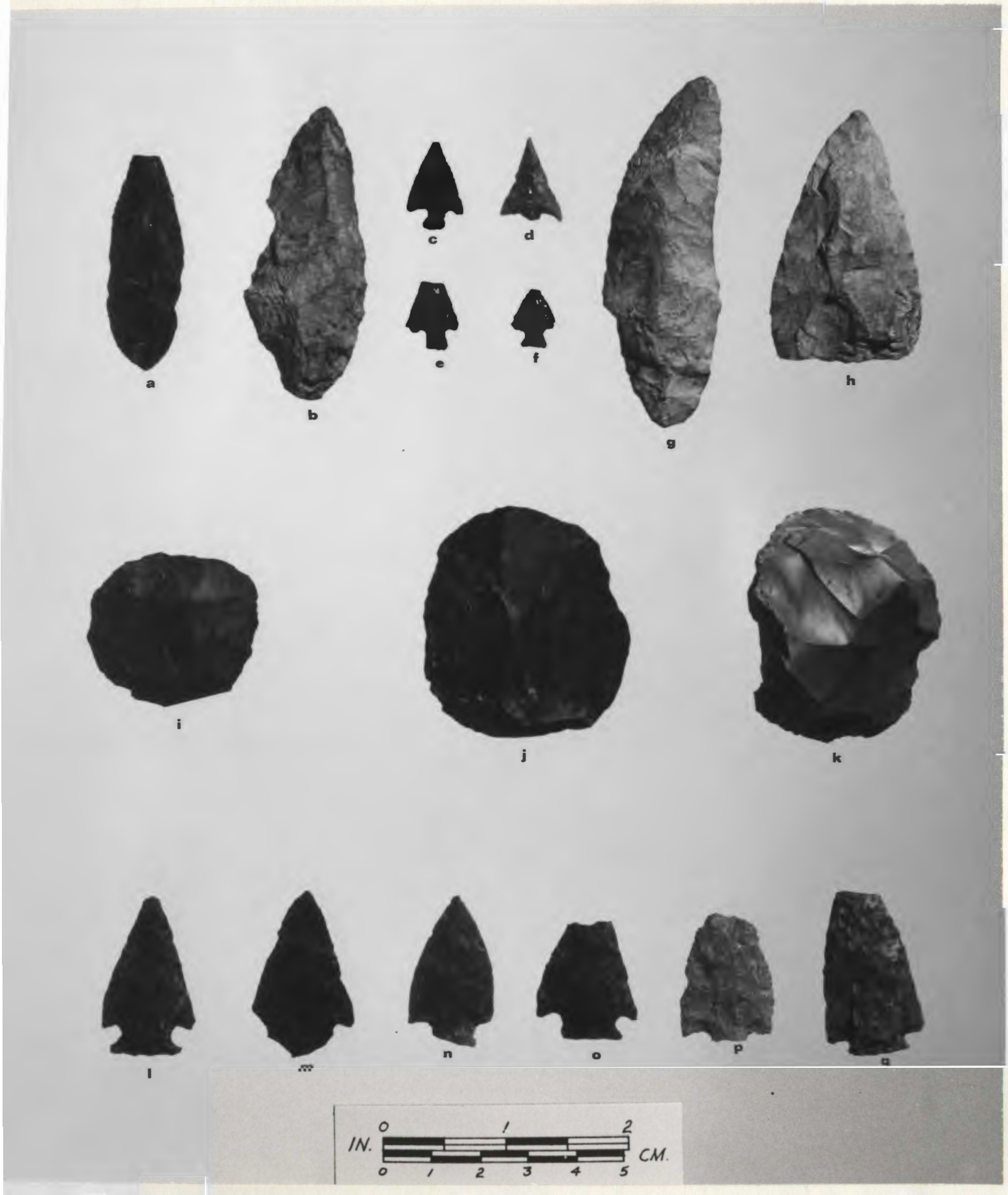


PLATE 19

Undetermined Cultural Affiliation -
Cultural Layer 1

a-n Side-notched bifaces

PLATE 19

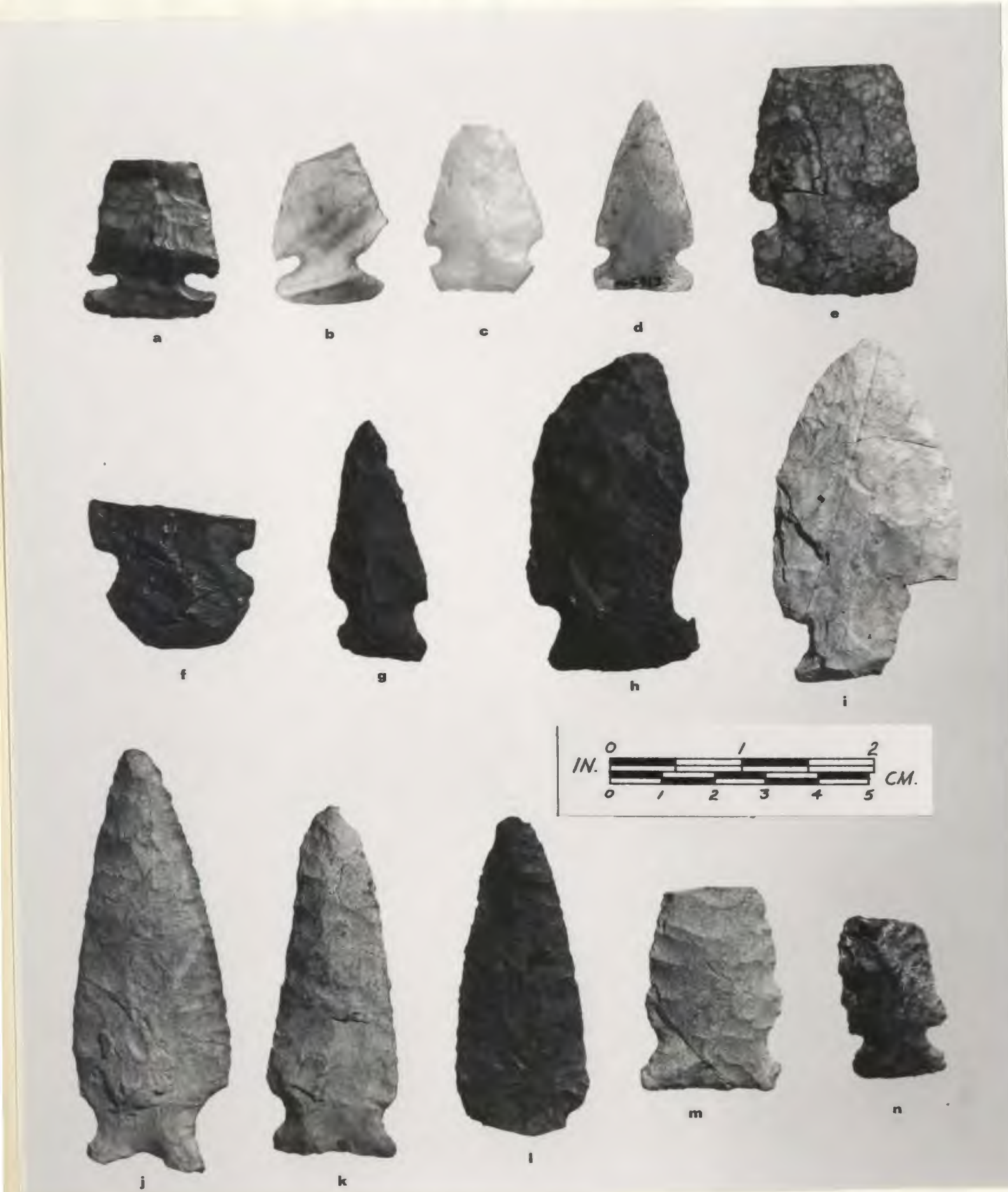


PLATE 20

Undetermined Cultural Affiliation -

Cultural Layer 1

a, b Pentagonal bifaces

c, d Lanceolate unifaces

e, f Stemmed unifaces

g, h Ovate unifaces

i Miscellaneous uniface

j Vessel

PLATE 20

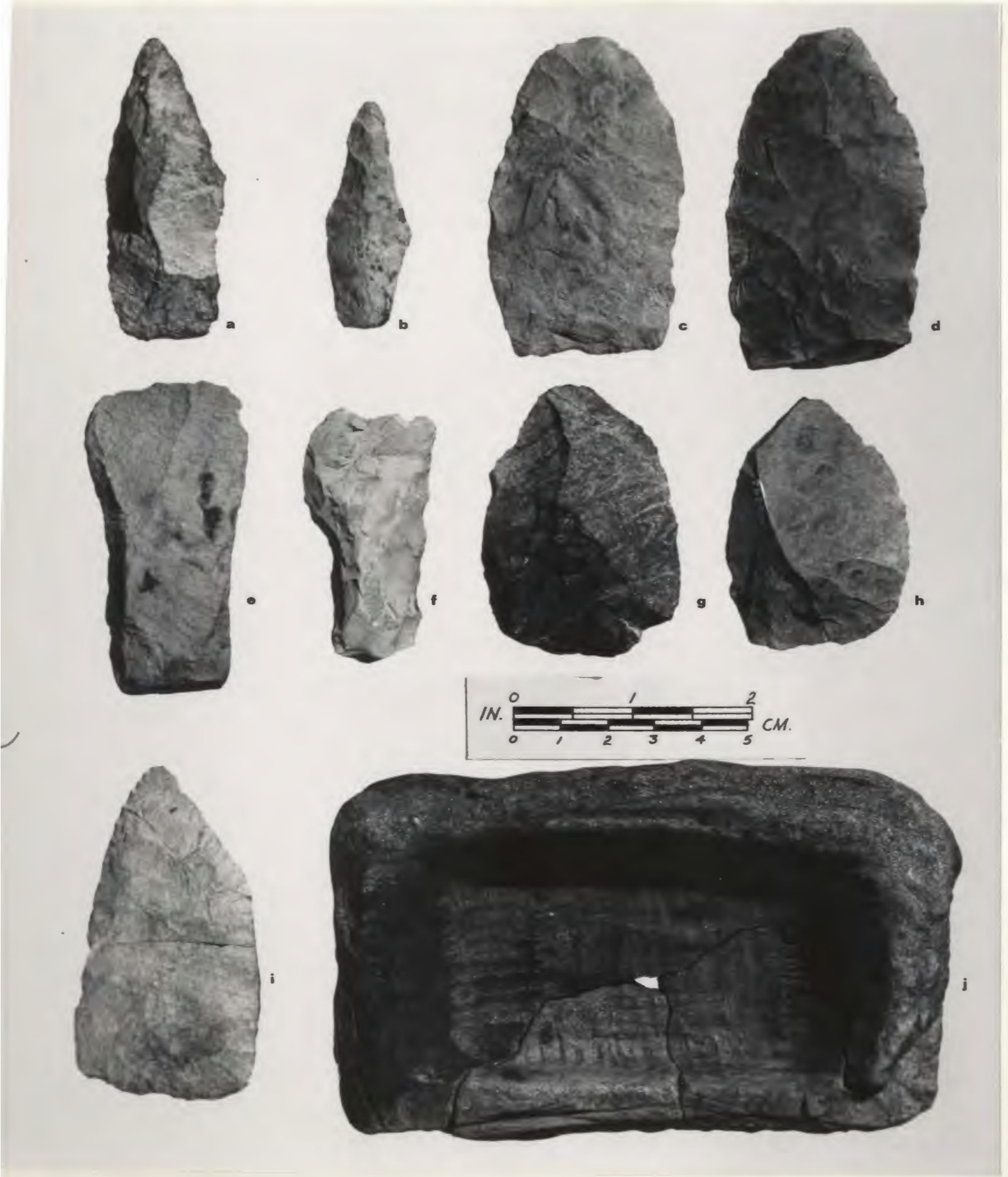


PLATE 21

Undetermined Cultural Affiliation -

Cultural Layer 1

a-j Miscellaneous cache bifaces and unifaces

PLATE 21

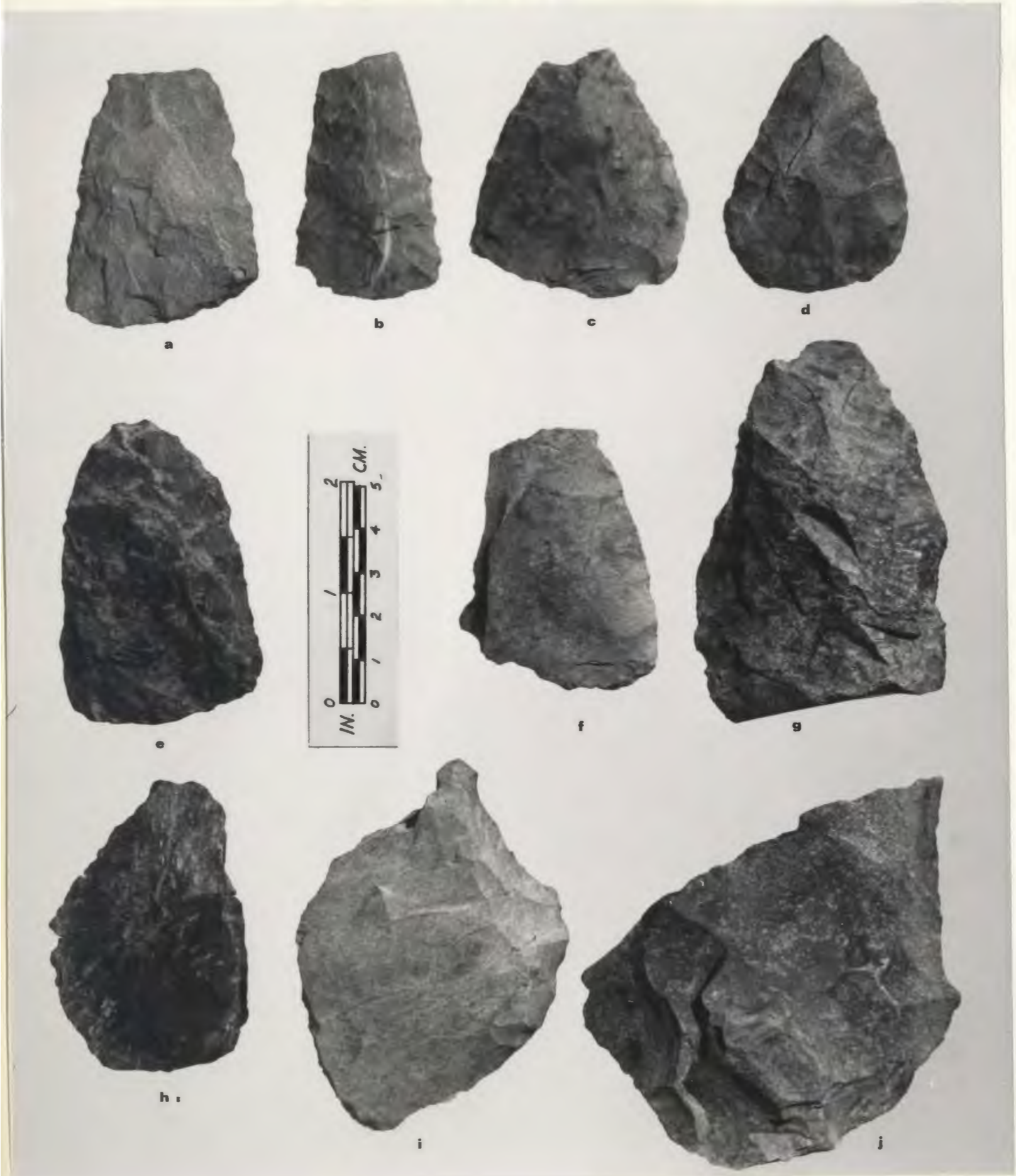


PLATE 22

Maritime Archaic - Cultural Layer 2

a, b Bipointed bifaces

c, d Ovate bifaces

e, f Stemmed bifaces

g Triangular biface

PLATE 22

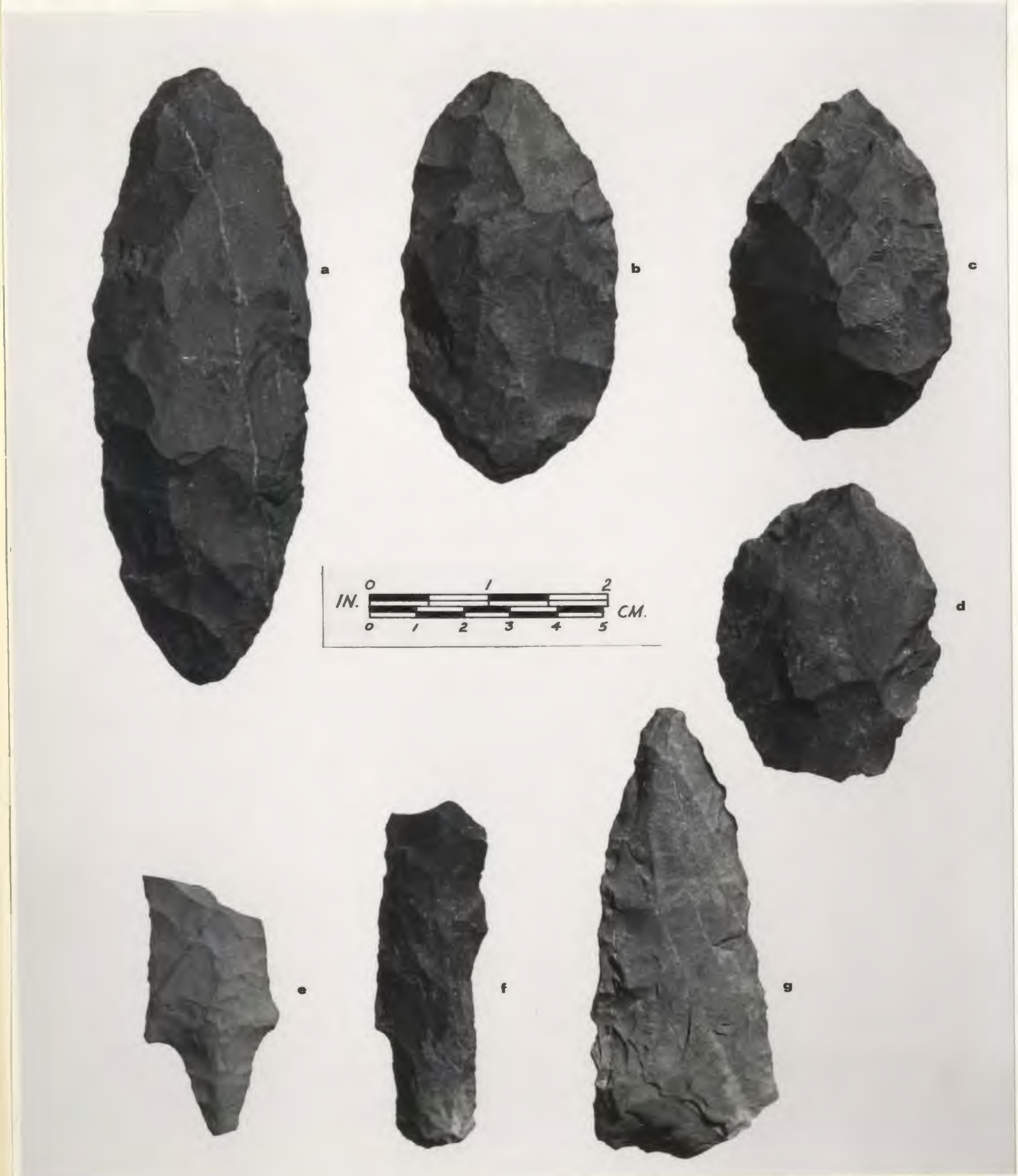


PLATE 23

Maritime Archaic - Cultural Layer 2

a, b Lanceolate biface fragments

c Discoid biface

d-f Miscellaneous bifaces

PLATE 23

PLATE 24

Maritime Archaic - Cultural Layer 2

a-f Biface tip fragment

g-j Biface preform fragments

PLATE 24

PLATE 25

Maritime Archaic - Cultural Layer 2

a Ovate Uniface

b-d Unifaces, convex working edge

e, f Unifaces, straight working edge

PLATE 25

PLATE 26

Maritime Archaic - Cultural Layer 2

a Blade, end scraper

b, c Blades, retouched

d Blade, plain

e, f Blade-like flakes, retouched

PLATE 26

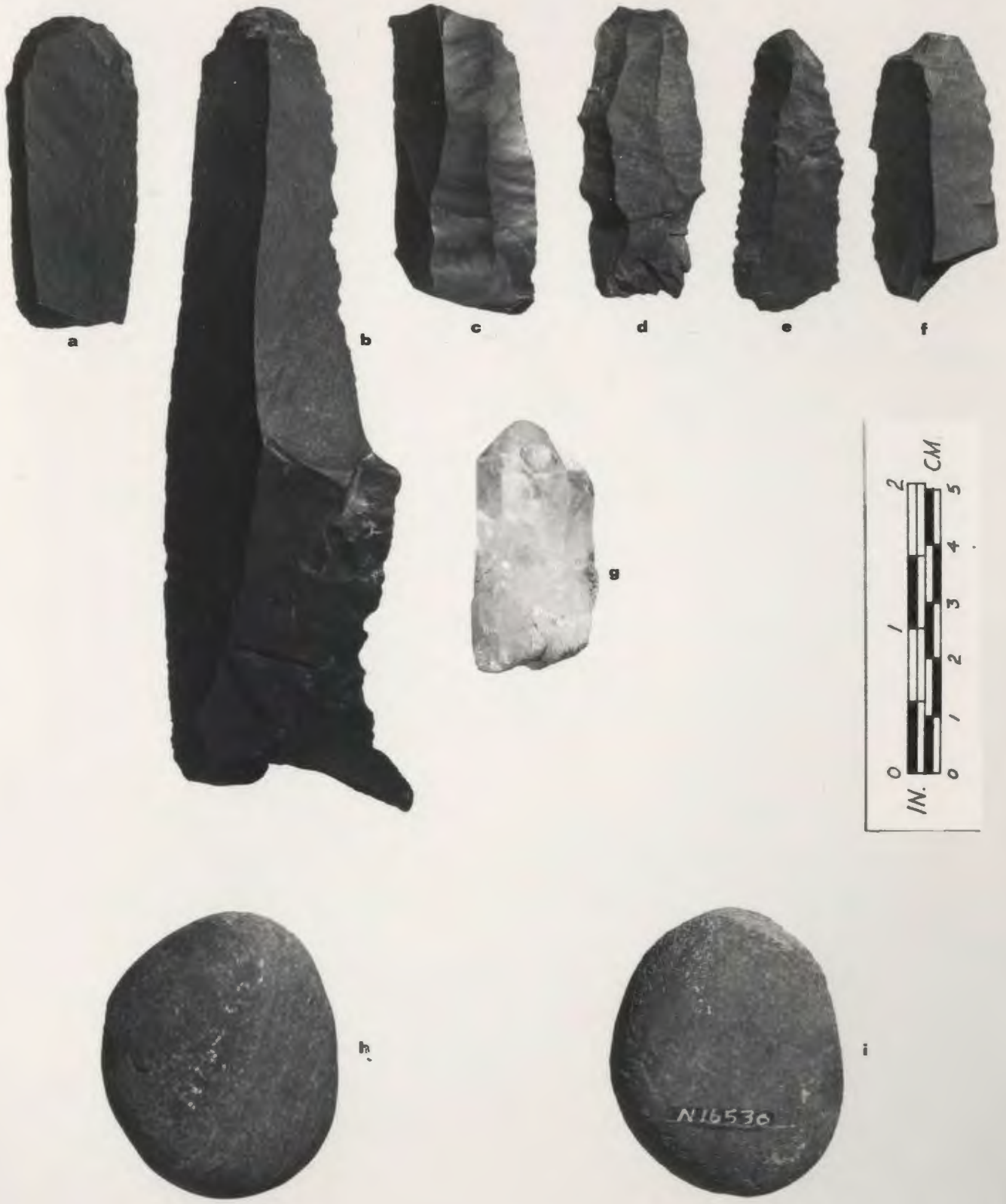


PLATE 27

Maritime Archaic - Cultural Layer 2

a Ground Slate stemmed point

b Ground Slate point preform fragment

c, d Miscellaneous ground slate fragments

e Blade-core fragment

f Abrader

PLATE 27