AN ASSESSMENT OF THE ARCHEOLOGICAL RESOURCES
OF
PADRE ISLAND NATIONAL SEASHORE, TEXAS

by

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INTRODUCTION

On the 22nd of June 1973, the Texas Historical Commission entered into a contractual agreement with the National Park Service to conduct an assessment of archeological resources of Padre Island National Seashore. The project was divided into four phases: (1) compilation of all data--reports, documents, maps, site records, field notes, artifact collections--pertinent to the archeological resources of the National Seashore (when feasible this material was copied or inventoried and the results filed with the Texas Historical Commission); (2) conducting a field reconnaissance to visit and gather additional data on known archeological sites and record new sites encountered; (3) analysis of all data gathered during Phases 1 and 2; and (4) preparation and submission of a final report of the appraisal.

The project was initiated in August 1973, and was completed with the issuance of this report in June 1974. Dan Scurlock directed the project, participated in the gathering of data during each of the above phases, wrote several sections of the report and contributed to the others. Warren M. Lynn carried out most of the field investigations including documenting and photographing collections. Archeologist Lynn also prepared most of the section of the report entitled "Archeology." R. Thomas Ray wrote the historical section and assisted with other aspects of the project. Mike Byers, draftsman with the Texas Historical Commission, prepared the illustrations. The cover of this report was designed by Joyce Fox, Illustrator, Southwest Region, National Park Service.

It is hoped that this report will mark the beginning of a comprehensive long-range, research, preservation and interpretation program of the cultural resources of Padre Island National Seashore.
ENVIRONMENT

Geologic and climatic forces have combined to create and shape Padre Island, a unique barrier island off the southern coast of Texas. As background the complexities of these phenomena will be treated superficially. Current environmental research projects are listed at the end of this section. Recommendations for additional environmental studies may be found at the end of this report.

Geology

Padre Island, largest of several barrier islands along the Gulf Coast of Texas, stretches 117 miles from near Corpus Christi to near Brownsville on the Río Grande. The formation of these islands began approximately 5,000 years ago as sea level rose to within 20 or 30 feet of its present position as a result of the melting of the last continental ice sheets (Hunter and Dickinson 1970). Sediments transported by the Río Grande and the Nueces River and the currents of the Gulf of Mexico, and deposited along the lower Texas coast, combined to form Padre Island (Price 1974: personal communication). This phenomenon has continued since that time.

Wave action and a prevailing southeasterly wind have continued to shape and modify the island over the last 4,000 years, with a marked increase in the last century. For example, there was no back island dune field recorded by the U.S. Coast and Geodetic Survey on their 1887 map. Overgrazing of the island by ranching operations coupled with droughts apparently destroyed most of the vegetation cover and resulted in the transporting of dunes in the central portion of the island to the back or Laguna Madre side of the island by wind and hurricane washover. This shoreward movement of the island has apparently accelerated in recent times as evidenced by a westward advance of 700 feet between 1948 and 1967 (Hunter and Dickinson 1970).

The removal of the cattle, the recent protection and management of the National Seashore by the National Park Service, and above average rainfall have resulted in a revegetation and resultant stabilization of that portion of the island.

Landforms

The following landforms or zones which occur over much of the island in linear north-south belts from the Gulf (east) side of the island to the Laguna Madre (west) side have been described by Campbell (1964:5-6) and Hunter and Dickinson (1970):

(1) A beach and storm berm littered with seashells, driftwood, and modern artifacts, especially plastic and glass containers, make up the first landform. The zone varies from 200 to 300 feet in width and the storm berm is three to six feet above sea level.
(2) A dune belt occasionally broken by gaps and washover fans caused by water driven through the dunes by hurricanes comprises the second landform. A narrow belt of active foredunes formed from beach and berm sand is present, and these are furnishing sand for the other zones to the west. Sparse vegetation helps stabilize these dunes and slows their westward migration (Fig. 1a).

(3) The next belt, generally occurring in the middle of the island, is a low, relatively flat deflation plain vegetated largely by grasses. Many small stabilized dunes occur here, and low ridges and intermittently ponded shallow troughs roughly parallel the north-south axis of the island (Figs. 1a and 2a).

(4) A large active dune field occupies the back side of the island with large dunes reaching a height of 25 feet.

(5) The last and westernmost zone is the wind-tidal flats composed mainly of sand washed or blown from the adjacent active dune field and thin beds of dark gray lagoonal clay rich in algal remains (Fig. 2b).

Climate

The climate of Padre Island is a humid, subtropical type with mild, dry winters and periodic droughts of several years' duration. The average annual precipitation is 28 inches and the annual average temperature is 70°F (Scurlock 1964:4).

May and September are peak rainfall months. Hurricane season is June to November and unusually heavy rainfall is generally associated with these storms. Summer temperatures reach the low to mid 90s and, rarely, 100°F. Freezing temperatures are seldom experienced on the island (U.S. Department of Commerce 1972:1).

Tropical storms occur about once every two and a half years; less severe storms average about one every five years. Flooding of portions of the island is common during these storms. A major hurricane in 1919 flooded much of the island and most of the grass cover was destroyed (Price 1956:4, 7, 15).

Biota

Padre Island lies on the eastern edge of the Tamaulipan biotic province which encompasses southern Texas and eastern Mexico. This semiarid region supports many vertebrate species and flora which may be found in the grasslands of the Texas and Kansan provinces, the woodlands of the Austroriparian, and the deserts of the Chihuahuan province (Blair 1952:102-105).

On the basis of characteristic vegetation the Seashore has been classified into five vegetative groups: coastal dunes, low coastal sands, salt marsh, salty lands, and shoregrass flats. At least 198 species of plants are found in these areas dominated by 51 species of grass (Padre Island National Seashore n.d.).
Thirty-one species of mammals, 34 species of reptiles and amphibians, 49 species of marine fish, 35 of which are edible; 17 species of crabs; three species of mud shrimp; and six species of shrimp have been recorded for the island and the adjacent waters of the Gulf and the Laguna Madre (Padre Island National Seashore 1971a and 1971b). A total of 364 bird species has been recorded at Padre Island National Seashore (McCaman and Whistler 1974). Among the birds that occur on the island are six rare and endangered species: Southern Bald Eagle, American Peregrine Falcon, Eskimo Curlew, Eastern Reddish Egret, Roseate Spoonbill and Brown Pelican (Committee on Rare and Endangered Wildlife Species 1968). North Bird Island and South Bird Island, located at the north end of the Laguna Madre, are administered by the National Audubon Society as bird sanctuaries.

Historical Descriptions of Padre Island Environs

Unfortunately no detailed account of the physical appearance of Padre Island made prior to 1890 has been located. The earliest known general description of Padre Island was included in a 1767 report made by Ortiz Parilla, based on his inspection of the island the year before (Sheire 1971:70-72). His party found groundwater on the western part of the island (which he called San Carlos de los Malaquittas) one vara (33.33 inches) deep in some places and half a vara in others, while on the east side the depth varied from one-fourth to one and a half varas. Two ports for small boats were located—one at the northeast end of the island and one at the southeast end. The average width of the island was found to be approximately three-fourths to one league. Only a few freshwater ponds were noted and at abandoned Indian campsites holes dug to freshwater were found. Two small groves of "laurel" and "elder" were mentioned. The beach apparently was littered with driftwood; ship rigging including topmasts, yards, blocks, etc.; damaged canoes, a Bongo (boat), and the remains of a large ship's hull. The only other vegetation noted were a "red grass" and a "three-spined stickleback." Sand dunes were found along the east side of the island, as is the case today (Sheire 1971:70-72).

A later reconnaissance of the island was carried out in 1828 by surveyor Don Domingo de la Fuente who was acting for the Ballís to reaffirm their original grant to Isla de Santiago as it was known at that time. The survey party originated at Matamoros, Mexico, and traveled by boat to the south end of the island and from there went up the island to Ballí's ranch headquarters. In this portion of the survey area, ranch livestock, bays, sand dunes, and a few "pastures" were noted. The island environment apparently did not change significantly except for a few freshwater pools, until they reached the north end of the island and found "high banks" well covered with grass, plains, sand dunes vegetated with grass, thick trees called palos de muelas, many willows and "laurels," oak trees, anise herb, and many freshwater pools with tule (Boyles 1942:8-10).

Sometime after 1870 there was a reported decline in the vegetation on the island, probably correlated with the introduction of cattle onto the island by Pat Dunn. Cottontail rabbits and spotted skunks reportedly disappeared during this same period (Price and Gunter 1943:144). Coyotes were apparently common, as they are now, for Dunn's attempt to raise sheep was thwarted by their predations. Filling of the Laguna Madre by blowing sand no longer stabilized by vegetation accompanied these changes.
The deflation of the island and siltation of the Laguna were perpetuated by a severe drought lasting from 1896 to 1903. The grass cover was stripped away in 1919 and again in 1933 by hurricanes (Price and Gunter 1943:144-145).

William Lloyd traveled the entire length of Padre in November 1891 and recorded a grove of shin oaks stretching along the west side of the island from its north end southward for six or seven miles. Average height for these oaks was 6 to 18 inches; some, which he suggested might be a different species of oak, were as tall as eight feet. The oaks with their late fall acorns reportedly were a wintering ground for wood ibis, whooping cranes, and sandhill cranes. "Wild celery" in the Laguna Madre also attracted great numbers of ducks. Beach willow, buttonbush, and a few stunted huisache, wild grapes, and two "struggling" prickly pear cacti were observed on the north end of the island. At least three species of snakes, including a rattlesnake, were recorded. Lloyd reported that other persons had witnessed deer and coyotes swimming or wading across the Laguna Madre (Bailey 1905:24-25).

Bonnell (1964:109) described the Laguna Madre, lying between Padre Island and the mainland, as being generally very shallow and having in many places not more than 8 to 14 inches of water, but with a narrow channel near the mainland side, with a depth of 3.5 feet. Bonnell stated that the best fishing was found in the Laguna and when the wind blew excessively from the north, thousands of barrels of redfish were left bare upon the beach.

T.E. Simmons, a biologist with the Texas Game and Fish Commission, sailed down the Laguna Madre in September 1928 to ascertain the general fishery conditions of this bay. He reported that fishermen usually went no farther south than Bird Island (South?), since few if any fish other than mullet were caught there. He took note of the landward progress of the central portion of the island which had encroached 1.8 mile into the bay since 1881 (Burr 1929:55-56).

In 1941 General Land Office surveyor J.S. Boyles found "shifting sand dunes, soft flour-like sand with practically no vegetation, some flats, a number of small lagoons or lakes some being salt and some being sweet. Around these lagoons and in scattered areas there is a considerable grass and small weed growth. There are a few (Spanish Daggers) Aguaves on the island, some scrawny shrubs, but no trees. Soft, sweet water can be obtained along the edges of the dunes at about 3.0 feet below the surface..." (Boyles 1942:3).

About halfway down the island on the Laguna Madre side he found a large mud flat extending approximately 20 miles northeast/southwest. It formed an almost complete barrier between the north and south portions of the Laguna Madre. In August 1941, in fact, he was able to walk on this flat from the island to the mainland (Boyles 1942:3).

Before 1919 the Laguna Madre possibly extended over 100 miles as an uninterrupted bay. A "trough" causeway joining the island and the mainland was completed in 1927 but was washed out by a 1933 hurricane. The Intracoastal Waterway, which traverses the Laguna Madre from north to south, was dredged in 1913. In 1950 a landfill causeway was constructed across the Laguna from Encinal Peninsula to Padre Island (Simmons 1957:15). Yarborough Pass, dredged through the island in 1939, has been closed by silting. The Port Mansfield Pass or Cut was completed in 1958 and remains open.
Notwithstanding the above developments, the Laguna Madre has experienced less impact by human activity than any of the Texas bays. Thus it is not surprising that the 1972-1973 annual landing of shellfish and finfish exceeded that from other Texas bays (Texas Parks and Wildlife Department 1973).
Fig. 1a. Dune belt adjacent to beach. Dune to left is stabilized by shin oaks. Location: North Padre Island.

Fig. 1b. Deflation plain with small, stabilized dunes. Location: South Padre Island, 12-acre surveyed tract.
Fig. 2a. Shallow ponds ringed by various grasses and small stabilized dunes. Location: North Padre Island, site of sewer lagoon expansion, Malaquite Beach.

Fig. 2b. Wind-tidal flat; hotel development in background. Location: west side of Padre Island (north end) looking east.
Padre Island National Seashore Fauna

Mammals

Opussum (Didelphis marsupialis texensis)
Eastern Mole (Scalopus aquaticus allenii)
Yellow Bat (Dasypetes intermedius)
Mexican Free-tailed Bat (Tadarida brasiliensis mexicana)
Raccoon (Procyon lotor fusipes)
Badger (Taxidea taxus berlandieri)
Striped Skunk (Mephitis mephitis varians)
Coyote (Canis latrans texensis)
Gray Fox (Urocyon cinereoargenteus)
Spotted Ground Squirrel (Citellus spilocus amictens)
Thirteen-lined Ground Squirrel (Citellus tridecemlineatus)
Texas Pocket Gopher (Geomys personatus personatus)
Merriam Pocket Mouse (Perognathus merriami merriami)
Ord Kangaroo Rat (Dipodomys ordi compactus)
Fulvous Harvest Mouse (Reithrodontomys fulvescens)
Grasshopper Mouse (Onychomys leucogaster longipes)
Eastern Rice Rat (Oryzomys palustris texensis)
Cotton Rat (Sigmodon hispidus berlandieri)
House Mouse (Mus musculus)
Black-tailed Jackrabbit (Lepus californicus merriami)
Eastern Cottontail (Sylvilagus floridanus chapmani)
Javelina (Pecari angulatus)
White-tailed Deer (Odocoileus virginianus)
Nine-banded Armadillo (Dasypus novemcinctus mexicanus)
Beaked Whale (Mesophodon densirostris)
Sperm Whale (Physeter catodon)
Pygmy Sperm Whale (Kogia breviceps)
Atlantic Bottle-nosed Dolphin (Tursiops truncatus)
Spotted Dolphin (Stenella plagiodon)
Atlantic Killer Whale (Orocinus orca)
Short-finned Blackfish (Globiocephala macrorhyncha)

Reptiles

Yellow Mud Turtle (Kinosternan flavescens flavescens)
Texas Slider (Pseudemys concinna hieroglyphica)
Red-eared Turtle (Pseudemys scripta elegans)
Texas Tortoise (Gopherus berlandieri)
Snapping Turtle (Chelydra serpentina)
Loggerhead Turtle (Caretta caretta)
Leatherback Turtle (Dermochelys coriacea coriacea)
Atlantic Ridley (Lepidochelys kempi)
Green Turtle (Chelonia mydas mydas)
Keel-scaled Earless Lizard (Holbrookia propinque)
Six-lined Racerunner (Cnemidophorus sexlineatus)
Eastern Spotted Whiptail (Cnemidophorus saski gularis)
Ground Skink (Lygosoma laterale)
Texas Horned Lizard (Phrynosoma cornutum)
Slender Glass Lizard (Ophisaurus attenuatus)
Plains Blind Snake (Leptotyphlops dulcis)
Texas Brown Snake (*Storeria dekayi texana*)
Diamond-backed Watersnake (*Natrix rhombifera*)
Eastern Checkered Garter Snake (*Thamnophis marcianus nigrolateris*)
Western Ribbon Snake (*Thamnophis sauritus*)
Eastern Hog-nosed Snake (*Heterodon platyrhinos*)
Coachwhip (*Masticophis flagellum testiu*)
Glossy Snake (*Arizona elegans elegans*)
Texas Patch-nosed Snake (*Sistrurus linetata*)
Black Racer (*Coluber constrictor*)
Mexican Milk Snake (*Lampropeltis doliata annulata*)
Flat-headed Snake (*Tantilla gracilis*)
Texas Coral Snake (*Micruus fulvius fulvius*)
Massasauga (*Sistrurus catenatus edwardi*)
Western Diamond-backed Rattlesnake (*Crotalus atrox*)

**Amphibians**
Hurter's Spadefoot Toad (*Scaphiopus holbrooki huteri*)
Northern Sonora Toad (*Bufo compactilis spectoscous*)
Green Tree Frog (*Hyla cinerea*)
Leopard Frog (*Rana pipiens*)

**Crustaceans**
Mud Shrimp (*Callianassa stimpsoni*)
(*Callianassa amnicense*)
(*Upoglia affinis*)
Ghost Crab (*Ocyopodes albicans*)
Red-jointed Fiddler Crab (*Uca minax*)
Sand Fiddler (*Uca pugilator*)
Mud Fiddler (*Uca pugnax*)
Fiddler Crab (*Uca suboylandrica*)
(*Uca soinioarpa*)
Land Crab (*Cardiosoma guanhumi*)
Mottled Shore Crab (*Pachygrapsus transuersus*)
Wood Crab (*Sesarma reticulatum*)
Oyster Crab (*Pinnotheres ostreum*)
Missel Crab (*Pinnotheres maculatus*)
Commensal Crab (*Pinnotheres cristata*)
(*Pinnixa chacei*)
Long-armed Crab (*Leiolambrus nitidus*)
(*Parenthope serrata*)
(*Parenthope pourtalesii*)
Pantagoe Crab (*Heterocrypto granulate*)
Spider Crab (*Podochelea sidneyi*)
(*Anaeimus latus*)
(*Colleses leprocheles*)
(*Pyromatic arachna*)
Arrow Crab (*Stenorhynchos seticornis*)
(*Acanthonyx petiverii*)
(*Libinia dubia*)
Common Spider Crab (*Libinia emarginata*)
Decorator Crab (*Stenocionops furoata*)
(*Stenocionops sinesisma*)
Brown Shrimp (Penaeus azteus)
Pink Shrimp (Penaeus duorarum)
White Shrimp (Penaeus setiferus)
Royal Red Shrimp (Hymenopenaeus robustus)
Seabob (Xphopeneus kryeri)
Bishken-necked Shrimp (Trachupeneus)

Finfish

Sharpnose Shark (Sooliodon terrae-novae) - edible
Bull Shark (Carcharhinus leucas) - edible
Blacktip Shark (Carcharhinus limbatus) - edible
Hammerhead Shark (Sphyrma tiburo) - edible
Bonnetnose Shark (Sphyrna tiburo) - edible
Mako Shark (Isurus oxyrinchus) - edible
Great White Shark, also called the Man-Eater (Carcharodon aarcharias) - edible
Texas Clearnose Skate (Raja texana) - edible
Electric Ray (Narcine brasiliens) - no known use
Stingaree (Dasyatis sabina) - edible
Cow nose Ray (Rhinoptera bonasus) - edible
Tarpon (Tarpon atlanticus) - edible, but little flavor and seldom eaten
Tenpounder (Elops saurus) - edible, but with many small bones
Bonefish (Albula vulpes) - edible, but with many small bones
Gafftopsail Catfish (Bagre marina) - edible
Sea Catfish or Hardhead (Laeliothys felis) - edible, but not usually eaten
Southern Flounder (Paralichthys lethostigma) - edible
Striped Mullet (Muliss aequilatus) - edible; also used for bait. Will not take a hook.
Great Barracuda (Sphyraena barracuda) - edible
Guaguanche (Sphyraena guachanabo) - edible
Wahoo (Acanthoxybium solandri) - edible
King Mackerel (Scomberomorus cavalla) - edible
Spanish Mackerel (Scomberomorus maculatus) - edible
Cero (Scomberomorus regalis) - edible
Oceanic Bonite (Katsuwonus vagans) - edible
Little Tuna (Euthynthus alletteratus) - edible
Atlantic Bonito (Sarda sarda) - edible
Atlantic Blackfin Tuna (Thunnus atlanticus) - edible
Atlantic Yellowfin Tuna (Thunnus albacares) - edible
Atlantic Sailfish (Istiophorus americanus) - edible, more palatable when smoked.
Blue Marlin (Makaira nigricans ampla) - edible, more palatable when smoked
White Marlin (Makaira albida) - edible, more palatable when smoked
Broadbill Swordfish (Xiphias gladius) - edible
Dorado (Coryphaena hippurus) - edible
Blue Runner (Caranx ayardos) - edible
Horse-eye Jack (Caranx latus) - edible
Common Jack (Caranx hippos) - edible
Common Pompano (Trachinotus carolinus) - edible
Rainbow Runner (Elaagatis bipinnulatus) - edible
Amberjack (Seriola dumerili) - edible
Blue fish (Pomatomus saltatrix) - edible
Cabio (Rachycentron canadus) - edible
Snook (Centropomus undecimalis) - edible
Rock Hind (Epinephelus adscensionis) - edible
Nassau Grouper (Epinephelus striatus) - edible
Black Jewfish (Garrupa nigrina) - edible
Spotted Jewfish (Promicropoma miliaria) - edible
Gag (Mycteroperca microlepis) - edible
Scamp (Mycteroperca falcat) - edible
Tripletail (Lobotes surinamensis) - edible
Gray Snapper (Lutjanus griseus) - edible
Dog Snapper (Lutjanus jocu) - edible
Red Snapper (Lutjanus aya) - edible
Muttonfish (Lutjanus analis) - edible
Lane Snapper (Lutjanus synagris) - edible
Yellowtail Snapper (Ocyurus chrysurus) - edible
Vermilion Snapper (Rhomboplites aurorubens) - edible
Pigfish or Piggy Perch (Orthopristis chrysopterus) - edible; more often used as bait.
Pinfish (Lagodon rhomboides) - edible, commonly used as bait.
Sheepshead (Archosargus probatocephalus) - edible
Bermuda Chub (Kyphosus sectatrix) - edible
Redfish (Seriola ocellata) - edible
Black Drum (Pogonias cromis) - edible
Atlantic Croaker (Micropogon undulatus) - edible
Southern King-Whiting (Menticirrhus americanus)
Gulf King-Whiting (Menticirrhus littoralis) - edible
Spotted Weakfish or Speckled Trout (Cynoscion nebulosus) - edible
Silver Weakfish, Silver Trout (Cynoscion nothus) - edible
Sand Weakfish, Sand Trout (Cynoscion arenarius)
Spadefish (Chaetodipterus faber) - edible

Other Fish Commonly Found in the Surf or Laguna Madre
Atlantic Needlefish (Strongylura marina)
Pipefish (Sygnathus scovelli [small]; Sygnathus louisianae)
Seahorse (Hippocampus hudsonius [large]; Hippocampus zosterae)
Stargazer (Astroscopus y-graeocum)
Toadfish (Opsanus beta)
Ribbonfish (Eques acuminatus)
Sea Robin (Prionotus tribulus)
Spiny Boxfish (Chilomycteris soroepi)
Eel (Several species found; smallest is the Worm Eel, Myrophis punctatus)
Killifish (Fundulus grandis, Fundulus similis, Cyprinodon variegatus)
Puffer (Sphoeroides nnephelus)
LOWER TEXAS COAST
1519-1900

Fig. 3
HISTORICAL BACKGROUND

In 1519 the Gulf from Vera Cruz to Pensacola was essentially unexplored and undocumented by the Europeans. According to present translated documents, Alonso Álvarez de Piñeda in 1519 was the first European to explore, map, and describe the Texas coast. This expedition resulted from Governor of Jamaica Francisco Garay's interest in having a colony located as near as possible to the armies of Hernando Cortés, so that he might also share in the Aztec treasures. Perhaps another motive was the idea of locating the Strait of Ainan, a mythical strait thought to lead directly to China from the New World (Castañeda 1936, 1:7).

After completing the voyage from Florida to Vera Cruz, Piñeda, having no royal charter to colonize lands in New Spain, was unsuccessful in completing Garay's ruse to have Cortés acknowledge their invalid, church-issued charter. Forced to the Río de las Palmas (the Río Grande, Fig. 3) they remained there 40 days, making ship repairs before returning to Jamaica. The Spaniards ventured up the river for a distance of 18 miles and noted 40 aboriginal villages (Castañeda 1936, 1:7-11).

Francisco Garay, still intent upon claiming some part of Cortés' holdings in New Spain, sent three ships in the summer of 1520, under Diego de Camargo, to the Río de las Palmas. After arriving at Río de las Palmas and exploring the immediate area upriver, the Spaniards' cruelty toward the local Indians forced them to evacuate to Vera Cruz. The ships were in bad repair; one sank at the mouth of Río de las Palmas, and the other two sank at Vera Cruz. The survivors asked for and received permission to join Cortés in Mexico (Castañeda 1936, 1:15-18).

Garay had not been idle in the interim; he petitioned the king for a grant to colonize from Río Pánuco to the west Florida coast. His petition was granted on the region named Amichel. On June 26, 1523, Garay sailed from Jamaica with 16 ships. Upon arriving at Río de las Palmas, Gonzalo de Ocampo was sent to reconnoiter the area. He made an unfavorable report, stating that the area was unfit for habitation. Needing little encouragement, the expedition sailed to the Río Pánuco in eastern Mexico. Cortés was familiar with the actions of those who sought to infringe upon his territory and was not long in subduing Garay (Castañeda 1936, 1:18-26). Cortés thought of colonizing Río de las Palmas as a barrier to further attempted encroachment by would-be usurpers (Castañeda 1936, 1:31-32).

On November 17, 1526, Pánfilo de Narváez, an archrival of Cortés, received a charter from the king to colonize Río de las Palmas. On February 22, 1528, after innumerable hardships, five ships with 400 men, including Narváez and the expedition's treasurer, Alvar Núñez, Cabeza de Vaca, sailed from Santiago de Cuba (Castañeda 1936, 1:41, 45-48). When the expedition reached the Florida coast on April 15, 1528, it divided into a land-and-sea force of which only four individuals were to survive after remnants of the expedition were cast by a storm upon the Velasco Peninsula of the upper Texas coast on November 5, 1528. These four, Cabeza de Vaca, Alonso de Castillo, Andrés Dorantes and Estevanios the Moor, wandered through the Southwest, in the main, as cap-
tives, and reached Culiacán on May 18, 1536. No active attempts would be made at colonization of the Río de las Palmas area until the mid-18th century (Castaneda 1936, 1:49-80).

In 1554 four ships sailed from Vera Cruz to Havana enroute to Spain. This fleet, carrying a large bullion shipment and other cargo, encountered a Gulf storm, and three of the vessels wrecked off Padre Island near the present Mansfield Pass or Quit (Fig. 3). The remaining ship returned to Havana and eventually sailed on to Spain. Only 300 of over 1,000 passengers and crew members from the wrecked ships made it alive to the shores of Padre Island. Some provisions were washed ashore and the castaways remained in sight of the vessels for six days. On the seventh day 100 Indians appeared with food which they cooked for the Spaniards. After a misunderstanding a battle between the two parties erupted and the Indians were held back and repulsed by crossbows (Clausen 1974: personal communication).

The survivors decided to march to Río Pánuco, which they felt was only a four-day march, but in reality was a 40-day journey. Reaching the Río Grande (which they called Río Bravo) they made rafts and crossed to Brazos Santiago (Fig. 3). Only 200 of the besieged group reached Río de las Palmas and approximately half of those were wounded (Clausen 1974: personal communication).

Again under attack by Indians, Fray Hernando Méndez and Fray Diego de la Cruz proceeded up the river toward what they hoped were pueblos. Fray De la Cruz died very soon but Méndez wandered on and discovered Francisco Vásquez, a survivor. Together they came upon a Negro woman, a wreck survivor, who was soon afterward killed by Indians. Fray Méndez was so weakened from his ordeal he died. Vásquez then made his way back to the wrecked ships to await a possible rescue party. He subsisted on sea food and remained near the wreck for several days when in 1554, Captain Angel de Villafañía from Vera Cruz arrived at the wrecks off Padre Island. With Villafañía were divers who salvaged a portion of the gold and silver (Clausen 1974: personal communication).

The next recorded European entrada to the lower Texas coast was that of Alonso de León who in 1682 explored 50 leagues of the northeast coast of Tamaulipas and discovered, in his opinion, a suitable port at the mouth of the Río de las Palmas (Weddle 1973:55).

In 1685 a Pelón Indian was told by Blanco and Pajarito Indians that people resembling Spaniards had been seen at the Río Grande and estimated their settlement was a distance of ten days (Weddle 1973:58). Learning of these reports of Frenchmen on the coast Alonso de León left Caderéyta, Nuevo León, in 1686, in search of the French colony which had been established by René Robert Cavelier, Sieur de la Salle in February of 1685 on Matagorda Bay. This expedition, uncertain of the location of Matagorda Bay, centered its search near the mouth of the Río Grande where they found boards, ship masts, rudders, barrel heads, four wheels of artillery, three broken canoes, a bottle of wine, some fresh green cornstalks, and considerable wreckage in various stages of decay on the beach near the mouth of the Río Grande, but they found no signs of the Frenchmen. The Spanish were not convinced, however, that the French were not in the area (Weddle 1973:63-64).
In February 1687, a second expedition, also led by De León, departed from Cadereyta and crossed the Río Grande near its mouth and traveled along the coast as far north as Baffin Bay (Fig. 3) in search of the French fort before turning back (Weddle 1973:64-65).

With the capture of Jean Géry, a member of La Salle's colony by Coahuiltecan Indians in 1688, De León initiated a third expedition in March of 1689 from Monclova, Coahuila, traveled to the lower Guadalupe River and then to the coast, finally locating the remains of the French fort (Fig. 3). The Spaniards learned from Indians in the area that some of the fort's inhabitants had been massacred by coastal Indians three months previous, while others who had abandoned the colony to return to Canada, died of natural causes, were killed by Indians, or were captured. Only a few Frenchmen reached Canada (Weddle 1973:174-175, 182-184, 197).

In 1721 the Marqués de Aguayo established Presidio de Nuestra Señora de Loreto on the site of La Salle's Fort St. Louis on Garcitas Creek (presently Victoria County), and upstream on the opposite bank the Mission Nuestra Señora de Espíritu Santo de Zúñiga (Weddle 1973:224).

By the mid-18th century the area from Río Pánuco to the San Antonio River and extending 150 miles inland remained unoccupied by the Spanish. As this area was inhabited by non-Christian Indians and mestizo "outlaws" the Church deemed Spanish occupation necessary. The political government thought that occupation was necessary in order to exploit mineral deposits and establish ports as guards against foreign invasion. The viceroy and his officers chose the capable José de Escandón to head a colonization venture into the present state of Tamaulipas, Mexico, and the lower Río Grande Valley of Texas. Escandón had a total of 765 men in seven different columns approach the Río Grande, the central feature of this area, from as many directions, making it possible to generally map and explore the area (Castañeda 1939, 4:130-139; Bolton 1970:292).

In this group was Orobio y Basterra, captain of Presidio la Bahía del Espíritu Santo (Fig. 3), who was the first to accurately and fully describe Corpus Christi Bay. He also found that the Nueces does not flow into the Río Grande. It was not possible to reconnoiter the seashore because of heavy woods along the coast on the north part of Corpus Christi Bay. However, he reported that the land above the bay was suitable for cultivation and irrigation. He also found that from south of Baffin Bay to the Río Grande there was no "sweet water" (Castañeda 1939, 4:142-145; Bolton 1970:293).

Captain Miguel de la Garza Falcón made his way from San Juan Bautista, near modern Eagle Pass, to the coast on the northern bank of the Río Grande. Falcón described the land along this route as low, sandy, barren, with little or no water and scanty grass with small mesquite groves (Castañeda 1939, 4:146).

Escandón reached the coast some 70 miles south of the Río Grande (Salinas de la Barra), near San Fernando, Tamaulipas. He noted there were marshes and lagoons which could be used for irrigation. Along the banks were willows, palms, and mesquites, as well as wild cattle and horses. Empty bottles, logs, and ships timber were found washed ashore. He reported that if the Corpus
Christi Bay (Fig. 3) was found navigable, a town established on the shore could indulge in profitable trade (Castañeda 1939, 4:147-149).

In his colonization recommendations he asked for soldiers, but no presidios as he felt presidios tended to be a hindrance rather than a help. The introduction of missionaries was to aid in colonization, because the missionaries would unify and give moral support to local Indian tribes, thereby strengthening the defense against Apache incursions into the lower Río Grande. The name Nuevo Santander was suggested by Escandón for his colony because of the resemblance of the land to his native province in Spain. His colonization plans were well received by the viceroy, the council, and the king. The king ennobled Escandón and gave him the right to use the royal treasury for all funds necessary in carrying out the colonization venture (Castañeda 1939, 4:153; Bolton 1970:292).

The Rancho Real de Santa Petronilla of Blas María de la Garza Falcón was located about 15 miles northeast of present Kingsville on the El Chiltipin grant of Nuevo Santander (Fig. 3). This rancho was the link between La Bahía and the settlements on the Río Grande and was garrisoned by royal soldiers who patrolled a wide area including Padre Island (Lea 1957, 1:376-377).

Due to continued misgivings about the possibilities of English occupation of the Gulf coastal area from the Río Grande to the Río Nueces, Joseph de la Garza Falcón was sent from Camargo by Escandón to survey the area by traveling down the coast to his father's Santa Petronilla Ranch. Escandón filed a report stating that no Englishmen were observed. Soon after this report Don Diego Ortiz Parrilla left San Juan Bautista and arrived at Santa Petronilla Ranch on September 13, 1766. He named the bay at the mouth of the Nueces, Corpus Christi. Parrilla sent a group of soldiers and Indians who forded Laguna Madre to Padre Island and proceeded to the southern end of the island which they reached on September 22nd. Parrilla described the island as unsuited for military installations because of a lack of building material, and unsuited for cattle raising because of insufficient grass and lack of adequate freshwater. He also reported flotsam cast upon the beach. A deserted Indian village was found near the southern end of the island (Bolton 1970:105-106; Sheire 1971:70-71).

The first recorded permanent habitation of Padre Island by Europeans was that of Padre Nicolas Ballí and his nephew Juan José Ballí who in 1805 established Rancho Santa Cruz de Buena Vista on the southern end of the island (Fig. 3). Padre Ballí held other grants on both sides of the Río Grande approximately 20 miles north of Brownsville. Padre Ballí's parents, José María Ballí and Rosa Hinojosa Ballí, had arrived in the general area with Escandón's first colonists and held numerous land grants themselves. Juan José succeeded his grandfather, Juan José Hinojosa, as captain and chief justice of Reynosa (Lea 1957, 1:380-381). That same year, with the advent of the Mexican Revolution, Padre Ballí moved to the island (Stambaugh 1954:43).

In 1821 a merchant ship from Louisiana with a crew of Americans, Spaniards, and mulattoes shipwrecked at Brazos Santiago Pass off the southern tip of Padre Island. Five survivors made their way northward to a Spanish ranch (Santa Petronilla?) near present Corpus Christi where they were taken into
custody by Karankawa Indians who were tending cattle. From there the Indians
took the captives north to Mission Refugio (Fig. 3), and upon their arrival
outside the compound the sailors were killed by a group of irate

In 1827, after Mexican attainment of independence, it became necessary
for the Ballis to reapply for their grants. According to procedure the land
was appraised by a court-appointed survey team. In February 1828, this group,
headed by surveyor Don Domingo de la Fuente, began at the south end of the
island and surveyed its entire length. The only habitation reported on the
island was that of the Rancho Santa Cruz (Boyles 1942).

Padre Ballí died in 1828, and reaffirmation negotiations were completed
by his nephew, Juan José Ballí, who received one-half and one-seventh of one-
half interest in the island. Raphael Solís, a brother-in-law, took active
possession of the island. In 1830 he sold it to José María Tovar. In 1855
Tovar had three leagues of land on Padre. This half and all but 7,500 acres
of the southern half were acquired by a Nicolas Guisante (Boyles 1942;
Sheire 1971:30).

By 1839, three years after Texas' independence from Mexico, Henry Law-
rence Kinney and his partner William P. Aubry established a trading post
on Corpus Christi Bay (Fig. 3), the beginning of modern Corpus Christi (Webb
1952:952). In 1841 Phillip Dimmitt, James Gourlay, and John Southerland es-
ablished a trading post at Flour Bluff by Oso Creek near Corpus Christi.
In 1841 Dimmitt's post was raided by Mexican authorities while Kinney's post
got untouched. It is highly probable both were engaged in trading contra-
band and that Kinney gained a favored position with the Mexicans (Sheire

After Texas joined the Union in 1845 and the possibility of open war
with Mexico loomed, General Zachary Taylor and a small detachment of troops
camped near Corpus Christi. On February 9, 1846, General Taylor sent
Captain William J. Hardee and 25 men to reconnoiter Padre Island. On the
north end he found three Mexicans and an American at "Mr. Eilly's" whose
establishment was not identified. On February 15th they camped 15 miles
from the southern end of the island (Fig. 1). They scouted Brazos Santiago
Pass, but could find no suitable ford across Laguna Madre. In March the army
traveled to Brazos Santiago via the mainland (Sheire 1971:33).

Brazos Santiago previously had been occupied by the Mexican government
as a customs station. On March 26, 1846, General Taylor established Fort
Polk, and Brazos Santiago became a major depot and arsenal area (Fig. 3).
By 1849 the buildings were being moved to various locations in the lower
Rio Grande Valley and in 1850 the fort was abandoned (Webb 1952, 1:630).

In May of 1846, Ben McCulloch's Texas Ranger detachment traveled from
Corpus Christi to Point Isabel down Padre Island. The only inhabitant they
found was a man who salvaged debris cast upon the shore (Reid 1935:39).
In May of 1846, Dr. S. Compton Smith, one of the volunteers from New Orleans
for the Mexican War, was shipwrecked on Padre. He and the other volunteers
walked to Brazos Santiago and passed a great variety of items cast upon the beach, including a dead steer that had been partially eaten by wolves (Smith 1857:15).

In 1847 John V. Singer, master of the Alice Sadell, and his family were wrecked on the southern portion of the island (Fig. 3). They stayed, built shelters, and raised cattle. Singer also engaged in illicit land speculation on the island. With the advent of the War between the States in 1861 Singer moved his family to Corpus Christi (Webb 1952:324).

In 1854 Captain Gideon K. "Legs" Lewis, a partner of Richard King, founder of the King Ranch (Fig. 3), obtained power of attorney from Guadalupe Balli, niece of Padre Balli. He never acted on it, but on April 12th Richard King purchased 12,000 acres on Padre for $200. However, during a 1905 litigation, his wife Henrietta King was awarded only 6,000 acres (Lea 1957: 132, 438).

During the War between the States, Corpus Christi and Padre Island again became centers for contraband, hideouts for the lawless element, and the location of limited military engagements.

In 1870, due to lowered cattle prices, packeries were established along the Texas coast for the purpose of processing hides, tallow, and meat. The meat was either pickled or steam-cooked until the bones could be pulverized easily. One such packery, located on Padre's northern end, gave the name "Packery" to the channel on which it was located. By 1900 the packery was no longer in operation (Webb 1952:324).

Lawrence Joseph Dunn, a brother of Patrick F. Dunn, on December 2, 1878, sold his TL4 brand cattle which he ran on Padre Island to his mother Mrs. Catherine T. Dunn. In December 1883, she became a partner with her sons Patrick Francis and Thomas B. Dunn for the purpose of grazing cattle on Padre Island. The name of this venture was "Patrick F. Dunn & Bro." Patrick Dunn's share consisted of 200 cattle; Thomas Dunn's share was 150 cattle; and Mrs. Dunn's share was 550 cattle and 100 head of horses. These cattle were run under the D brand (Vetters n.d.).

Patrick built bunkhouses and pens at the northern end of Padre Island near Corpus Christi Pass where supplies could be received conveniently. In 1884 he moved his family to the island at a location about 20 miles from the northern end (Fig. 3). When the Dunn children came of school age Patrick moved to Corpus Christi. He also moved his house location to that of the bunkhouses. In 1907, at the same location, Dunn built a two-story house facing east toward Packery Channel. This structure was destroyed by a storm in August 1916. Another was rebuilt approximately 1.5 miles northwest of the last location. All these structures were built from materials cast upon the beach. Cattle pens were located at several locations to aid in the cattle roundups (Fig. 3). Drovers began at the southern end of Padre and moved north. After the cattle reached the northern end they were forded to Pinta Island, near Flour Bluff, to await shipping (Vetters n.d.).
In 1926 Patrick Dunn, then sole controller of the cattle and most of the island, sold the surface rights to Col. Sam H. Robertson. He retained all mineral and grazing rights. In 1934 Robertson sold his interests to Albert R. and Frank E. Jones of Kansas City, Missouri. After Patrick Dunn's death on March 25, 1937, his son Burton took over the ranch management with David Cooper. In December of 1970 the last cattle were moved from the island in agreement with National Park Service policy (Vetters n.d.).

In 1907 active efforts were made on the southern end of Padre to establish a resort community, Tarpon Beach. Promoters distributed brochures extolling the virtue of moving to South Padre (Tarpon Beach n.d.:1-25).

Sam Robertson built a wooden causeway from Flour Bluff to Padre in 1927. He also built some resort hotels on the island, but his resort ideas never met with great success. In 1933 the causeway and structures were destroyed by a storm. The Jones' interests attempted to set up a resort community and the Ocean Beach Drive Corporation was established. The advent of World War II ended this venture (Vetters n.d.). After World War II the resort development individuals were unable to have an active development program. Fortunately, the hostile climatic conditions thwarted for some time active development of the island.

Active interest in the island as a park began in the early 1950s. In 1958 Texas Senator Ralph W. Yarborough introduced the first bill to create a National Park on Padre Island. Hearings were held in 1959 at Corpus Christi, and in 1962 the United States Congress created a bill authorizing the establishment of the Padre Island National Seashore (Sheire 1971:64-66).
The relationship of archeological materials and sites to specific historic Indian groups of the Texas coast is not well understood at this time. Artifactual evidence that the Rockport focus, in part, is attributable to the late prehistoric and historic Karankawan groups has been recovered, however. Rockport focus sites have been found south of Corpus Christi Bay which is within the range of the Orejon and Borrado bands of the Coahuiltecan, although the Karankawa were reported living within the area at Rancho Santa Petronilla south of Corpus Christi in 1824. Considering this and reports that bands from both cultural groups probably frequented Padre Island and the adjacent mainland, archeologists will find not only island and adjacent mainland sites attributable to either Karankawan or Coahuiltecan occupation but perhaps sites manifesting artifacts and features of subsequent or contemporaneous occupations by each cultural group (Campbell 1958:150 and 1964:10).

It will be a formidable task to separate Karankawan and Coahuiltecan remains on the island as their material culture, subsistence, etc., were essentially the same. As an aid to any such attempt we have extracted data from pertinent ethnological material on the historic Indians of the Texas coast. A comprehensive list of references on the Karankawa and Coahuiltecan will be found at the end of this report under the heading "Ethnological Sources."

For purposes of temporal and spatial comparison, data on coastal bands from Galveston Bay to the mouth of the Rio Grande recorded by Europeans from 1528 to the third quarter of the 19th century are presented. The first European record of the Karankawa, who ranged from the west side of Galveston Bay along the coast to Corpus Christi Bay, including the offshore islands, was made by Cabeza de Vaca (Bandelier 1922). This and later European accounts identified at least five Karankawan bands: the Capoques and Hans on the north; the Kohanis around the mouth of the Colorado; the Karankawa proper--Karenkake, Clamcoets, Carancaguacas--on Matagorda Bay and Matagorda Island, the Kopanos along Copano Bay and on St. Joseph Island (Fig. 3; Newcomb 1961: 59-60).

The aborigines south of Corpus Christi Bay are poorly documented, although they were probably Coahuiltecan. The Coahuiltecan band, Orejon, lived to the west of Corpus Christi Bay; the Malaquite occupied the coast from Corpus Christi Bay to Baffin Bay; and a related group, the Borrado, ranged from there to the Rio Grande (Newcomb 1961, Map 1).
Karankawa

**Capoques or Cocos and Han:** Cabeza de Vaca, Velasco Peninsula, 1528-1533
(Bandelier 1922)

**Physical Characteristics**

The males were well built and perforated their nipples and lower lip to insert pieces of reed (pp. 65, 89).

**Range and Campsites**

The Indians traveled by dugout (canoes) between the "island" (Velasco Peninsula) and mainland to oyster-yielding bays where they would stay for three months (p. 68).

Their huts were built on oyster shells and consisted of four arches covered with matting and hides on the floor. Upon first observing the shipwrecked Spaniards the Indians placed their lodges on canoes and fled (p. 85). However, when they rescued De Vaca, they built a hut for him and made several fires inside (pp. 61, 68, 69).

**Material Culture**

Cabeza de Vaca traded seashells and cockles to inland tribes for flint, glue, hard cane, and tassels of deer hair (p. 75).

**Subsistence**

Near the end of February the roots usually growing among the reeds sprouted but were not good for food (pp. 65, 74). In cold weather the fish were not easy to obtain, so they fed on oysters until April (p. 71). For two months they ate ground nuts and grain (p. 79). Later they moved to another mainland area to gather prickly pear cactus *tunas* (p. 81).

**Clamoet Band of Karankawa Proper:** Joutel, Central Coast, 1685 (Cox, II, 1968)

**Range and Campsites**

One camp was located on an eminence near Matagorda Bay and consisted of about 50 "cottages." These "cottages" were made of rush mats or dried skins covering long poles which were bent over like a "great oven" (p. 45).

**Material Culture**

Indians who were visited near Fort St. Louis had about 40 canoes (pp. 46, 52-53). The Indian women salvaged Normandy blankets from the *La Belle* wreckage cast on the beach and made petticoats of them. The Indians also took nails from the wreckage to use as points for arrows (pp. 51, 67). Two hatchets were traded them by the French for a canoe (p. 49). Pitchers of water were found in one camp (p. 50). Knives and beads were given to the Indians as presents (p. 28). Stone knives were used to cut meat (p. 46).

**Subsistence**

They hunted flat fish, like turbots (flounder?), which they struck with pointed sticks. Beef and porpoise were eaten (pp. 46, 53).
Karankawa Proper and Kohanis: Central Coast, 1829 (Berlandier 1969)

Physical Characteristics
They had big, robust, well-formed, athletic bodies (p. 148).

Range and Campsites
Their camps were located on all the islands and inlets from Matagorda Bay to Corpus Christi Bay and they took delight in salvaging the remains of shipwrecks which were cast upon the beach (p. 148).

Material Culture
Their favorite weapon, the bow, was used for fishing, hunting, and war. Daggers as well as war clubs of iron wood were also popular items (pp. 149, 162, 176). They used dugouts to move from island to island (p. 148).

Subsistence
Fishing was a principal occupation, for the main diet was fish supplemented with tortoises and alligators. Fish in bays and inlets were attracted by flailing the water around the dugouts; fish that came to the surface were shot with bows and arrows (p. 148).

Karankawa Proper: Central Coast, 1824, 1826, 1832, 1836, 1855 (Kuykendall 1903)

Physical Characteristics
They were fully six feet tall (p. 324).

Range and Campsites
The Karankawa ranged along the coast from the mouth of the Nueces to the mouth of the Trinity, their favorite places being along Matagorda Bay and up the Colorado to present Eagle Lake. They traveled the Colorado River in dugouts (pp. 239, 324, 326).

In 1822 there were between 200 and 300 warriors along Matagorda, by 1836, 25-30 warriors near Refugio, and in 1855 only six or eight near San Fernando, Tamaulipas, Mexico. They usually traveled in small bands (pp. 250, 253, 324). They also were found camped in a mott on the bay about three miles east of the present town of Matagorda (p. 250).

Material Culture
They had bows as long as themselves. Their arrows were of cane a yard long, with two wood shafts of the same diameter and two inches long inserted into each end of the cane. A point was attached to one of the wood shafts and a bowstring notch was cut into the other. They were able to shoot these arrows a distance of over 200 feet. They had no horses nor domestic animals except dogs (p. 324). Their dugouts could accommodate as many as 15 people, perhaps more (p. 326).

Subsistence
Fish and alligators were their principal food. A captured dugout contained fresh-caught fish and oysters (pp. 324, 326). Once settlers around Victoria attempted to poison the Karankawa by feeding them cooked corn with arsenic; however, the druggist sold the settlers cream of tartar, not arsenic (p. 253).
Physical Characteristics

The males were tall, muscular, well formed and proportioned, with low, broad foreheads, and thick hair reaching to the waist. Their height, according to an observer, was about 5'10". The only significant characteristics noted for the females were that they were "short and squatty" (p. 57).

Range and Campsites

The Karankawa ranged in the tidewater area from Galveston Island to the Río Grande. Major areas of occupation were the following bays and inlets: Matagorda, Trespalacios, Lavaca, Aransas, Espíritu Santo, Copano, Corpus Christi, the mouth of the Colorado River, and both sides of Laguna Madre from Brazos Santiago to "a sand bar, called Isla del Padre." At the northern end of Padre Island a "ford" was used to cross over the Laguna Madre to the mainland (pp. 45-46).

In 1843 the last Texas Karankawa fled southward, one group settling on the south end of Padre Island and one group going to Tamaulipas, Mexico (p. 49). They wandered in bands of 30 to 40 people and remained perhaps four weeks at one place (p. 46). In winter the Karankawa stayed inland because of warmer temperatures and better food supply (p. 55).

Campsites were always close to a beach or bluff. On camping the women erected "wigwams" which consisted of a dozen sharpened slender willow poles 15 to 18 feet in length, formed in a circle having a diameter of 10-12 feet. The poles were placed about a yard apart with the loose ends bent to the center and interlaced with a crude wickerwork and occasional thong (p. 10). A fire was built upon stones in the center of the structure. Their fire sticks were wrapped in several layers of skin tied and made into a compact bundle. The contents consisted of a half-round, close-grained, two-feet long piece of wood with a softer-grained wood used as a twirler (pp. 10-11, 17).

Material Culture

Their utensils consisted of fish bone needles, rude wooden spoons, round-bottomed clay vessels with no handles measuring about 12 inches in diameter and iron kettles obtained in trade from Europeans. Some pottery was ornamented with simple designs in black (pp. 12, 59). Their food was boiled in these rude earthen pots or baked in the ashes (pp. 10-11).

Their weapons were bows and arrow, clubs, tomahawks, axes, hatchets, and long double-edged knives obtained from Anglo-Americans (pp. 10-11). Well-made bows of red cedar, polished and oiled, reached from their feet to their chin or eyes. The midsection was about two inches wide and one and one-half inches thick. The bowstring was made of twisted deer sinew.

Arrows were about three feet long, half an inch in diameter with a sharp, thin, steel head about three inches long. The arrowpoint shank was set in a cleft of the shaft and wound with sinew. The arrows were feathered with wild geese wing feathers, three being set equidistant around the shaft in slats or clefts and then wound. The feathers were about six inches long and showed half an inch from the shaft (p. 13).

They had three musical instruments, a large gourd filled with stones or shot (rattle), a fluted piece of wood with a stick for rubbing over it (rasp), and a rude flute (p. 18).
They usually traveled on water in crude unstable dugouts about 20 feet long made from large trees with the bark left on, one side hewn flat with bluntly pointed ends. The men poled these dugouts by standing in the stern (pp. 10, 60).

Subsistence

The forested river bottoms and sparsely wooded plains provided an abundance of game and shelter areas (pp. 52-53, 56). Food procurement was entirely the males' responsibility (p. 58). The shallow lagoons "behind" barrier islands were exploited for fish, turtles, and oysters (p. 52). The Karankawa's adeptness made it possible to hunt fish and turtles with bow and arrow in calm or rough water, in a dugout or standing in the water. Species of finfish exploited included redfish, sea trout, flounder, sheepshead, Spanish mackerel, and jewfish (p. 12). In fishing they never used nets or lines (pp. 12, 58). Seasonally they gathered berries, nuts, persimmons, wild grapes, etc. At certain times of the year they obtained quantities of sea bird eggs. Late spring venison and duck were favorite foods (pp. 11-12). Bear were hunted "some distance" from the lagoons (p. 58). They made no use of salt, as they preferred chile to season their food (p. 55). The Karankawa also kept foxlike or wolflike dogs, and the name Karankawa has been translated as "dog-lovers" or "dog-raisers" (pp. 44, 60).

Unidentified Karankawa

Indians, probably Karankawa, living near the Santa Petronilla Ranch in 1766 told Garza Falcon's party that no one lived on the island, but they (the Indians) visited the island during certain seasons (Castaneda 1939, 4:215-216). C.F.H. von Blucher and his father, both Nueces County surveyors between 1846 and 1880, observed Karankawa carrying oysters in hide bags from Nueces Bay to high ground (Breuer 1957:138).

Coahuiltecan

Mariames or Aransas: Cabeza de Vaca, Inland near the Lower Guadalupe River, 1534 (Bandelier 1922)

Physical Characteristics

They were not as tall as other coastal groups, but were well built (p. 89).

Range and Campsites

In searching for food they moved every two or three days, carrying with them their huts which consisted of four arches covered with matting (p. 91).

Material Culture

They made blankets from the hides of the buffalo (p. 94).
Subsistence
They foraged for two or three kinds of roots which took two days to roast. Prickly pear cactus *tunas* (fruit) were also eaten. Other food items were buffalo, deer, fish, spiders, ant worm pupae, lizards, salamanders, snakes, deer dung, and pulverized animal bones. Buffalo apparently were hunted for meat and skins (pp. 89-90).

*Arbados or Borrado*: Cabeza de Vaca, Lower Coast, 1535 (Bandelier 1922)

Range and Campsites
- They had villages with 50 houses (p. 116).

Material Culture
- Their houses were made of mats (p. 114). The Indians also tanned and used animal hides. De Vaca made combs, bows, arrows, and nets (p. 113).

Subsistence
- They ate fruit from small trees, gathered and baked *tunas*, and kept dogs which they traded as food (pp. 112-113).

Various Bands: 16th through mid-19th centuries (Newcomb 1961)

Range and Campsites
- Bands moved according to availability and harvest time of various wild foods, and returned again and again to former village sites. They camped only where there was water and wood (pp. 39-40). Camps were "filthy" with refuse piled about indiscriminately (p. 43).
- Small, portable, circular huts or shelters were used and were covered with reed mats and hides. Fires were built inside (p. 43).

Material Culture
- Breechclouts were decorated with animal teeth, seeds, and other ornaments (p. 39).

Subsistence
- Many small mammals, snakes, and birds were hunted and eaten (pp. 40-41). A drink, mescal, was made and mixed with the beans of the Texas mountain laurel (p. 41). The Borrados dug a hole in the ground, placed mesquite beans in the hole, and ground them with a wooden club (p. 42).

Various Bands: 16th through 19th centuries (Ruecking 1955a)

Range and Campsites
- Their villages were built on level areas near water and usually consisted of about 15 houses placed in a semicircle. The houses were constructed of bent stalks or canes with reed or cane covering and were made in a bell shape with a low doorway and no smoke hole (pp. 77-78). They had seasonal cycles of food gathering, and traded goods and peyote (pp. 91, 95).
Material Culture

They used stone knives and tools. Their bows were wood with bowstrings of lechuguilla fibers. The arrows had cone shafts 18-20 inches long, the foreshaft bound with deer sinew and tipped with large points of stone or iron while the distal end had feathers attached by glue or tying. Long curved wooden sticks were used for hunting rabbits. Hollow gourds were used for storing mesquite beans, flour, and water. Baskets similar to sacks with a stick on either side were used as "back packs." A leather band, or tumpline, worn on the forehead and attached to the pack was employed to carry loads in these baskets. They also used fishnets of fiber and pottery. Two dry sticks were carried for fire making (pp. 74-76). Body ornamentation consisted of small bones of animals and seashells and were sometimes worn in the nose and ears (p. 100). Children had miniatures of the items used by the adults (p. 133).

Subsistence

They gathered salt, medicinal herbs, mescal, mountain laurel, and peyote. Peyote was sometimes dried, ground, and mixed with water (pp. 83, 88). Their diet included all types of plants and wildlife except lizards and frogs. Lechuguilla, especially, was utilized. Fish were fire-baked, smoked, or cooked and hung for eight days before eating until the maggots had matured (pp. 80, 87). They were adept fishermen. Deer and javelina were captured in traps or pitfalls while birds were decoyed by the use of a large gourd over the head (p. 82).
ARCHEOLOGY

No attempt will be made here to provide a detailed overview of the ar­
cheology and archeological research of the central and southern Texas coast. Articles by T.N. Campbell (1960), Dee Ann Story (1968:3-6), and T.R. Hester (1969), all annotated in the following section, should be consulted for such detailed discussions. Moreover, the only archeological investigation on Padre Island, a survey by Campbell (1964), is annotated in the same section.

Archeological research along the central and southern Texas coast has been concerned with these problems: (1) the coast as a corridor for passage of cultural traits between Mesoamerica and the eastern United States; (2) the identification of archeological material with various historic Indian groups; (3) the identification of the cultural units and their relative chronology; and (4) the relationships that existed between the coastal groups and the groups occupying the adjacent areas of northeastern Mexico, Louisiana, and Central Texas. Future research in the coastal area and at Padre Island sites should address these questions and additional specific recommendations which are presented in the concluding section of this report.

The investigation of the archeological resources of Padre Island National Seashore began in September 1971 with emphasis on the accomplishment of four goals:

(1) To provide a base map of all known archeological sites, both historic and prehistoric, located within the National Seashore, the adjacent portions of Padre Island, and the mainland.

(2) To compile a bibliography of the literature pertinent to a thorough investigation of the presently available archeological resources and to sum­marize the major sources of the archeological literature. The ethnohistorical accounts important to the archeologist are presented in a separate section.

(3) To photographically, and, if possible, descriptively, document the known collections not previously documented.

(4) To relocate previously recorded sites, and to locate sites not pre­viously recorded.

An additional accomplishment was an archeological survey of three tracts of National Park property to evaluate the environmental impact of proposed construction on any archeological resources present.

Archeological base maps were compiled from previous published reports and from the records housed at the Texas Archeological Research Laboratory (TARL), Austin, Texas. New sites recorded during the field investigations also were used (Fig. 4). Only pertinent archeological sources have been an­notated; a comprehensive list of references on various aspects of the arche­ology of the Texas coast from Matagorda Bay south to the state of Tamaulipas, Mexico, may be found at the end of this report. Geological, botanical, zoolog­ical, meteorological, ethnohistorical, and historical references on Padre Is­land National Seashore and surrounding areas also were examined and entered.
as bibliographical references at the end of the report. The relationships each of these fields of study may have on the present archeological situation of the Seashore, and also on the prehistory and history of the area, have been covered briefly throughout this report.

Annotated References on Archeological Resources

Padre Island

Campbell, T.N. 1964 Appraisal of the Archeological Resources of Padre Island, Texas. Report submitted to the National Park Service by the University of Texas at Austin.

Campbell, a faculty member of the Anthropology Department of the University of Texas at Austin, begins the report with a summary of the geology and the natural environment of the island. He points out many of the difficulties which the archeologist encounters when working on Padre Island, such as the difficulty of locating sites due to constant alteration of the surface, etc. He lists the location and the cultural material found at each of 15 sites, much of which is in the hands of private collectors. Of these, Campbell documents the Fitzpatrick, Bowman, and Hess collections from the island. In his opinion the dart point and arrowpoint styles from the island indicate occupation and exploitation by groups from the lower Río Grande Valley areas of Texas and Mexico and also Central Texas during the late Archaic and Neo-American cultural stages. A detailed multiple-disciplinary research approach to the island and its prehistoric remains is recommended.

Adjacent Mainland and General References


The delta of the Río Grande on the Texas side forms a triangle with the apex 75 miles inland and the base between the mouth of the Arroyo Colorado and the Río Grande. The area was once a prairie grassland but is now covered in thorny brush. A large collection of cultural material has been collected from sites within the delta area, mostly close to the shore. The lithic artifacts are listed as flint projectile points, knives, scrapers, drills, hammerstones, nodules, pitted stones, pumice stone pipes, rubbing stones, sandstone abraders, fired beach stones, and rubbed coral. Six pottery classifications are listed as a thin gray with asphalt line decoration with an internal coating of asphalt; buff, brick red with a purplish cast inside; a light greenish gray colored wash, with blackened exterior and brown interior; heavy, buff to brown with no fire marks; fired clay pipes and ceramic discs. Ocher, bone awls, incised tubes, bone pins, flakers, notched bone, bone gorgetlike ornaments, perforated teeth, and tubular bone beads are reported. The marine shell artifacts listed are hand axes, scrapers, tinklers, beads, discs, sockets, plugs for drills, hook-shaped objects, points, pendants, gorgets, specialized tools (gouges), gaming discs, and band ornaments. The freshwater
shell artifacts are incised and plain gorgets, beads and hook-shaped objects, and projectile points, rare green glass points, and rare obsidian points are also listed. The single illustration shows samples of shell and bone artifacts.

Besides the description of the Brownsville focus given by Anderson, the only other account is that of MacNeish (1947, 1958).

Arnold, G.E.

1941 Archeological Reconnaissance of the South Texas Area in Brazoria, Matagorda, and Kleberg Counties. Manuscript on file at Texas Archeological Research Laboratory, Austin.

Arnold reports 13 prehistoric campsites and two large burial sites in the area surveyed. Only brief descriptions of the cultural material are given. He notes a definite change in exploitation pattern between Matagorda Bay and Baffin Bay with an increase in number of snail shells and disappearance of oyster shell middens. He also reports that as late as 1931 there were large deposits of oyster and conch shell along the western shore of Laguna Madre, and oyster was reported associated with prehistoric sites. The collections from these sites housed at the Texas Archeological Research Laboratory at Balcones Research Center in Austin should be reexamined.

Calhoun, C.A.


The vessel described by Calhoun was found in a thin layer of cultural material buried in a sand and clay dune near Corpus Christi. A shallow basin-shaped hearth, a small bronze (?) bell of European manufacture, an iron fragment, a portion of a Rockport black-on-gray olla, flint chips, marine shells, fish scales, and animal bones were found approximately 35 feet away. The site is believed to be a historic Rockport focus campsite.

The illustrated vessel is a small jar with globular body, constricted neck, and a wide flaring rim. It was coiled and perhaps was made from local clays and sand-tempered. The interior and exterior surfaces are well smoothed and unslipped.

The surface color is light grayish buff with decoration of asphaltum and a fugitive red wash. Both interior and exterior are heavily coated with asphaltum, the interior coat apparently brushed on. The polychrome decoration appears on the rim of the vessel. A black asphaltum band is painted on the lip and upper rim; below this band is fugitive red. The asphaltum appears to be painted over the red.

Polychrome decoration on native vessels had not been found previously. The origin of the tradition is not known, although Spanish, Huastecan, or the historic period Goliad ware are suggested as likely sources.

The vessel shape also is unusual and had not been previously reported. Its form suggests a liquid container for collecting water or perhaps ritualistic use.

Campbell, T.N.

This report describes the investigation of the Johnson site in Aransas County, and partial artifactual definitions of the Archaic Aransas focus and the Neo-American Rockport focus are delineated. The site was an elongated shell midden which contained six burials. Two groups seem to be represented by the burials. Flexed burials were found on the north end of the midden and two extended burials were found near the center. This report contains the first documentation of the subsistence orientation of the Aransas focus in the identification of marine shell and animal remains. The major artifact types characteristic of the Aransas are delineated. The differences between the Aransas focus and the Oso are distinguished as are some differences between the Aransas and the Rockport foci. For example, the conch shell adze faded from use at the end of the Archaic period and is not replaced as a cutting tool. The conch columella gouge also fades from use in the Rockport focus, as do a number of geometric designs on tubular bone beads.

Campbell, T.N.


Campbell attempted to make some definition of the Neo-American Rockport focus component. Many of the artifact types were common to the Brownsville and Mier foci of the Rio Grande Valley and a smaller number common to Central Texas. A number of pieces of asphaltum with impressed twined basket marks was found. A good discussion of Rockport pottery is included, and a Leon Plain sherd and a Carretos polychrome sherd from Chihuahua, Mexico, are described. The percentages of arrowpoint types are presented along with a brief description of the other lithic tools from the islands. Campbell believed the area was on the southern limit of the Aransas focus distribution, with evidence of late Archaic dart point styles more oriented toward South Texas.

Campbell, T.N.


This article provides a thorough discussion of the history of the archeological investigations of the Texas coast. The physiology, geology, and climate of the region are briefly described.

A brief discussion of the historic Indian groups is included, which locates the Karankawa between Galveston Bay and Corpus Christi Bay. The Coahuiltecs were placed in southern Texas and northeastern Mexico. The Karankawa tentatively were associated with the Rockport focus and the Coahuiltecs with the Brownsville focus.

The early archeological investigations along the central coast revealed shell middens at virtually every elevated location suitable to human habitation. Small circular shell middens are suggested to be floors of temporary houses. Although not then recognized, these shell middens contained cultural material from two distinct periods, now known as the Aransas and Rockport foci.

In the south, shell middens were reported as rare and the sites are commonly located in clay dunes. These sites seem to indicate repeated occupa-
tions of short duration. Clay dune sites with concentrations of land snails have been found along the mainland between Baffin Bay and Corpus Christi Bay with artifacts similar to those of the shell middens to the north.

The first systematic study of the archeological material was made by Martin and Potter in 1927-1931. E.B. Sayles offered structure to the archeology of the coast by recognizing two cultural units which he named the Oso and Rockport phases, the latter subsequently has been retained with modification for the Neo-American component in this portion of the central coast. In 1935 J. Alden Mason attributed the appearance of asphalt-decorated pottery in the Rockport focus area as Coahuiltecan manufacture with Huastecan influence. Sellard's report (1940) of the Buckner Ranch site near Beeville provided the first evidence of extinct animals and humans as contemporaneous on the Texas Coastal Plain.

The Third Round Table Conference (1943) of the Sociedad Mexicana de Antropología considered the problem of prehistoric relations between northern Mexico and the southern United States. It was thought that contact was maintained by the movement of small groups between the Mississippi Valley and the Huastecan area. Krieger (1948) suggested an inland route for this movement and named it the "Gilmore Corridor."

Between 1947 and 1956, Campbell carried out a series of excavations which were instrumental in the definition of the Aransas focus around Corpus Christi Bay, which preceded the Rockport focus, but which was not identical to the Oso phase. In 1954, Suhm, Krieger, and Jelks assigned the Buckner Ranch site to the Paleo-American stage, the Aransas focus to the Archaic, and the Rockport focus to the Neo-American stage. The date of the Rockport was placed at A.D. 1000 and defined as extending from the mouth of the Brazos River to Baffin Bay.

The archeology of the southern coast is known primarily from the work of A.E. Anderson who documented and made collections from several hundred sites in the Brownsville area. His paper in 1932 provided a list of artifacts and the material from which they were manufactured.

The Brownsville focus was defined by Sayles in 1935 based on artifacts from the Anderson collection. It was further defined by MacNeish (1947) as beginning in A.D. 1000 and extending along the coast from the Río San Fernando in Tamaulipas to the Arroyo Colorado in Texas. He pointed out "trade" items which he believed demonstrated contacts between the Caddoan and the Huastecan areas. MacNeish revised the Brownsville focus in 1958 as being north of the Río Grande with a contemporaneous Barril complex (A.D. 1000-1780) south of the Río Grande.

The Archaic component in South Texas has been defined as the Coahuiltecan branch by Sayles (1935), the Abasolo by MacNeish (1947). These seem to be identical. The Falcon and Mier foci were defined by Suhm and others (1954), but these have not been related to the Abasolo nor the Coahuiltecan. All of these appear to be very similar.

Much of the central and southern portion of the coast is poorly known. At that time there were major information gaps between the Brazos River and San Antonio Bay and between Baffin Bay and the Río Grande; little was known of the barrier islands or of the occupations inland from the shore.

Within the four developmental cultural stages, there are important unsolved problems which are still relevant in 1974.
PALEO-AMERICAN STAGE

There are no "pure" Paleo-American sites reported from the coastal area. The Buckner Ranch site, located approximately 45 miles northwest of Corpus Christi, had extinct fauna associated with both Paleo-American and Archaic material. Other Paleo-American projectile points from the coast are primarily from surface finds.

ARCHAIC

Only the Aransas focus has been defined on the basis of excavation. Its full geographic range has not been determined and dating is only estimated. Many projectile point types are shared with the Edwards Plateau aspect of Central Texas, a few with the Falcon focus of extreme South Texas which has one radiocarbon date of about 2,700 B.C. The Kent point which is common in the Aransas appears as a minor type in the Almagre (2,500 to 1,500 B.C.) phase of Tamaulipas.

The shell artifacts of the Aransas are similar to other shell tools found in cultures along the Gulf from Cuba to northeastern Mexico.

The other Archaic cultures of the coast are not defined or are in a state of confusion as in the lower Rio Grande Valley.

NEO-AMERICAN

The Neo-American sites appear to be more numerous and are defined as the Rockport and Brownsville foci. Neither focus has been supported by much controlled excavation. Sites from both foci have yielded arrow-points, and Rockport focus sites contain pottery. No evidence of agriculture has been found at sites from either complex. The source of the Rockport pottery tradition is unknown, but the Huastecan area is considered to be the most likely source.

The need for Rockport focus sites to be intensively excavated and thoroughly described was emphasized. A second recommendation called for the determination of geographic range.

Excavations in Brownsville focus sites were recommended, also. A complete analysis and description of the Anderson collection should provide a basic understanding of the Brownsville focus. After the above two requirements were met, the relationships of the Aransas and Rockport to each other and to other cultures could be examined.

HISTORIC

Little research at that time had been devoted to the historic period on the coast. Of interest were Fort St. Louis, the site of La Salle's colony, and the Spanish missions and presidios in Victoria, Goliad and Refugio counties. It was suggested that excavations at these colonial sites would offer opportunities to identify the archeological remains of certain documented Indian groups, as well as an investigation of the early stages of the Indians' acculturation. Material from Fort St. Louis was analyzed recently (Gilmore 1973) and excavations at Mission Rosario near Goliad are underway.

The Karankawa are believed to be linked with the Rockport focus. Campbell is now compiling ethnohistorical data on the Karankawa and other Indian groups on the Texas coast.

Two artifacts which were not clearly associated with indigenous archeological material, but which may indicate trade or travel from Mexico,
are a bird effigy vessel similar to ware from Tlatilco (Martin 1930b; Krieger 1953:516) and a green serpentine figurine similar to those from the La Venta region.

The most important need at that time (and in 1974) is primary archaeological data. Campbell stated, "We need systematic archaeological surveys in the more poorly known areas, and we need extensive excavation at a large number of sites, followed by detailed publication" (p. 170).

Campbell, T.N., and Jack Q. Frizzell

This article describes a Brownsville focus burial site on an old channel of the Río Grande about 50 miles above its mouth. The burials contained large numbers of shell and bone beads. The article also contains a discussion of the other foci in the area that have been defined in the lower Río Grande delta area. The article is the first to describe the prehistoric burial practices in the lower Río Grande Valley.

Collins, Michael B., T.R. Hester, and Frank A. Weir

This article is in three parts and includes discussion of materials from the Floyd Morris site, additional information from the Ayala site, and a summary section on burial patterns in the lower Texas coast and the Río Grande Valley.

The Floyd Morris site contained a large number of grave goods of bone and shell beads, shell tinklers, perforated canine teeth, modified human bone, evidence of the use of red and black pigments, and a jadite bead from the Huastecan region of Mexico. The burial site was attributed to the Brownsville focus. Part 2 presents a description of a number of bone pendants which have incised decoration from the Ayala site. Part 3 contained a summary of the large cemetery sites near Corpus Christi Bay where grave goods are rare and which are separate from occupation sites nearby. It is pointed out that human bone beads are essentially the only artifact type common between these sites and those of the lower Río Grande cemetery sites. The two cemeteries also are compared to those known from the interior of South Texas where only single burials have been found. Three hypotheses to explain the differing burial practices found in southern Texas were presented for testing by future archeological investigation: (1) the groups on the Gulf Coast ranged over a smaller area than did the inland group in obtaining their subsistence; (2) the burials in South Texas resulted from repeated seasonal encampments in one locale; (3) differences resulted from differing religious, social and governmental cultural orientations.

Corbin, James E.
Corbin reported on 16 surveyed sites, three of which contain a pure Aransas focus component. These three sites are on the fringe of certain projectile point style ranges. These styles are similar to those found in Central Texas. The other sites containing a Rockport component yielded a mixture of artifact styles from Central Texas and the southern coast. Corbin reported two decorative techniques—the use of red paint and inlaid asphalt designs which had not previously been recovered from the area.

Fitzpatrick, W.S., Joan Fitzpatrick, and T.N. Campbell

This article describes one of the few near complete vessels of Rockport ware presently known. It is a rounded jar 19.8 cm high with a maximum diameter of 18.2 cm and a narrow mouth of 3.6 cm. It has a sand temper with asphaltum decoration on the exterior. The article also includes a brief discussion of the ethnographic descriptions of Karankawan pottery forms and decorative techniques.

Hester, Thomas Roy

Hester reports on sites located on the Cayo del Grullo and Laguna Salado arms of Baffin Bay. The Kleberg County material collected by Arnold (1941) is included in the report. The sites reflect a primarily Neo-American occupation with some vestige of an Archaic occupation present. The Archaic material seems to be concentrated along the Alazan Bay area. In his discussion of the projectile point styles, Hester lists the other sites on the coast where each style also has been reported. Included is the first description of a lithic assemblage from the Texas coast using current morphological terminology of lithic technology. The Olmos biface, a small gouge resembling the larger Clear Fork gouge, is defined, and its limited distribution in southern Texas is noted. Carved human bone artifacts are discussed at some length and are believed to be Neo-American. The pottery sample is predominantly Rockport, with one Goliad-like sherd and two Leon Plain sherds reported. The faunal remains collected were of marine shell, deer, black drum, opossum, and turtle. The presence of oyster in sites reported by Arnold, and their extinction in Baffin Bay is discussed.

The different settlement patterns exhibited by the Archaic and Neo-American sites in the area are discussed. The Archaic components recognized in four sites indicate short occupation with the predominance of sites in the Alazan Bay area. Both South Texas Archaic and Aransas focus peoples were in the area, but some bifacial and unifacial artifact types of South Texas are absent, although a large South Texas Archaic site is located 30 miles inland. He concludes that the Aransas focus people spent more time on Padre Island than on the mainland due to the scarcity of this material in the Cayo del Grullo sites. The Neo-American component site shows both brief and lengthy occupations. The artifacts indicate occupation by various groups from the Rockport and Brownsville foci areas.
Krieger suggests that there were cultural contacts between the southeastern United States and Mesoamerica. The routes proposed for such contacts were (1) the Gulf Coast littoral and Coastal Plain of Texas; (2) across the Gulf by boat from the east coast of Mexico or Yucatán to the mouth of the Mississippi; (3) a long interior route through northern Mexico to southwestern United States or western Texas and eastward across the southern plains; and (4) through the West Indies to Florida and inland to the north and west.

Krieger rejected possibilities 2, 3, and 4 as the routes for diffusion of the fundamental practices of agriculture, building of mounds, and rituals connected with agriculture.

It was postulated that the majority of shoreline sites have been destroyed. Four dugout canoes were reported to have been found on Padre Island but these have not been preserved. Thus Krieger believed documentation of passage along the Texas coast has been lost.

A discussion of the climatic proveniences of the Texas and Mexican coasts is presented in terms of their effects on native economics, diffusion of agriculture, and communications. In terms of precipitation effectivity, 35 inches of annual precipitation, most of which should be distributed fairly evenly over the growing season, is needed for agriculture without artificial water supply systems. This precipitation effectivity level is found north of Copano and San Antonio bays to just south of the mouth of the Brazos River. The area from Baffin Bay to Río Soto la Marina (150 miles south of the Río Grande) has a precipitation level of 25-30 inches on the coast and 20 inches 100 miles inland, thus making agriculture without irrigation impossible. Any fluctuations in climate during the past 2,000-3,000 years are not well understood. The indication is that the ecological balance of the area is delicate with some major alteration caused by droughts in historic times (see MacNeish 1958 for a discussion of the climatic alterations in Tamaulipas). Although Huastecan pottery is reported near Brownsville, Krieger believed this type to be a trade item rather than a representation of a movement of Huastecans into this area. The northern expansion of Mesoamerica was partially checked by climatic conditions.

To travel by land along the Texas coast entails the circling of numerous large bays and lagoons which reach far inland. Travel in the northern portion of the coast around Galveston Bay and Sabine Lake would not be difficult except during floods.

There is no evidence of agriculture in the southern portion of Texas. The climatic conditions make the direct diffusion of agriculture through this area unlikely.

The Gilmore Corridor was proposed by Melvin Gilmore in 1935 as the most likely route across the coastal prairie between the Balcones escarpment and the low coastal plains. This area is crossed by numerous river valleys and Gilmore believed that native agriculture was practiced in the bottomlands of these rivers. Krieger stated that if agriculture were practiced in Central Texas, it was probably only a supplementary subsistence activity. The route is viewed as a route of communication rather than one of cultural diffusion.

The Camino Real, sometimes called the San Antonio Road, passed through the "Gilmore Corridor" from Monterrey, Mexico, to Nacogdoches, Texas. It is suggeste
ed that this Spanish period road was established over a route that was known and used by prehistoric Indians. He cited the funneling of the early explorers and travelers to East Texas through the Central Texas route. The usefulness of the Gilmore Corridor for those making journeys between northeastern Mexico and the agricultural Caddo area of East Texas would be the ease of travel without major natural barriers and the avoidance of the hostile groups along the coast. Six factors used to support the use of the Gilmore Corridor are (1) a list of artifacts of probable Mexican origin found in Central Texas; (2) MacNeish's discussion of the Central Texas route for contact between the Spiro mounds in Oklahoma and Tamaulipas; (3) the location of the Davis site in the first area which agriculturists from Mexico would have found suitable for habitation; (4) ceramic affiliations between the Davis site and the formative ceramics of southern Mexico; (5) the Davis site's direct location on the "Old San Antonio Road"; (6) the funneling of early travelers into this generalized route.

Krieger, Alex D.  

Krieger presents the seasonal variation of dietary practices of the Han and the Copoque Indians and also the Mariames as described by Cabeza de Vaca in 1528. Although these groups are believed to have been located primarily around the Galveston Bay area, the article provides an excellent description of the wide variety of foods used by these groups and also the mobility of these groups in obtaining seasonably available food resources.

Martin, George C.  

This is one of the earliest descriptions of archeological sites on the Texas coast. The sites, located by Martin and Potter in the late 1920s, are briefly discussed and the artifacts are given only generalized descriptions. Martin noted that no site with large accumulations of flint chips and flakes was found except for one on an island in the Laguna Madre. A number of interesting items such as a boat stone, stones with incised decoration, a triangular flint "file," "fish spears," etc., are mentioned and deserve reexamination. Martin's artifact descriptions include materials from private collections as well. All materials were attributed to the Karankawa.

Martin, George C.  

Callo del Oso Bay is in actuality an extension of the southern portion of Corpus Christi Bay. A large campsite covered the peninsula formed by the junction of the False Oso and Corpus Christi Bay. The surface of the site was littered with pottery sherds and broken flint. At the tip of the peninsula two piles of conch shells and two bone implements were found. One com-
plete bone specimen was four inches long and a third of an inch wide with a flat symmetrical tip. Eight such specimens have been found in different sites along the Oso, all in association with piles of conch shells. Many of the conch shells had holes in one side, and it is postulated that these holes were made to extract the meat after roasting it in the shell.

Half a mile southwest of the tip of the peninsula a mass burial was excavated by Martin. Infant and adult skeletons are reported together; the skeletal material was extremely fragile. Five skulls were recovered within a two-foot square excavation. The skeletons with skulls were not articulated. One leg bone had three incisions apparently made with a stone "knife" when the bone was "green." Most of the skulls rested on a layer of leg, arm, and body bones.

Martin and Potter removed 21 skulls from a trench 4x7 feet within 8 to 10 inches of the surface. Artifacts recovered from the burial area were a perforated clam shell disc, a shell pendant with serrated edges, a cylindrical pipe of chalky material, and a silver sword hilt. The pipe and sword are a part of the Dunn collection now at the Corpus Christi Museum.

Martin believed the bones to be the remains of a "cannibal feast" with 90% of the bones from women and children. Subsequent excavations brought the total of uncovered skulls to 53. Many of the additional skeletons were complete.

John B. Dunn uncovered the skeleton of a juvenile lying on its rib cage with arm bones extended above the head and the palm side of the hands turned down and resting on an adult skull. Sixty-four ornaments of mother-of-pearl and a carved black bone bead resembling a beetle were recovered from this burial.

The second site, known as Mud Bridge, was located on a clay subsurface of a bluff on Oso Creek. Only triangular "points," eight "knives," and a hammerstone were reported. Specimens similar to the "knives" are reported to have been found on Banquete Creek, Copano Bay, and another site on Oso Creek.

Martin, George C.


This article describes an effigy bowl believed to be of Middle Mississippi Valley origin which reportedly was found along Petronila Creek. Inside the vessel a pebble of sandstone carved in the form of an alligator or lizard was found. The stone is believed to have been placed inside the vessel during its manufacture because it is larger than the vessel spout. The stone was heavily impregnated with oil.

A carved flint artifact from Salt Lake in Corpus Christi is illustrated with the other carved artifacts and the effigy vessel. This vessel is presently housed at the Texas Archeological Research Laboratory.

Martin, George C.


Martin discusses lumps of fired clay collected from the Padre Island area, Live Oak Peninsula, Ingleside, Copano Bay, Oso and Petronila creeks and sandhills south of Falfurias. He reported that Indians near Matagorda Bay in the late 19th century made use of clay coatings to cook fish. Martin also suggest-
ed the use of clay as casts for the manufacture of pottery vessels and believed he found evidence that these vessels were fired on prepared clay floors. The vessels were packed inside with sand and clay and fired from above. He reported pottery handles from vessels but stated handles were commonly made of fiber or hide put through holes in the side of the vessel about half an inch from the edge. These handles were then coated with clay to prevent burning. One specimen about four inches long from a Copano Bay site had twisted cord impressions.

Potter, Wendall H.

This article is the first systematic description and classification of ceramic material from the central coastal area from Padre, Mustang, St. Joseph, and Matagorda islands. The ceramics were grouped as heavy cookware, light cookware, and water containers. The ceramics described were noted to be distinctive to the area between Baffin Bay and Matagorda Peninsula. The decorative techniques used on the ceramics are described and illustrated along with illustration of two vessels reconstructed from sherds found at two sites in Aransas County.

Raun, Gerald G.

The recovery of canines of the West Indian seal (*Monachus tropicalis*) in two historic sites, the Rancho Diezmero in Nueces County and the Mission Nuestra Señora del Espíritu Santo de Zúñiga (La Bahía) at Goliad, is reported in this article. The Texas coast is not considered part of the *Monachus* natural habitat. Because of this and the fact that only the canines were found, the teeth are believed to have been Spanish trade items. It is recommended that archeologists be alert for additional teeth which may occur in other historic sites.

Story, Dee Ann

This report begins with an excellent review of the extant archeological literature of the Texas coast. The archeological investigations at Ingleside Cove are then described. The ceramic material from this site was placed in one of four categories based on temper and paste composition. This technique discovered that two different clay sources were used in manufacture--Pleistocene clays and Lagoonal clays. Story's analysis of the shellfish from the site and their natural habitats indicates that food-collecting activities were confined to the (1) low-salinity oyster reefs, (2) bay and lagoon margins, and (3) inlet or inlet-influenced areas. There are four other marine resource areas nearby which were not exploited. The analysis of the faunal remains indicates that many small fish were caught, sug-
suggesting the use of nets or traps. The radiocarbon dates from the site indicate occupation sometime between A.D. 1080 and 1280.

Resource Persons, Collections, and Recorded Site Data

In addition to the above reports, a number of other data sources was examined. The George C. Martin collection housed at the Witte Museum, San Antonio, Texas, was given a cursory inspection. This collection is primarily from the Live Oak Peninsula, Aransas County, Texas. The site locations are well documented and the material is partially catalogued with site numbers. The artifacts have not been analyzed but have been briefly described in Martin's publications in the 1930s. Black-and-white and color slide photographs were made of representative samples of the collection.

The files at the Texas Archeological Research Laboratory in Austin were examined for reported sites in San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron counties. At that time there were no collections at TARL from documented sites on Padre Island. The major collections housed at TARL pertinent to Padre Island are the A.E. Anderson collection from the Brownsville area which has never been analyzed, the collections from the Cayo del Grullo area of Baffin Bay (Hester 1969), and the material from the north side of Corpus Christi Bay (Corbin 1963; Story 1968). The locations of these sites and others in the area were plotted on the base map for this report and the collections from the sites in these counties which are housed at TARL also were inspected. A complete listing of the collections appears at the end of this section.

Several persons with professional interests in Padre Island were contacted in an effort to obtain information on additional published material and also information concerning current research in the area in the various specialties. Armstrong Price of Corpus Christi is probably the most knowledgeable and experienced individual on the geological processes which have shaped and are shaping the island. He is presently in his 80s, and is very active and cooperative. Alan Scott and Joe McGowen, of the Bureau of Economic Geology of the University of Texas at Austin, have been engaged for the past few years in various research projects on the Texas coast, although most of it has been to the north of Padre Island. Diana Grunig and Mike McKinley, graduate students in the Department of Geology of the University of Texas at Austin, were interviewed. Diana Grunig is a doctoral student researching the effects of human activity—such as the construction of large dams—on the sediments of the Río Grande and their subsequent deposition on Padre Island. Dr. Marshall C. Johnston, Robert Jackson, and Ronald Hartman, of the Botany Department of the University of Texas at Austin, were consulted in an attempt to gain information concerning edible plants in Texas. Fred Jones of Corpus Christi was referred to by Dr. Johnston as having done extensive work in the Corpus Christi area; however, Mr. Jones was not contacted during the project.

The archeologists who have worked previously on Padre Island or the adjacent mainland and who live in the Austin area were consulted. These include Dr. T.N. Campbell, Anthropology Department of the University of Texas at Austin; Dave Dibble, Director of the Texas Archeological Survey; Elton Prewitt, Grant Hall, and Patience Patterson, Texas Archeological Survey; Dr. Dee Ann Story, Director of the Texas Archeological Research Laboratory; Curtis Tunnell, State Archeologist; Carl Clausen, Barto Arnold, and Alton Briggs, Texas Antiquities Committee; Robert Mallouf, Texas Historical Commission; Dr. Tom Hester, Anthropology Department of the University of Texas at San Antonio; Scott Hayes, An—45—
thropy Department of the University of Texas at Arlington; Rob Floyd, Anthropology Department of Southern Methodist University; Jim Corbin, Washington State University in Pullman; and amateur archeologist Dick Bowen of the Coastal Bend Archeological Society, Corpus Christi, Texas.

T.N. Campbell presently has the records and portions of the collections made by A.E. Anderson in the Brownsville area. He also has the original maps and records from his 1964 survey of Padre Island. Campbell is currently locating and researching the ethnohistorical documents of the Indians of Texas, and he has collected a great deal of information which should be consulted by future workers on Padre Island.

Elton Prewitt made a preliminary examination of the Anderson collection and conducted a field survey in the Port Isabel area which has relocated a good portion of the sites recorded by Anderson. His records and notes are on file at the Texas Historical Commission. Patience Patterson recently completed a survey of Oso Creek and Petronila Creek in Nueces County for the Texas Archeological Survey, Austin. The sites located during this survey are included on the base map in this report. However, the cultural information recovered during the survey has not been analyzed at this time.

Dick Bowen of Corpus Christi has the records and the collections made by the Coastal Bend Archeological Society from sites along Oso Creek and in the Flour Bluff area of the mainland across from the north end of Padre Island. This information has been systematically collected and recorded but has not been analyzed.

The Corpus Christi Museum also was visited, and Director Albert Heine graciously allowed an inspection of the collections housed there. Unfortunately, there were no collections from Padre Island, although they do have a number of collections which contain skeletal remains from the Corpus Christi area. The context in which these have been found, however, is not well documented. They have a number of collections of projectile points and other lithic tools, but the collections are not documented as to specific provenience. A pottery vessel from an unidentified site in Nueces County, which appears to be of Huastecan origin, is in the museum collections. A follow-up of this rare trade item may lead to some information concerning external commercial relations in this portion of the coast. The burial offerings from the Oso described by Martin (1930a) are on display in the museum.

In addition to the prehistoric material, the museum has a portion of the John B. Dunn collection. None of this material seems to have any direct bearing on Padre Island except that Dunn had collected numerous items of historical interest. Copies of the inventory list of the collection are on file at the museum and at the Texas Historical Commission.

There are four major collections of prehistoric material from Padre Island in Corpus Christi held by Louis Rawalt, W.S. Fitzpatrick, James W. Bowman, and Mr. and Mrs. Elwood R. Hess. The latter three collections have been described in part by T.N. Campbell (1964), but he did not photographically record these collections. The Louis Rawalt and the Fitzpatrick collections were examined and representative artifacts photographed. Several attempts were made to reach the Hess family but none was successful. The Bowman family apparently has had some difficulty with the National Park Service due to some of their collecting activities. In any case, Mr. Bowman was not receptive to what he considered would have been a reinspection of his collection. Significantly, his collection reportedly includes the only artifacts from the island that are suspected to have come from a human burial (Campbell 1964:18-21).
A large number of historic artifacts was collected by Curtis Tunnell and Hal Jensen of the Texas Historical Commission (then the Texas State Historical Survey Committee) from the surface of the Brazos Santiago Depot or Fort Polk (Site 41CF4), a Mexican War and later a Civil War post. Included in this collection, now at the THC lab in Austin, are several thousand glass bottle fragments, ceramic sherds, metal artifacts, faunal remains, wooden barrel staves, fragments of various wooden objects, brick fragments, and portions of or complete perishable items—shoes, boots, and raincoats. Dan Scurlock and Danny Fox have analyzed approximately 50% of this material, and more work on the collection is planned for 1974-1975. THC personnel also have amassed a large amount of documentary data—maps, military records, etc.

An even larger collection from Site 41CF4 is owned by Jack Bartholomew, formerly a resident of Port Isabel, now living in Brownsville. His selective collecting of the site for many years yielded a fine collection of bottles—both glass and stoneware, military accoutrements, weapons, and personal items. Photographs of much of this material are on file at the Texas Historical Commission.

The photographic documentation of collections was carried out during a three-week period in February of 1974 in Corpus Christi and on Padre Island. The site investigation and part of the environmental impact survey also was performed during this time. Black-and-white photographs of representative specimens of lithic and shell material from the Rawalt and Fitzpatrick collections were made by the survey team. These are on file with the Office of the State Archeologist, Texas Historical Commission, Austin.

Collections at Texas Archeological Research Laboratory, Austin

Aransas County

41AS1 Johnson site (Martin #52)
41AS2 Kent-Crane #1 (Martin #40)
41AS3 Kent-Crane #2 (Martin #46)
41AS5 Rincon de la Cera (Martin #73)
41AS6 Playa la Dosa (Martin #80)
41AS7 Salt Lake site (Martin #50)
41AS8 Rattlesnake Point (Martin #51)
41AS15 Mustang Lake

A number of small collections (flint, shell, pottery)

N.E. Nelson collection
Carl Chelf collection
A.T. Jackson collection
G.C. Martin collection, Webb Island
Copano Bay collection, Mustang Lake site
Nueces County

41NU1 Arrowhead Island, Webb Island (various collections)
41NU2 Oso Mound (various collections)
41NU3 Bill Jenkins Place
41NU4 Indian Island
41NU10 Spinks site
41NU11 Kirch Meyer site
41NU12 Banquete site
41NU33 (Stanton #27)
41NU39
41NU46
41NU54 Fort Lipantitlán
41NU57
41NU58
41NU59
41NU68 Webb Island
41NU69 Webb Island
41NU70 Webb Island
41NU76 Hugo Icensee Farm
41NU77 John B. Dunn collection (bird effigy vessel, stove pipe, carved stone missing)
41NU90 Calallen #2

Various small collections (flint, shell, pottery, bone, stone pipes)

J.C. Webb collection, Arrowhead Island
G.C. Martin collection, Mud Bridge site
Carl Chelf collection
Alexander Cox collection
Henry Fulton collection
Ben Beckman collection
A.T. Jackson collection
L.C. Bennedict collection
Travis Berlit collection (a Plainview-like point)
Ray Russell collection (includes gray obsidian point)
Wm. Stanton collection

Kenedy County

41KN1
41KN2
41KN3
41KN4
41KN5
41KN6
41KN7
41KN8
41KN9

J.G. Kenedy collection (includes one metal projectile point)
Kleberg County

41KL6
41KL13 (Hester, 1969, and Lotta E. Tunnell collection)
41KL14
41KL28
41KL29
41KL30 (Hester, 1969, and Lotta E. Tunnell collection)
41KL31
41KL32
41KL33
41KL34
41KL35
41KL36
41KL37
41KL38
41KL39
41KL40 (Ronald Tate collection and Lotta E. Tunnell collection)
41KL49 (Lotta E. Tunnell collection)
41KL50 (Lotta E. Tunnell collection)
41KL54
41KL55

Various small collections (flint, shell, pottery, bone, etc.)

W.S. Fitzpatrick collection
Arnold survey collection
E.W. House Farm collection
A.T. Jackson collection
O.B. Bramblett collection
Stanton collection, Padre Island site (includes pottery, six polychrome sherds)
San Fernando Creek collection
Ronald Tate collection

Willacy County

J.F.M. Stephens collection (a Mesoamerican "wheeled toy" monkey--head figurine--head and body only)

San Patricio County

41SP18 Gum Hollow
41SP19
41SP25 (includes a pottery tube)
41SP0 (Jim Corbin survey collection)
41SP11 (Jim Corbin survey collection)
41SP20 (Jim Corbin survey collection)
41SP27 (Jim Corbin survey collection)
41SP28 (Jim Corbin survey collection)
41SP32 (Jim Corbin survey collection)
41SP33 (Jim Corbin survey collection)
41SP34 (Jim Corbin survey collection)
41SP35 (Jim Corbin survey collection)
41SP38 (Jim Corbin survey collection)
41SP39 (Jim Corbin survey collection)
41SP040 (Jim Corbin survey collection)
41SP042 (Jim Corbin survey collection)
41SP043 (Jim Corbin survey collection)
41SP050 (Jim Corbin survey collection)
41SP051 (Jim Corbin survey collection)
41SP052 (Jim Corbin survey collection)
41SP053 (Jim Corbin survey collection)
41SP055 (Jim Corbin survey collection)
41SP056 (Jim Corbin survey collection)
41SP057 (Jim Corbin survey collection)
41SP059 (Jim Corbin survey collection)
41SP061 (Jim Corbin survey collection)
41SP062 (Jim Corbin survey collection)
41SP063 (Jim Corbin survey collection)
41SP064 (Jim Corbin survey collection)
41SP078 Ingleside burial site
41SP068 (Collections presently on loan to C.K. Chandler)
41SP069 (Collections presently on loan to C.K. Chandler)
41SP075 (Collections presently on loan to C.K. Chandler)
41SP076 (Collections presently on loan to C.K. Chandler)
41SP077 (Collections presently on loan to C.K. Chandler)
41SP079 (Collections presently on loan to C.K. Chandler)
41SP080 (Collections presently on loan to C.K. Chandler)
41SP081 (Collections presently on loan to C.K. Chandler)

Small collections (flint, shell, bone, pottery)

Chiltipin collection
Ray Russell collection

Archeological Collections Recommended for Analysis

A.E. Anderson collection

This vast collection with field notes, presently housed at the Texas Archeological Research Laboratory in Austin and partly in the possession of T.N. Campbell, Anthropology Department, University of Texas at Austin, represents virtually all the archeological data systematically collected in the lower Río Grande Valley of the Texas coast. Campbell has analyzed a portion of the collection as has Elton Prewitt, under contract with the Texas Historical Commission. Prewitt's investigation focused on the location and mapping of the Anderson sites; his notes are on file at the Texas Historical Commission. He estimates that an analysis of the collection to "do it justice" would take approximately three years.

Louis Rawalt collection, Corpus Christi

The Rawalt collection is primarily of cultural material from Padre Island. It contains between 30,000 and 35,000 lithic, bone, and shell artifacts, and an uncounted number of sherds. Rawalt has partially catalogued
the collection. He has notes and maps of sites on Padre Island and sites on the adjacent mainland which have not been reported previously. He states that collections made from mainland sites located while making a geological study of the area with Harold Fish were given to the Humble Oil Company. His material from Padre Island has not been systematically organized nor analyzed. Rawalt is presently in his 70s and is not in good health. If his collection is not examined with care and with his help, undoubtedly a great deal of information will be irretrievably lost. He is very cooperative and, we believe, eager to have his collection organized before his death, but does not have the energy to do it alone.

W.S. Fitzpatrick collection, Corpus Christi

The Fitzpatrick collection, most of which came from the north end of Padre Island, has been partially examined by Campbell (1964). Mr. Fitzpatrick also has an extensive catalogued collection from the adjacent mainland in Kleberg and Kenedy counties. Unfortunately, his notes and maps were destroyed in a recent hurricane. His mainland sites probably could be relocated without much difficulty, however, and such a program might stir his memory as to what artifacts belong to which sites. He is very energetic and probably could be persuaded to work with a program aimed at documenting his collection and his information. Sam Fitzpatrick was very helpful and most cooperative with THC personnel and with T.N. Campbell (1964) during his previous investigation of Padre Island.

1974 Archeological Reconnaissance

The survey by T.N. Campbell (1964) located and mapped 15 sites on Padre Island. An additional site, 41NU9, was recorded by Dr. Dee Ann Story in 1967. During February 1974, 13 archeological sites not previously recorded were recorded. These 13 new sites reported include eight prehistoric sites, one prehistoric/historic site, and four historic sites. Ten of these sites were located by Louis Rawalt during the last 30-40 years on Padre Island. The remaining three historic sites are known as Black Hill, Green Hill, and Novillo line camps, built for the cattle operations of the Dunn Ranch (Fig. 4). Of the 29 sites presently known on Padre Island, 20 are within the boundaries of the National Seashore. All sites were assigned numbers using the trinomial system--41 (Texas), KL (county), # (site number within that county). All site locations including those from Campbell's survey were recorded on U.S.G.S. 7.5-minute maps and on Texas county highway maps. These are on file at the Texas Historical Commission and the Texas Archeological Research Laboratory, Austin.

During the field reconnaissance in February 1974, attempts were made with the aid of a rented four-wheel drive vehicle to locate Sites 41NU5, 41NU9, 41KL3, 41KL4, 41KL6, 41KL8, 41KL11, 41KL12, 41KL13, 41KL60, 41KL61, 41KL62, and 41KN12. The only site visible was 41KL60. Sites in the deflated areas are generally exposed because of wind action. However, the unusually wet winter washed sand down into these areas and covered most of the sites present.
In addition to this work, an archeological survey of three tracts of National Seashore property was conducted to evaluate the impact of proposed National Park projects on any archeological material located in these areas. One survey was conducted in February of 1974 in the area of a proposed sewer lagoon construction site adjacent to the two present lagoons west from the Malaquite Beach concession area. No cultural material was observed. On March 14, 1974, one six-acre and one 12-acre tract of National Park property in southern Willacy County were surveyed. This property was reached in a rented four-wheel drive vehicle and surveyed on foot. No cultural material was observed on either tract of land. Reports for both of these surveys have been filed with the National Park Service. Below is a brief description of these sites, all of which were visited by archeologist Warren Lynn in February of 1974.

**Site 41NU9**

The site is a Neo-American component site located north of a shell road opposite Braniff Place. It is west of the golf course and is in a mud flat. The site was discovered by Louis Rawalt and was recorded by Dee Ann Story in 1967. It covers a large area, and Rawalt reports scattered flint, shell, bones, and ceramic material. The site was visited in February of 1974, but no cultural material was observed. At that time a great deal of construction activity was in full operation. The area appears to be scheduled for subdivision. This site is not within the boundaries of the National Seashore.

**Site 41NU152**

A small Neo-American campsite located one mile west of Four Mile Hill and approximately 0.2 mile north of the Nueces-Kleberg county line, the site was discovered by Louis Rawalt who has collected arrowpoints and ceramic material from the site. This site is outside the boundaries of the National Seashore.

**Site 41KL60**

Another Neo-American component site is located approximately 2.4 miles south of Bob Hall Pier and about one-eighth of a mile south of a drilling rig. This site, exposed on the front of a bare foredune, is located outside the boundaries of the National Seashore. The site was located by Louis Rawalt who reported that the largest dune on the island once stood in front of this site. The dune disappeared during the last major hurricane but the site was left exposed. Large quantities of fish and animal bone appear on the surface with some scattered shell, ceramics, arrowpoints, pumice, asphaltum, chipping debris, and a fragment of carved bone. The area was surface collected and a window screen was used to collect faunal remains from the surface sands. Only a small portion of the site seemed to be contaminated by recent debris (broken beer bottles, etc.). A description of the material recovered is presented in the next section.
Site 41KL61

This site, located by Rawalt, yielded both prehistoric and historic artifacts. It is located in the center of the island and at the same latitude as North Bird Island. It is approximately 4.75 miles north of the Malaquite Ranger Station and approximately one-quarter of a mile north of an oil storage tank area. Rawalt's collection from the site includes a sandstone mano and metate and brass military buttons which date circa 1835. An attempt to visit this site was precluded by marshy conditions of the area. This site is within the National Seashore boundaries.

Site 41KL62

This site is located on the edge of a dune field on the west side of the island opposite the beach access road located approximately 2.5 miles north of the Malaquite Ranger Station. It is located in the area which until recently supported a stand of live oak trees. The site contains Archaic and possibly Neo-American components. The area was visited on several occasions in February of 1974, but no cultural material was observed. This site is within the National Seashore boundaries.

Site 41KL63

This Archaic component site located in the active sand dunes on the west side of the island approximately three-eighths of a mile south of Little Dagger Hill and opposite Beacon 63 on the Intracoastal Canal, Louis Rawlt describes as a small campsite which contained large quantities of chipping debris. The site area was visited in February of 1974, but no cultural material was observed.

Site 41KL64

This site, the Dunn Ranch Novillo line camp, is located on the east side of the main park road and west of the Chevron cracking plant approximately three-quarters of a mile north of the Malaquite Ranger Station. It can be seen from the paved road. The site consists of two structures built over water-filled depressions, a hand pump well, corrals, and loading pens. The site was visited in February of 1974 with Robert Whistler, Chief Naturalist for the Seashore, and Richard Sellers, Park Service Historian, Southwest Regional Office. Sellers has since recommended this site for placement on the National Register of Historic Places. No cultural material was observed on the surface of the site (Fig. 5).
Fig. 5. Site 41KL64: Novillo Line Camp, Dunn Ranch
Site 41KL65

Another Dunn Ranch historic site, known as the Black Hill line camp, is located approximately 10.5 miles south of the end of the paved beach access road. The camp consists of two structures and two sets of loading pens constructed of driftwood. The site was visited with Robert Whistler and Richard Sellers of the National Park Service.

Site 41KL66

No cultural material was observed at this Archaic component site located on the western margins of the grassland and eastern edge of the dunes on the west side of the island. This site, now heavily vegetated, is approximately two miles south of Site 41KL3 and east of Dagger Hill.

Site 41KN12

This site is a Neo-American component site located on the southern bank of Boggy Slough. The site was located by Louis Rawalt in the 1930s. It is an extensive site and Rawalt believes it to be the one described by Fuentes during an 1828 survey of the island. In that account Boggy Slough was called Paso de San Agustín (Boyles 1942:12). An attempt was made to visit this site, but the marshy condition of the area prevented a close inspection. The area was covered with grass and sedges, thus the possibility of observing surface material was remote.

Site 41KN13

This Neo-American component site is located behind what is presently the highest dune on Padre Island. The dune is about a quarter of a mile south of a large cylinder-shaped float (4 feet in diameter x 20 feet) which is near the foredunes. It is also just north of the road to the Dunn Ranch. The site was located by Louis Rawalt and his collection includes arrowpoints, pottery, and some shell tools. The site and the artifacts are described by Rawalt as being very similar to Site 41KL60. The site was visited and the surface carefully surveyed, but no cultural material was observed.

Site 41KN14

This third line camp of the Dunn Ranch is known as Green Hill. Architectural remains consist of one bunkhouse structure, an outdoor eating table, corrals, and loading pen; all were built of driftwood. The site was visited with Robert Whistler and Richard Sellers. Several photographs were taken by Sellers and Lynn.
Site 41KN15

This site is probably the location of an outpost camp occupied during the Mexican War by troops of Zachary Taylor. It is located in the dunes four miles north of the wreck of the Nicaragua and one mile south of the Oasis and the south side of a low washout area. The site was located by Louis Rawalt, who has collected various Mexican War period artifacts from the site.

Another site located by Louis Rawalt has not been assigned a number, because its exact location is not known. Rawalt observed the stern and hull of what is believed to be a Spanish galleon exposed in the sand dunes approximately two miles west of the Oasis benchmark. He has not been able to relocate the wreck since it was first observed in 1947.

Sewer Lagoon Survey

An archeological survey of the area to be impacted by a proposed sewer lagoon near the Malaquite Concession was conducted on February 19, 1974, by archeologist Warren Lynn. The survey, conducted on foot, covered a zone approximately 50-75 meters wide and adjacent to two existing lagoons and a service road.

The lagoons are constructed of oyster shells piled on top of the sand surface apparently with little or no excavation done in the construction. To the west of the lagoons is a large freshwater lake with numerous inlets which extend to within ten meters of the lagoons. The area west and north of the lagoons is dotted with small ponds and dry pond beds separated by sand dunes three to five meters high. The area is covered by a heavy vegetation of sea oats, pennywort, sundew, and several species of grasses and wildflowers. The area east of the lagoons has the same vegetation but is consistently dry on the surface.

The entire area showed a great deal of gopher activity, and gopher mounds were carefully inspected for cultural material. No evidence of prehistoric or historic occupation was observed. A cursory inspection of the area south of the service road also revealed no cultural material.

The only known prehistoric sites in the general area are located on the west side of the lake behind the sewer lagoons. Cultural material should be watched for during construction of the new lagoon pool.

Survey of NPS Tracts on South Padre Island

An archeological surface survey of two tracts of National Park Service property on South Padre Island was conducted on March 14, 1974, by archeologist Warren Lynn of the Texas Historical Commission. The two properties, one a 12-acre tract and one a six-acre tract in southern Willacy County, are being considered for trade for other property in the area.
The tract was characterized by a line of low foredunes with a thin section of dense, grassy vegetation directly behind them. The center portion of the island was a wide flat area of hard or loose sand dotted by clumps of sea oats or other vegetation in small dunes. Behind this area was a wide zone of bare sand dunes which extended to the Laguna Madre. Thus, the tract was closed on three sides by a line of sand dunes.

The six-acre tract had a similar topography except for the westward line of dunes.

No prehistoric or historic cultural material was observed on the surface of either tract during the survey.

It should be mentioned that it had rained heavily the day before the survey and a light shower occurred during the survey. These weather conditions are not favorable for surface collecting on Padre Island.

Description of Cultural and Faunal Material, Site 41KL60

This Neo-American component site, possibly dating from the historic period, was reported to the Texas Archeological Survey by John Russell, a Corpus Christi geologist. He sent five sherds of Rockport ware to them for analysis and reported collecting and observing "Rio Grande chert chips, 12 Perdiz arrow points, two other points, several awls, bones and fish and small animals" (John Russell 1973: personal communication).

When located by Louis Rawalt in 1947 it was behind the largest dune on the island. The site subsequently was exposed by hurricane Celia in 1970 and now lies on the beach side of a bare sand dune. The site is approximately 2.4 miles south of Bob Hall Pier and approximately 800 yards south of a line of old highway rail posts which separates the forebeach from the dunes. This line of posts extends along the beach south of Bob Hall Pier to discourage vehicles from driving in the dunes.

Scattered cultural material was collected by archeologist Warren Lynn from the hard surface in front of the dune as well as lying scattered in the sand on the lower part of the dune. The dune appeared to have been shaped by the prevailing easterly winds. A blown-out gap in the dune line appeared to the south of the dune. The dune extends closest to the beach at its southern end and then tapers before the wind as the sand moves to the northwest. Its highest point is about 20 feet. A line of deposited pumice runs parallel to the beach and is approximately ten feet from the dune on the south ends next to a small dune forming in front of the larger one. All artifacts collected were located to the west of this line of pumice. The artifacts were clustered in three areas: (1) the very hard surface before the dune; (2) the compact sand at the base of the dune; and (3) the loose sand of the dune.
(1) The hard surface seems to be a stable surface of the island. The artifacts from this area consist of small flints and small fragments of ceramic material, pumice, and occasionally catfish spines. This area of the site has many tiny mounds of sand which collected around small remnants or new growths of vegetation. Many small artifacts or artifact fragments have collected here; the Perdiz point described below was found at this location.

(2) There were two zones of compact sand which were separated by a low, wide "ridge" of loose sand. Scattered cultural material was exposed across the dune a distance of about 35 meters. The compact sand usually had the larger artifacts, ceramics and shell, and some bone. These seem to migrate up the harder surfaces due to action by the wind.

(3) On the loose sand were large quantities of bone material, and on closer examination ceramics, flint debris, shell, asphaltum, and other material were revealed, all of which are described below. Only the southern end of the site appears contaminated with recent debris from the beach.

The three areas were considered a single site. The site was visited on two occasions. During the first visit, a hand-picked surface collection was made. The ceramic and bone material is quite fragile and needs to be collected with care. During the second visit, the surface of the loose sand areas was collected using quarter-inch window screen. All collections were grouped together for the following descriptions.

Prehistoric Artifacts

Lithics

Projectile Points (3.4% of total lithic assemblage)
1 PERDIZ - 3.45 x 2.08 cm, maximum dimensions (Fig. 6a)
1 PERDIZ - stem fragment, 0.5 cm wide
1 LANCEOLATE - 2.08 x 1.3 x 0.5 cm, maximum dimensions (Fig. 6b)

The complete Perdiz is fashioned from a curved blade flake and on the concave surface only tiny flake scars appear along the edges. A Perdiz would probably not have been made from such a flake. In an area where flint was abundant, no attempt would have been made to manufacture an arrowpoint from this type flake.

The Lanceolate point is finely bifacially chipped with a concave base. It is slightly thicker along one lateral edge.

Utilized Flint Fragments (3.4%)
2 BIPOINTED DRILL FRAGMENTS - Each specimen consists of one end of a small bifacially chipped flint. Specimen A is 0.3 cm in diameter. Specimen B is 0.32 cm in diameter. Original lengths are unknown. These resemble the "drills" that are in the Fitzpatrick collection from Site 41NU5.
Fig. 6
Artifacts from Site 41KL60
1 UNIFACIALLY CHIPPED FLAKE (Fig. 6c) - This flake is irregularly shaped and slightly curved along its lateral edges. Its maximum dimensions are 4.1 x 1.3 cm; its thickness varies from 0.7 cm at one end where there is a hinge fracture to 0.22 cm at the other. The flake has the appearance of a marginally trimmed uniface (Mallouf, Fox, and Briggs 1973:80). There are four flake scars on the unifacial surface which appear to be from use fractures rather than from intentional removal. Both lateral edges and the narrow end show tiny flake scars indicating extensive use, but the entire surface is somewhat polished by the sand which made it difficult to detect wear patterns due to polish.

Flint Debris

The discussion of the lithic debris will follow the definitions presented in Mallouf, Fox, and Briggs (1973:59, Fig. 28).

10 SECONDARY FLAKES (12.1%) - These are small and possibly result from the flaking action of primary or other secondary flakes. No cores were found on the site. Five flakes appear to be corticate chips with no identifiable platform.

21 SINGLE-FACET PLATFORM FLAKES (25.3%) - These are very small and seem to have resulted from bifacial thinning.

29 MULTIPLE SMALL-FACET PLATFORM FLAKES (34.9%) - These also seem to have resulted from bifacial thinning.

23 MISCELLANEOUS DECORTICATE CHIPS (27.7%) - These chips have no identifiable platforms. All are very small, and none shows signs of utilization.

Pumice

Ten specimens of pumice were collected, four of which are partially "melted" and appear to have been fired. One specimen may have been a fragment of a disc (3.2 cm in diameter x 1 cm). None bore any trace of use as an abrader.

Pebble

One small (0.7 cm, maximum diameter) polished pebble of irregular shape was collected. The polish may have occurred naturally.

Sandstone Fragment

One fragment of a sandstone pebble was collected from the site. It is pie-shaped and represents a sphere cut in eighths (straight sides, 2.45 x 2.02 cm). It has a darkened core with gray exterior. Layers of sandstone are observable in the core. Scratches on all surfaces were attributed to natural forces.
Ceramics

A total of 33 body sherds of Rockport ware was collected by archeologist Warren Lynn in February 1974. Including those collected by John Russell, there are 20 Rockport plain ware sherds (two with well-defined coil lines showing on the interior), ten Rockport black-on-gray sherds, and seven possible Rockport plain sherds which have a red serrated interior surface. One has external decoration of two incised lines 0.8 cm apart; two are coated with asphaltum exterior; and one eroded sherd has an asphalt exterior coating. None of the black-on-gray sherds is decorated with a single line of asphaltum. One sherd has two parallel lines of asphaltum 1.6 cm apart. The sherds are tempered with sand and/or bone.

Carved Bone

This is one fragment of the left metatarsal of an adult 

Odocoileus virginianus (4.15 x 1.38 cm) carved with 18 notches near the proximal end. The lateral groove of this portion of the metatarsal also shows signs of wear as if some instrument had been rubbed in the groove to deepen or emphasize it (Fig. 6d).

Amorphous Bits of Fired Clay

Four ounces of small bits of asphaltum were collected. None bore any traces of basketry impressions. It is presumed that the asphaltum was brought to the site for use in pottery decoration or that the specimens were transported.

Historic Artifacts

Plastic

One circular plastic plug (1.72 cm in diameter x 0.4 cm) was collected. It is concave on one surface and resembles a holeless button.

Glass

Six fragments of modern glass from beer and soft drink bottles were collected.

Metal

Eight small fragments of severely rusted, highly polished metal were collected. One appeared to be a small portion of the rim of a tin can.

Faunal Remains

Marine Shell (Invertebrates)

A total of 48 fragments of marine shell was collected by archeologist
Warren Lynn in February of 1974. All specimens were very chalky in texture and bleached white. The most numerous shell is the *Dinacarbiurn* which can be collected on the beach nearby.

24 *Dinacarbiurn robustum*
1 *Polinices duplicatus* (Moon Shell)
2 *Phalium grumulatum* (Scotch Bonnet)
5 fragments of *Oliva sayana*
1 *Busycon spiratum plagosum* (Pear Whelk)
5 *Busycon perversum*
1 *Noetia ponderosa*
5 *Macrocalista nimboea*
4 unidentified fragments

**Vertebrates**

The vertebrate faunal remains were identified by Billy Davidson of Austin. Estimates of individual sizes are presented as are the number of individuals represented. The most numerous individuals are the *Bagre marina* and the *Galeichthys felis*. Both of these feed in the bays and along the Gulf beaches and are most abundant in the summer months (Pew 1966:20). The *Dasyatis*, *Paralichthys*, *Archosargus*, *Sciaenops*, *Pogonias*, *Menticirrhus*, and *Cynoscion* all frequent shallow waters of the bays or beaches during the summer or early fall. The *Pomatomus* generally runs offshore in dense schools year round. The appearance of only one specimen suggests that it was not a primarily exploited species. The adult *Caranx* is generally found offshore but also is found in the mouths of passes and rivers (Pew 1966:36). These may represent specimens washed up on the beach—a common occurrence along the Padre Island shore. Of special note is the appearance of the freshwater species *Ictalurus natalis* and the *Lepisosteus*. These would have had to have been carried to the site or caught in the Nueces Bay area during floods of the Nueces River which is the only time they occur in a marine environment (Terry Leary 1974: personal communication).

It would seem then that the occupation of the site occurred during the summer months and that the hunting grounds consisted primarily of the shallow waters of the beach or the Laguna Madre, and possibly a channel cut between the two. The exploitation of terrestrial species on the island appears to have been of minor importance.

A complete list of vertebrate species from Site 41KL60 may be found in Table 1.

**Plant Remains**

Plant material collected at the site consisted of a variety of species, all of which appear to be recent intrusions at the site with one possible exception, 22 seeds of *Croton punctatus*. These are black and at first were thought to have been charred but it is now believed that this is their natural appearance in this type of environment. Some have small holes in the shells, believed to be the result of being eaten by an insect. The *Croton* is edible although it acts as a diarrheic and in quantity is poisonous (Dr. Marshall Johnston 1974: personal communication).
<table>
<thead>
<tr>
<th>NAME</th>
<th>ESTIMATED SIZE</th>
<th>NO. OF SPECIMENS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unidentified Fish</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Dasyatis sabina</em> (?) (Stingaree)</td>
<td>4 lbs.</td>
<td>1</td>
</tr>
<tr>
<td><em>Bagrus marina</em> (Gafftopsail catfish)</td>
<td>11 lbs.</td>
<td>13</td>
</tr>
<tr>
<td><em>Galeichthys felis</em> (Hardhead catfish)</td>
<td>34 lbs.</td>
<td>30</td>
</tr>
<tr>
<td><em>Ictalurus natalis</em> (Yellow Bullhead)</td>
<td>6 oz.</td>
<td>1</td>
</tr>
<tr>
<td><em>Paralichthys sp.</em> (Flounder)</td>
<td>2 lbs.</td>
<td>1</td>
</tr>
<tr>
<td><em>Caranx sp.</em> (Jack Fish)</td>
<td>22 &amp; 35 lbs.</td>
<td>2</td>
</tr>
<tr>
<td><em>Pomatomus saltatrix</em> (Bluefish)</td>
<td>2 lbs.</td>
<td>1</td>
</tr>
<tr>
<td><em>Archoerius probatocephalus</em> (Sheepshead)</td>
<td>17 lbs.</td>
<td>7</td>
</tr>
<tr>
<td><em>Salanops occilata</em> (Redfish)</td>
<td>19 lbs.</td>
<td>3</td>
</tr>
<tr>
<td><em>Pogoniias armor</em> (Black drum)</td>
<td>11 lbs.</td>
<td>3</td>
</tr>
<tr>
<td><em>Micropogon sp.</em> (Croaker)</td>
<td>6 oz.</td>
<td>1</td>
</tr>
<tr>
<td><em>Menticirrhus sp.</em> (Whiting)</td>
<td>1 lb.</td>
<td>1</td>
</tr>
<tr>
<td><em>Cynoscion sp.</em> (Trout)</td>
<td>2 lbs.</td>
<td>5</td>
</tr>
<tr>
<td><em>Lepisosteus sp.</em> (Gar)</td>
<td>2 lbs.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Unidentified Turtle</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Pseudemys sp.</em> (Slider turtle)</td>
<td>7 lbs.</td>
<td>1</td>
</tr>
<tr>
<td><em>Terrepene sp.</em> (Box turtle)</td>
<td>3 lbs.</td>
<td>1</td>
</tr>
<tr>
<td><em>Elapine sp.</em> (Rat snake)</td>
<td>2 lbs.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Domestic Chicken</strong></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>(Preservation indicates recent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Larus sp.</em> (Gull)</td>
<td>3 lbs.</td>
<td>1</td>
</tr>
<tr>
<td><em>Pelecanus sp.</em> (Pelican)</td>
<td>?</td>
<td>1</td>
</tr>
<tr>
<td><strong>Unidentified small bird (sparrow size)</strong></td>
<td>?</td>
<td>1</td>
</tr>
<tr>
<td><em>Cavia sp.</em> (Lutens* (Coyote)</td>
<td>30 &amp; 35 lbs.</td>
<td>2</td>
</tr>
<tr>
<td><em>Urocyon cinereoargentious</em> (Gray fox)</td>
<td>10 lbs.</td>
<td>1</td>
</tr>
<tr>
<td><em>Geomys sp.</em> (Pocket gopher)</td>
<td>---</td>
<td>1</td>
</tr>
<tr>
<td>(Preservation indicates recent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sylvilagus aquaticus</strong> (Swamp rabbit)</td>
<td>10 lbs.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Odocoileus sp. virginianus</strong> (Deer)</td>
<td>100 &amp; 110 lbs.</td>
<td>2</td>
</tr>
<tr>
<td><em>Bos taurus</em> (Cow)</td>
<td>---</td>
<td>1</td>
</tr>
<tr>
<td>(Preservation indicates recent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Unidentified Cetacea? (Whale?)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Delphinidae</em></td>
<td>?</td>
<td>1</td>
</tr>
</tbody>
</table>

*Family Delphinidae*  
Dolphin (3 vertebra)  

*This specimen is a rib fragment. It appears to be from a mammal larger than a cow or bison.*

**TABLE 1**  
VERTEBRATE SPECIES, SITE 41KL60
**Discussion of Site 41KL60**

Site 41KL60 appears to be a late Neo-American Rockport focus site which reflects a summer seasonal occupation. The site was located behind a large dune which provided protection from the wind and allowed easy access to the beach.

The types of flint artifacts indicate the completion or retouching of bifacial tools which were prepared elsewhere. The projectile points were used on arrows presumably for hunting fish which frequent the shallow waters of the beach, bays, and channel cuts. In addition to exploitation of marine fish, there apparently was a secondary use of terrestrial animal and plant resources.

The site should yield a substantial amount of cultural data concerning the Neo-American period on Padre Island. Although there is some evidence of horizontal artifact displacement, the site appears to have been merely dropped when the sand dune was removed by the hurricane. It should be tested for the amount of horizontal artifact displacement due to natural forces on the island. The testing of this factor is an important consideration for all sites on the island. Controlled area surface collecting may reveal that artifactual distributions are the result of cultural deposition or natural redeposition. Future site investigations could then proceed accordingly.

Because the site is presently exposed to vandalism and is endangered by destruction due to natural forces, it is strongly recommended that the above investigation be carried out as soon as possible.

**Settlement Patterns**

The sites as distributed within these four areas may reflect an exploitation of certain resource areas that occur on the island. However, there are problems with any discussion of patterns of site location in relation to resource areas, because the areas may have shifted or disappeared due to the constantly altering land surface that characterizes Padre Island. The resource areas themselves, although changing location, probably would have been extant in recent history. Many species of flora and fauna probably disappeared or appeared as recent adaptation to the island environment. Pollen studies should be able to provide a picture of any changes in vegetation through time. Distinct resource areas presently recognized are Gulf, beach, grasslands, ponds, marshes, Laguna Madre, North and South Bird Islands, and channel cuts.

Beachcombing activities probably have always been popular among people visiting or living on Padre Island. Driftwood was one major resource utilized by historic occupants for fuel, tools, and shelter; prehistoric Indians probably pursued the same activity. Other materials found on the island include pumice, asphaltum, shells, a variety of edible plants, and in later times, shipwreck material. Dee Ann Story has collected data on a number of historic items that have been aboriginally modified (1974: personal communication).
The broad belt of grasslands, marshes, and ponds is the habitat for numerous species of edible flora and fauna which undoubtedly were exploited by prehistoric populations. What exactly was exploited is a matter of conjecture except for the reports of "rodent bones," twined and woven basketry, and impressed asphaltum occurring in some archeological sites. Plant remains, unless charred, probably will not be recovered from archeological sites on the island. At present there has been no comprehensive, systematic study made of the edible plants available, but the grassland and ponds probably provided a wide variety of exploitable plants in their season such as cattails, pennywort, sea oats, and other seed grasses. Animals include rabbits, mice, gophers, coyotes, deer, and various birds.

The Gulf and Laguna Madre provide excellent fishing; the dried salt grasses along the edges of the Laguna served as excellent tender, and in certain spots probably served as a source of salt. The Laguna, as well as a resource area, also served as a geographical barrier between the mainland and the barrier island. Where and by what means this barrier was crossed by prehistoric occupants is not known. What mechanisms were employed to exploit the Laguna Madre in prehistoric times is not known. In the historic period the Karankawa hunted finfish from canoes or while wading with bows and arrows or spears; the Coahuiltecans utilized bows and arrows, spears, or nets (Gatschet 1967:12, 52).

North and South Bird Islands are nesting areas for a variety of birds and probably were so in the prehistoric period. Although no archeological material has been reported, these two islands and their bird populations undoubtedly were exploited by historic and prehistoric populations. Site 41KL-63 is located near South Bird Island and Sites 41KL12 and 41KL61 are located near North Bird Island, with Sites 41KL6, 41KL7, and 41KL8 located between the two.

Natural channel cuts through the island probably provided excellent fishing potential. Campbell believes that Site 41NU5 was located on a channel cut; this site has heavy accumulations of fish bones (1964:29-30).

Any discussion of the prehistoric subsistence patterns and the interrelationship with settlement patterns must remain hypothetical at this time. The data which must serve as the basis for such a discussion have not been collected. This information is available from the archeological record but is a resource that has not been exploited by archeologists.

The information concerning the relationships of people who lived on Padre Island with those in other regions is based solely on the presence of projectile point types common to Central Texas and the lower Rio Grande Valley. Other diagnostics such as the Rockport pottery, lithic technology, tool types, trade wares, etc., have not been examined carefully. These questions could best be formulated after the archeological situation on Padre itself has been documented, analyzed, and understood.

Information concerning the social, economic, political, and religious organization of the prehistoric groups occupying Padre Island is essentially nonexistent. The information, except for perhaps economic activities, is probably not preserved in the archeological record on Padre Island itself.
because of the absence of artifacts in a state of primary deposition. This information perhaps is available from mainland sites and by inference from the ethnohistorical accounts of the historic Indian groups.

Discussion of the Archeology

Many of the basic questions concerning the prehistoric people and their relationship to their environment and to each other are yet to be answered through systematic examination in the Padre Island area. These basic questions concern cultural chronology, subsistence, settlement pattern, and extra-group relationships.

There are no carbon-14 dates from material recovered from archeological sites on the island. The present information concerning the chronological sequences is based upon projectile point types listed in Campbell's (1964) work ten years ago. The artifacts collected from the new sites recorded in this report cannot be discussed in detail until Rawalt's collection has been analyzed. An analysis of Campbell's report shows the following distribution of dart points and arrowpoints (used as gross indicators of the Archaic and Neo-American, respectively) by sites.

<table>
<thead>
<tr>
<th>SITE</th>
<th>ARCHAIC</th>
<th>NEO-AMERICAN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>41KL1</td>
<td>1</td>
<td>(100.0)</td>
</tr>
<tr>
<td>41KL2</td>
<td>8</td>
<td>(27.6)</td>
</tr>
<tr>
<td>41KL3</td>
<td>18</td>
<td>(64.3)</td>
</tr>
<tr>
<td>41KL4</td>
<td>32</td>
<td>(16.7)</td>
</tr>
<tr>
<td>41KL5</td>
<td>1</td>
<td>(7.7)</td>
</tr>
<tr>
<td>41KL6</td>
<td>8</td>
<td>(6.8)</td>
</tr>
<tr>
<td>41KL7</td>
<td>70</td>
<td>(100.0)</td>
</tr>
<tr>
<td>41KL8</td>
<td>24</td>
<td>(47.1)</td>
</tr>
<tr>
<td>41KL9</td>
<td>5</td>
<td>(71.4)</td>
</tr>
<tr>
<td>41KL10</td>
<td>3</td>
<td>(50.0)</td>
</tr>
<tr>
<td>41KL11</td>
<td>23</td>
<td>(51.1)</td>
</tr>
<tr>
<td>41KL12</td>
<td>4</td>
<td>(100.0)</td>
</tr>
<tr>
<td>41NU5</td>
<td>23</td>
<td>(2.9)</td>
</tr>
<tr>
<td>41NU6</td>
<td>8</td>
<td>(100.0)</td>
</tr>
<tr>
<td>41NU7</td>
<td>1</td>
<td>(50.0)</td>
</tr>
</tbody>
</table>

TABLE 2

DISTRIBUTION OF DART POINTS AND ARROWPOINTS, PADRE ISLAND SITES

The above reveals an interesting pattern of distribution. Only six sites (41KL3, 41KL8, 41KL9, 41KL10, 41KL11, and 41NU7) have a sizable percentage of dart points, and only five sites (41KL3, 41KL4, 41KL8, 41KL11, and 41NU5) have an appreciable number of dart points. There is not a "pure" Archaic component site, but there are four sites (41KL1, 41KL7, 41KL12, and 41NU6) that are solely Neo-American component styles. Table 4 presents the projectile point types identified by Campbell (1964) and the areal and temporal distributions of these types as defined by Suhm and
Jelks (1962). It became evident immediately that the temporal distributions of the majority of the point types are very generalized. Research of individual point types may lead to more specific temporal ranges in other areas (see Sorrow 1967; Johnson 1967), but more absolute methods of dating, if possible, should prove more satisfactory. In any event, the projectile point type names should be used with caution. It probably would prove more fruitful to deal with the projectile points morphologically, e.g., nonstemmed points are characteristic of the lower Río Grande Valley. The temporal sequences should not be linked to the numerical dates provided in Table 4 as these are gross estimations at best. The sequential dating methods of middle Archaic, late Archaic, and Neo-American should prove more meaningful as an indication of significant cultural artifact changes through time.

A number of other interesting observations can be made from Campbell's data: (1) only one point has been found that generally occurs prior to 4,000 B.C.—the Angostura point from Site 41KL3; (2) disregarding the post-A.D. 500 points from the lower Río Grande Valley (Catán and Matamoros), all the earlier point types are representative of the Coastal Plain and Central Texas; (3) the most numerous dart point types appear to be characteristic of the coast and Coastal Plain types (mini-Refugio, 14; Pandora, 11; Catán, 16; Matamoros, 36; and Tortugas, 13); (4) the sites with the largest variety of dart points are 41KL3, 41KL4, and 41KL11; (5) Fresno and Perdiz far outnumber the other arrowpoint types; (6) Campbell repeatedly mentions the scarcity of Scallorn points in Neo-American sites (33), although they almost equal the Starr (35) points; (7) if the Catán and Matamoros points are contemporary with Neo-American arrowpoints, the proportion of lower Río Grande Valley material to that of Central Texas is greatly reduced. This raises important questions concerning the cultural and temporal associations of the Catán and Matamoros points. These questions must be answered prior to the investigation of the temporal and cultural relationships between the lower Río Grande Valley and the north end of Padre Island.

Future work, hopefully, will provide explanations of the significance of these observations which cannot be offered at this time. The inclusion of Rawalt's collection should provide a more complete view of projectile point distributions. The data tend to confirm the expectation that only post-middle to late Archaic material would be found on the island because the island formed in its present location approximately 5,000 B.C. Any earlier material is deeply buried in the island or inundated by the Gulf. Dart points have been reported washing up on the beach at 3.5 and 5.5 miles north of the Mansfield Cut (Brown 1974: personal communication).

The scarcity of other types of lithic artifacts may be attributable to selective collecting of only projectile points. Primarily, these include scrapers, drills, abraders, mano/metates, and tubular stone pipes. A large amount of lithic debris has been reported in many of the sites, but, unfortunately, little of this material has been collected. The presence of lithic debris in quantity suggests that tools were manufactured on the island. The collections and intensive analysis of this material should provide valuable information concerning chipping techniques from the mainland sites.

There has been no systematic study of the subsistence patterns as might be reflected in the archeological sites on Padre Island. Campbell did note
that faunal remains were present at Site 41KL8 (marine shell), Site 41KL10 (mammal bones), Site 41KL12 (marine shell, bones of fish, deer, bison or cow, rabbits, and rodents), Site 41NU5 (fish and rodent bones, marine shells), Site 41NU6 (marine shell), and Site 41NU7 (oyster shell midden). Virtually none of this material has been collected and none has been analyzed.

It has been pointed out by Story (1969) and Fritz (1972) that there may have been significant differences in the subsistence orientation of the Archaic and Neo-American peoples on the Texas coast. Both Fritz and Story dealt with areas where shell middens were present. Shell middens do not appear on Padre Island. The nearest shell midden reported is Site 41NU7, on the south end of Mustang Island.

If differing subsistence orientations between the Archaic and Neo-American periods did exist, these should be reflected in the sites on Padre Island. Sites 41KL3, 41KL4, 41KL8, and 41KL11 have yielded the most predominant Archaic components. Faunal collections would have to be made from numerous sites on the island, and studies of species, number of individuals, habitats, etc., would have to be compiled to provide the basis for statements concerning the subsistence practices evident on the island. Intersite comparison of this data then could be made. The only extensive collection of faunal remains from the island was made by archeologist Warren Lynn from Site 41KL60, a late Neo-American site.

The settlement patterns on the island seem to conform to four types of natural areas: (1) on the banks or shore of channels cut through the island (Sites 41NU5, 41NU6, 41NU7, and 41KN12); (2) on the western portion of the island between the Laguna Madre and the lakes in the center of the island (Sites 41KL1, 41KL2, 41KL3, 41KL4, 41KL5, 41KL9, 41KL10, 41KL12, 41KL62, 41KL63, 41KL66, 41NU9, and 41NU152); (3) on the east-central portion of the island between the foredunes and the lakes (Sites 41KL6, 41KL7, 41KL8, 41KL11, 41KL59, 41KL61); and (4) behind large foredunes (Sites 41KL60 and 41KN13).

The Archaic sites occur within areas 2 and 3, while the Neo-American sites occur in all four areas. Louis Rawalt believes that the Archaic sites cluster in the area between South Bird Island and Dagger Hill.

**Offshore Spanish Shipwrecks**  
*(Mansfield Cut Underwater Archeological District)*

In the fall of 1967 operations to recover mid-16th-century Spanish material from shipwrecks off Padre Island just north of the Mansfield Cut was initiated by Platoro, Ltd., of Gary, Indiana. At the request of the State Land Commissioner, the Attorney General issued an injunction to halt operations. All the recovered material was returned to Texas from storage in Indiana between December 1968 and June 1969. In March of 1969 Platoro requested a permit to conduct further recovery of material at the shipwreck site. However, this permit was precluded by the Antiquities Code of Texas which was passed by the Second Special Session of the 61st Texas Legislature in September 1969 (Sadler n.d.:11-16).
The State initiated its own recovery operations and research of coastal shipwrecks in the summer of 1970 through a contract between the Texas Antiquities Committee, created by the above-mentioned Antiquities Code, and the Institute for Underwater Research, Inc., based in Dallas, Texas. A magnetometer survey was carried out by the Institute of the area in which Platoro had conducted its operations. Thirteen of 24 anomalies recorded were investigated by divers, but only one of these, Site 41KN10UW, yielded Spanish Colonial artifacts and these dated from the 16th century (Hays and Herrin 1970). This material presently is at the Balcones Research Center Conservation Laboratory, Austin.

During the summer of 1972 the first State-sponsored and State-funded archaeological research project in the nation was conducted at this same shipwreck site (41KN10UW). Some 6,400 pounds of artifacts were recovered including at least six rare breechblocks from early "hoop barrel" type cannon, two anchors, a number of silver discs, and a lead sounding weight. A section of the ship's hull also was uncovered but was not removed from the site. A detailed magnetometer survey of this site and another wreck (Site 41WY3UW) of the 1554 fleet also was carried out.

The following summer the Antiquities Committee continued recovery of artifacts at Site 41KN10UW which by this date had been identified as a small Spanish vessel, possibly a Castillian caravel, of the period 1535-1564. An estimated 20,000 pounds of encrusted artifactual materials were brought to the surface and transported to the Balcones facility for cleaning and stabilization. Significant 16th-century Spanish maritime material culture--ship's gear, armament, general hardware, foodstuffs, ceramics--were included in this group of artifacts. A large portion of the structural section of the keel and attendant deadwood also was recovered.

While surveying the beach and adjacent portions of the island during the summer of 1973, evidence of a Spanish Colonial camp (Site 41KN11) was found. This may prove to be the survivors' and/or salvagers' camp associated with the 1554 wrecks. Iron ship fastenings and coins reportedly have been found at this site by local collectors. A report on these two State-sponsored excavations and the recovered artifacts from all operations is now in preparation (Clausen 1974: personal communication; Fig. 7).

In early 1974 a collection of Spanish Colonial coins, metal scraps, and Indian artifacts was confiscated from a local collector by National Park Service personnel from the National Seashore. This material was collected from a stretch of beach opposite the site of the 1554 shipwrecks. At this writing the collection is at the Padre Island National Seashore headquarters in Corpus Christi.
Fig. 7

Artifacts from Site 41KN11
<table>
<thead>
<tr>
<th>COUNTY</th>
<th>SITE</th>
<th>CULTURAL AFFILIATION</th>
<th>RECORDED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nueces</td>
<td>41NU5</td>
<td>Archaic/Large Predominantly Neo-American</td>
<td>Campbell 1964</td>
</tr>
<tr>
<td>Nueces</td>
<td>41NU6</td>
<td>Small Neo-American</td>
<td>Campbell 1964</td>
</tr>
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<td>Arnold 1973</td>
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<td>1554 Spanish Shipwreck</td>
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<td>Willacy</td>
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<td>1554 Spanish Shipwreck</td>
<td>Arnold 1972</td>
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</tbody>
</table>

**TABLE 3**

**ARCHEOLOGICAL SITES, PADRE ISLAND**
Cultural Complexes of the Central and Southern Coast of Texas*

Archaic Stage

Aransas Focus

COMPONENTS

Type Component: Johnson site (Campbell 1947)
Other Excavated Components: Kent-Crane and Live Oak Point sites, both on Live Oak Peninsula, Aransas County (Campbell 1947)

TYPE OF SITE: Shell middens located on shore of coastal bays and lagoons

HOUSES: No data

LIVELIHOOD: Extensive use of shellfish, principally oyster, clam, and conch; also utilized for food to a considerable extent were various large animals (bison and deer), and small game such as peccary, raccoon, rabbits, and various aquatic birds. Fish, and to a lesser extent, wild plant products were also used. No evidence of agriculture.

CERAMIC TRAITS: Absent

ARTIFACTS OF CHIPPED STONE

Projectile Points

Arrowpoints: Absent

Dart Points: Types Ensor, Marcos, Lange, Kent and Travis most common; Tortugas, Matamoros, Catán, Abasolo, and Palmillas also occur. Castroville, Desmuke, Bulverde, Ellis, Fairland, Kinney, Nolan, and Morhiss appear rarely.

"Dart" points along the whole coastal margin are generally much smaller than in the interior, probably due to the scarcity of stone of any kind and the Indians' need to utilize the smallest pieces.

Drills: Small, made from flint flakes

Scrapers: Plano-convex end scrapers; flakes with retouching on one or more edges

Gravers: Made from small flint flakes; not common

Knives: Triangular form; lateral edges slightly convex and bases vary from straight to convex

Axes: Percussion-chipped, thick in cross section, and more or less oval in outline

ARTIFACTS OF POLISHED STONE: No data

*from Suhm, Krieger, and Jelks 1954:121-127, 130-133

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ARTIFACTS OF GROUND STONE
Limestone and sandstone abraders

Milling stones: Sandstone, shallow basin

Molos: Sandstone, oval in outline, and evidence of use on only one face. Grinding implements are uncommon.

Large tubular sandstone pipe with stem made from the long bone of a bird

ARTIFACTS OF BONE AND ANTLER
Tubular beads of bird bone, less frequently of long bones of mammals; both plain and decorated. Decorations consist of simple geometric designs, both incised and "dotted" (lines of tiny drilled holes).

Awls: Usually made of deer ulnae; also from split bone, sometimes decorated in a manner similar to the beads; and splinter awls with only the tip smoothed

Pinlike objects, pointed at one or both ends, either plain or incised

Antler occasionally used for awls and flintknapping tools

ARTIFACTS OF SHELL
Adzes or Axes: Made from conch shell whorl (wall), rectangular, beveled on one edge or on opposite edges

Gouges: From conch columella with anterior of columella fashioned into chisel-like cutting edge

Small disc-shaped objects cut from the whorl of conch shell
Scrappers: Made from the lip portion of the conch body whorl
Centrally perforated oyster shells
Clam shell knives or scrapers with chipping along one edge
Awls: Made by sharpening the tips of conch shell columellae

MISCELLANEOUS TRAITS
Twined basketry indicated by impressions preserved in asphalt; also matting, but technique uncertain

Miscellaneous lumps of asphalt

Hammerstones: Oval, streamworn pebbles or flint nodules

Various soft stones probably used as source of pigment
BURIAL CUSTOMS
Placed either flexed or extended in shell middens; unaccompanied by offerings of a durable nature.

RELATIONS
Presence of flint (not occurring naturally on coast) indicates trade with inland groups or trips inland to the sources of flint.

Most of dart point types named above shared with Edwards Plateau aspect

ESTIMATED AGE
No objective basis for dates at present; more or less contemporaneous with other Archaic complexes such as Edwards Plateau aspect.

Neo-American Stage

Rockport Focus

COMPONENTS
Type Component: None designated
Excavated Components: Mustang Lake and Live Oak Point sites, Aransas County; Webb Island site, Nueces County
Other Components: Numerous pottery-bearing sites on coastal plain from Matagorda Bay to Baffin Bay

TYPE OF SITE
Small campsites and shell middens located near island and mainland beaches, and inland on the coastal plain

HOUSES: No data

LIVELIHOOD: Fish and shellfish; large and small animals; birds; roots, berries, and water plants

CERAMIC TRAITS
Pottery types: Rockport Plain, Rockport Incised, and Rockport Black-on-gray

Paste is gritty, hard and compact with tiny white inclusions of bone and shell (?) frequently showing on surface.

Forms: Bowls, bottles, possibly jars; in some instances the bases appear to be conical.

Decorations: Asphaltum used to make broad lines, squiggles, dots, etc., on upper parts of vessels; incised lines occasionally occur.
ARTIFACTS OF CHIPPED STONE

Projectile Points

Arrowpoints: Perdiz, Scallorn, Cliffton, Fresno
Dart Points: Matamoros and Catán types appear to survive.

Small handaxes: Roughly chipped stream pebbles

Knives: Small, leaf-shaped

Scrapers: Small flakes, and rounded, snubnosed scrapers

Small drills, made from flakes

ARTIFACTS OF POLISHED STONE: Pendants

ARTIFACTS OF GROUND STONE

Grooved sandstone

Small river pebbles, probably used as abrading stones

ARTIFACTS OF SHELL

Freshwater and marine shell pendants

Seashell beads

Triangular arrowpoints

Conch and oyster shell axes with perforation for hafting

Scrapers: Cut from section of conch shell with bevel along cutting edge

Needles or awls

ARTIFACTS OF BONE AND ANTLER: No data

MISCELLANEOUS

Perforated animal teeth

Hammerstone of pebbles, including flint nodules

Lumps of asphaltum, obtained on nearby beaches

BURIAL CUSTOMS: No data

RELATIONS

Projectile points made from glass show complex continued into European times.

Other items of European origin include clay pipe and artifacts of metal.

Sharing of arrowpoint types with the Central Texas aspect and Galveston Bay focus
ESTIMATED AGE: From sometime after A.D. 1000, lasting until 1800 or 1850

Brownsville Focus

COMPONENTS
Type Component: None designated

Excavated components: Ayala site, Hidalgo County (Campbell and Frizzell 1949)

TYPES OF SITES: Small campsites, usually situated on rises along streams or arroyos; characterized by hearth areas with an abundance of broken shell

HOUSES: No data

LIVELIHOOD: Use of various sea foods, game animals and wild plant products; no evidence of agriculture

CERAMIC TRAITS
All the pottery appears to be intrusive mainly from the Huastecan area (Periods V and VI) on the east coast of Mexico, and to a lesser extent from the Rockport focus

Pipes
Discs

ARTIFACTS OF CHIPPED STONE
Projectile Points
Arrowpoints: Starr and perhaps Fresno types (stone is rare near coast; chipped artifacts are diminuitive and difficult to classify). See also shell artifacts.
Dart Points: Matamoros and Catán types

Scrapers: Small, round, humpbacked; and flakes

Drills: Pointed at one or both ends, vary from 1 to 2 inches in length

Knives

Chipped nodules (blades?)

OTHER ARTIFACTS OF STONE
Abrading stones of pumice
Sandstone abrading and rubbing stones
Fragments of rubbed coral
Large tubular pipes of pumice
ARTIFACTS OF POLISHED STONE: No data

ARTIFACTS OF BONE AND ANTLER
Bone awls
Pinlike ornaments of bone
Bone gorgets
Tubular bone beads, sometimes incised with geometric designs
Flaking tools of bone and antler
Notched pieces of bone

ARTIFACTS OF SHELL
Mussel shell scrapers
Fishhooks, rare
Carved pendants of both mollusca and conch shell, with or without decoration. Decorations, when present, consist of geometric designs. Conch shell pendants vary from triangular to square, oval, or unaltered.
Tinklers of Oliva beads
Disc beads from freshwater shells
Cylindrical conch shell beads
Awls
Conch shell gouges
Conch shell adzes
Projectile points from conch columella, round in cross section, polished to long tapering point and polished and beveled square base

MISCELLANEOUS TRAITS
Soft materials probably used as source of pigment
Hammerstones
Perforated animal teeth
Rarely, arrowpoints made of bottle glass, similar to those of flint

BURIAL CUSTOMS: Usually flexed, with or without burial offerings. Offerings, when present, usually consist of beads, pendants, and/or pottery.

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RELATIONS

Huastecan pottery types: Huasteca Black-on-white, Tancol Polychrome, Tancol Brown-on-buff (all from Period VI; Las Flores Red-on-buff and Las Flores Relief Ware (all Period V); possibly Zaquil Red from Period IV. All probably trade ware from southern Tamaulipas. Ekholm (1944) defines types and periods.

Obsidian suggests trade to the south, in Mexico.

Two jade objects: a spherical bead and celtlike object one inch long, from the south, probably Huastecan region.

Rockport Black-on-gray (?) from Central Gulf Coast of Texas

ESTIMATED AGE: Beginning date probably sometime after A.D. 1000; extends into early historic times (MacNeish 1947)
<table>
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<tr>
<th>TIME</th>
<th>DISTRIBUTIONS</th>
<th>PROJECTILE POINT TYPES</th>
<th>ARCHAEOLOGICAL SITES</th>
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<td>Central Texas to Central Coast to Plains</td>
<td>Lange</td>
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<td>Castroville</td>
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<td>Nolan</td>
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<tr>
<td>4,000 B.C.-A.D. 1000</td>
<td>Edwards Plateau aspect</td>
<td>Pedernales</td>
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<td>4,000 B.C.-A.D. 1000</td>
<td>Coast to Southwest Texas</td>
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<th>PROJECTILE POINT TYPES</th>
<th>ARCHAEOLOGICAL SITES</th>
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<td>Victoria, Refugio counties</td>
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<td>Pecos to Central Texas to lower Guadalupe and Sabine rivers</td>
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**TOTAL** 1 29 28 120 13 117 70 51 7 6 45 4 787 8 2 1,388

**TABLE 4**
TENTATIVE CHRONOLOGY AND DISTRIBUTION OF PROJECTILE POINT TYPES FROM PADRE ISLAND ARCHAEOLOGICAL SITES
Padre Island National Seashore is located in a unique environmental setting offshore from the coastal prairie of South Texas. The seashore boundaries encompass the central portion of a barrier island which stretches southward from Corpus Christi Bay 117 miles almost to the mouth of the Rio Grande. The series of barrier islands that merged to form Padre Island resulted from unusual climatological and geological phenomena between 3,000 and 2,000 B.C. (Price 1958; Fisk 1959; Hunter and Dickinson 1970).

As the island formed through the combination of a predominant south-easterly wind, silt deposited by the Nueces River, the Rio Grande, and the Gulf, the wind began to carry the sands back across the Laguna Madre, between the island and the mainland, to leave it on the prairie land to the southeast of the Reynosa. Vegetation quickly adapted to the rich soils transported from the hills and mountains of New Mexico, Mexico, and Texas redeposited together on Padre Island's long curve (Price 1974: personal communication).

Plants are not the only living things that adapted to a harsh, changing environment. Humans and animals roamed this land when the seashore was far to the east and the land surface was between 30 and 50 feet below the present surface (Fisk 1959). It is probable that prehistoric sites belonging to the Paleo-Indian period (10,000 to 5,000 B.C.) and the early part of the Archaic (5,000 to 2,000 B.C.) lie to the east of Padre Island and are covered by the waters and sediments of the Gulf of Mexico. Between this period and the arrival of the first Europeans Padre Island was visited by groups of Indians from the nearby mainland who exploited the plant and animal resources of the island.

In the early 16th century Alonso Pineda sailed the Gulf Coast under the order of Francisco Garay, Governor of Spanish Cuba, preliminary to colonization of the area at the mouth of the Rio Grande, eight miles south of the southern tip of Padre Island. This colonization effort was not successful.

The first recorded European visit to Padre Island and the initial European contact with Indians on the island, either Karankawa or Coahuiltecs, was that of 300 survivors from a Spanish fleet wrecked offshore in 1553. Although there were Spanish and French exploration and settlement in areas adjacent to Padre Island in the late 17th and early 18th centuries, it was the mid-18th century reports of English settlements on the Texas coast that led Diego Parrilla to explore Padre Island and record the first descriptive facts about the island.

The island, however, remained void of permanent human habitation until 1805 when Padre Nicolas Ballí received a grant to "La Isla Blanca" and established Rancho Santa Cruz de Buena Vista. Subsequently the island was the scene of military activity during the Mexican War, the War between the States, smuggling activities, periodic ranch operations, and land speculation under various and multiple owners and squatters until 1883 when Pat Dunn began a concentrated and successful effort to raise cattle and gain control of the island. His heirs continued cattle operations on the island until 1970 when all cattle were removed from the island.
Petroleum exploration began on the island in early 1900 and has continued to the present. Resort developments in 1907 by the Tarpon Beach Corporation and in the 1920s and 1930s by Sam Robertson failed, but new developments blossomed in the 1960s. These activities aroused the concern of Texas' U.S. Senator Ralph W. Yarborough and other individuals who were instrumental in preserving much of the island through establishment of the Padre Island National Seashore in 1962.

There are 23 known prehistoric and historic sites on Padre Island; 15 of these sites (41KL1, 41KL2, 41KL3, 41KL4, 41KL5, 41KL9, 41KL10, 41KL11, 41KL12, 41KL61, 41KL62, 41KL63, 41KL66, 41KN12, 41KN13) are within the National Seashore boundaries. Because of the presumed transient nature of the groups who lived or visited this portion of the coast, the character of these sites should not be discussed in isolation but rather within the framework of the prehistory/history of the entire region, specifically the adjacent regions of Central Texas, South Texas, and the upper and central Texas coast. Specific recommendations for investigating these sites and other aspects of the archeology of Padre Island are presented in the next section.
RECOMMENDATIONS FOR ARCHEOLOGICAL
INVESTIGATION OF PADRE ISLAND NATIONAL SEASHORE

Programs

This report is an appraisal of the archeological resources of Padre Island National Seashore. Specifically, we have documented the location of site collections, maps, unpublished and published data, and photographs; presented the location of additional archeological sites previously located but not reported by amateur archeologists; and made recommendations for future archeological research.

Ten years ago, T.N. Campbell recommended detailed multidisciplinary studies of this "dynamic environment." This information is becoming increasingly available through the efforts of graduate students and staff from several universities and colleges of various states. Many of these studies are on file at the headquarters of the National Seashore; the National Park Service should continue to encourage these studies.

A comprehensive archeological program should be implemented in the near future for Padre Island and the adjacent mainland. It should include the following.

(1) Louis Rawalt as a collector, participant, and observer in many of the recent historical developments of the island, is a primary resource. An urgent and primary objective should be the careful documentation of his collection and a thorough examination of his notes of both Padre Island and mainland sites. For example, he has located over 30 sites along the Laguna Madre south of Baffin Bay. It would be unfortunate to lose this information which presently is available. It is possible that he would be receptive to the idea of donating his collection to the National Park Service, if housed at the University of Texas at Austin, Balcones Research Center. In addition, as a source of historical events and anecdotes, he is untapped.

(2) The collection of W.S. Fitzpatrick, Corpus Christi, needs to be carefully analyzed and the A.E. Anderson collection in Austin has never been completely analyzed. A program aimed at the comprehension of the prehistory of Padre Island and its relationship to the Texas coast cannot ignore these important collections. In addition, other Padre Island collections notes on pages 46-51 also should be analyzed.

(3) Because of the magnitude and complexity of the programs necessary for a comprehensive archeological investigation of Padre Island it will be necessary to establish a permanent headquarters, probably at Corpus Christi, and to staff it with administrative and research personnel necessary to coordinate and support the various field research teams. In addition, it would be feasible to have a "district" base camp on the island, perhaps utilizing one of the oil camps or the National Park Service "bunkhouse" on the central portion of the island. Portable buildings or large tents with wood floors could be set up at one of these locations as supplemental facilities.
A major problem is relocating known archeological sites and then recovering archeological material. The sites are mapped to a reasonable degree of accuracy. A complete survey of presently known sites—to relocate and replot these sites on maps made preferably from aerial photographs such as the South Bird Island, Texas, 7.5-minute maps of 1969 is recommended. The other kinds of topographic maps are not as useful for accurately mapping site locations. The National Park Service should acquire a complete set of aerial photo maps, both standard and infrared, for the entire seashore. To the inexperienced, however, maps of Padre are not really meaningful; it is the location on the ground that is meaningful. It is therefore essential that site locations be exactly marked in some fashion so as to be visible some distance away. Poles set in a concrete base would identify the sites and therefore make them more accessible. Any low marker would have the same fate as the site itself—covering by sand. Periodic surface collections, when physical conditions produced exposure of cultural material, should compile an abundant body of archeological data from which to proceed. This method has proven successful to collectors before the Seashore was established. Because many of the sites are on the western portion of the island, the chances of their visitation by the casual park visitors is reduced. If the marker is identified as a reference point or as a 'Park Study Area' perhaps the sites will avoid too much disturbance. Surface collections made from these sites should include everything—not just the points, flint tools, and ceramics that have been collected in the past. The method of collections is probably unimportant because of the unlikelihood of material being in a position of primary deposition. However, if such a site is discovered, then all surface material should be recorded in situ to retrieve potentially valuable information such as tool-making areas, butchering areas, house sites, etc. All material recovered should be subjected to intensive inspection and analysis, using the most recent analytical methods available. The majority of the presently known sites are north of Boggy Slough which makes their accessibility for periodic inspection and collection less of a problem.

The analysis of the Anderson, Rawalt, and Fitzpatrick collections, and salvage operations on Sites 41NU5 and 41KL60 would allow ample opportunity for archeologists to become familiar with the Padre Island area and the varying ecological conditions which should provide a maximum of efficiency when conditions resulted in site exposure.

Salvage programs for Sites 41NU5 and 41KL60, which are outside the Seashore's boundaries, should be initiated as quickly as possible. Sites 41NU5 and 41NU9 are in immediate danger of destruction by the construction activities of the growing community on the north end of the island.

Site 41NU5 is a large, predominantly Neo-American site. Campbell (1964:29) states, "For Padre Island and the nearby mainland, the number of artifacts, particularly arrowpoints, is phenomenal. Fitzpatrick's collection from the site consists of over 1,200 specimens, and Rawalt's collection is several times larger." The site probably represents a major population concentration. Campbell (1964:31) suggests that it was occupied by many Neo-American groups and that the individual occupations were of longer duration than the other sites on Padre Island. Present collections from this site consist primarily of projectile points and pottery. The size of the site itself may indicate a location of many bands congregating for the fishing season. If this be true, the site possibly could yield valuable information.
concerning trade relationships, ceremonial activities, subsistence, and possibly population densities and social organization. Without further investigations at the site, much of the important archeological data will be irretrievably lost.

Site 41KL60 is one of two known sites located behind large foredunes. The other is within the National Seashore boundaries but lies over 30 miles to the south and is the only known prehistoric site south of Boggy Slough. It is possible that Site 41KL60 is a historic Indian site. Its location on public beach makes the site easily accessible to a salvage operation but also means the site is vulnerable to vandalism and destruction by natural forces. This site also would perhaps be an excellent site on which to test the amount of horizontal artifact displacement and what kinds/amounts of data might be retrieved by carefully controlled surface collecting. The fact that the site was not totally destroyed and scattered by the hurricane which did remove the large dune protecting the site suggests that although vertical displacement has occurred, horizontal deposition might be somewhat preserved. The testing of horizontal artifact displacement would provide a measure by which to formulate collecting strategies which will provide a minimum of data loss during future site investigations.

The faunal remains from this site are the first of such to have been analyzed from Padre Island. They indicate a probable summer occupation with subsistence exploitation focused on fish which inhabit the shallow waters of the bays, channels, and Gulf beaches.

Salvage operations conducted on Sites 41NU5 and 41KL60 will provide a basis for comparison of the cultural and ecological data which can be recovered from the archeological sites within the National Seashore.

The location of Site 41KL60 in proximity to the beach and the possible location of Site 41NU5 on an old channel cut may indicate that specific location for exploitation of fish resources. All the presently known sites within the National Seashore are and presumably were located primarily near the center of the island except for Sites 41KL12, 41KN12, and 41KN13. A comparison of the cultural material from the inland sites to the channel and beach sites may possibly allow the formulation of inferences or interpretations concerning prehistoric exploitation of the island's resources.

(6) Since environmental conditions on the island vary because of seasonal droughts, storms, rain, landform, wind direction and intensity, etc., affecting the locating and collecting from land sites, the land survey will have to be conducted over a period of at least two years. It should be possible to obtain a fairly accurate understanding of the archeological situation by delineating east-west transects or study areas across the island at intervals up and down the island with coverage of all types of environmental settings—marsh, bare dunes, stabilized dunes, grassland, beach, mud flats and so on. These transects, approximately three miles wide and 15 miles apart, should include every microenvironment on the island. Each of these 'plots' would be surveyed carefully on the surface in May and January of the two study years; these are high and low periods of annual precipitation. They would be checked also after tropical storms or any other phenomena which would alter the surface of the island and potentially expose sites or artifactual material.

Environmental data could be gathered from these areas by the botanist and the geologist during the two years related to geological and floral history of the island, exploitable resources, identification of plant and geological specimens recovered by the survey team, and so forth.
The five study areas should include the following sites: (1) survivors'/.salvagers' camp (Site 41KN11) and the beach debris opposite offshore shipwrecks north of Mansfield Cut; (2) Site 41KL60; (3) Site 41KL65; and (4) Site 41KN13 and 41KN14.

Following the month-long intensive surface survey, the following five months should be devoted to analysis of data recovered including archaeological, geological, botanical, etc., as well as checking known sites after the above conditions develop.

(7) A program of archeological survey and testing of sites along the mainland shoreline of Nueces, Kleberg, Kenedy, Willacy, and Cameron counties should be implemented in order to obtain comparative materials. These sites, in more stable geologic deposits, perhaps will preserve data lost by the constant shuffling of artifacts on Padre Island. The analysis of these mainland sites would provide data concerning types of artifact assemblages, the chronology of assemblages, and the formulation of hypotheses about what groups had access to Padre Island. For example, the Olmos biface reported in collections from sites along the Cayo del Grullo arms of Baffin Bay has not been reported from Padre Island (Shafer and Hester 1971; Hester 1969). An explanation for this phenomenon, be it artifact function, lack of group presence on Padre, etc., cannot be formulated with the present information.

(8) A complete magnetometer survey of the surf zone (0-12 feet depth) along the Gulf side of the island for shipwreck sites should be conducted followed by a dive-recovery operation.

These two phases of the program present interesting and challenging problems in locating shipwreck sites and determining their nationality and evaluating their archeological significance. Standard operating procedures by boat could not be employed, thus a survey by helicopter is recommended and a mobile recovery platform will have to be designed and built to meet the needs of the second phase of the marine operation.

(9) A magnetometer survey of selected historic and prehistoric land sites should be carried out. Locating subsurface features using this technique would hasten identification and/or retrieval of subsurface features and artifactual materials.

A fragile environment poses a problem for this type of operation. If four-wheel drive vehicles are used, serious damage to vegetation, especially in a sand base, will be inflicted. Instruments will have to be hand-carried, thus slowing areal coverage. An alternative method would be to use a helicopter to slowly fly the magnetometer over the gridded site.

(10) Ranger patrols, especially on South Padre Island and in the Mansfield Cut area, should be substantially increased. The now prevalent collecting of archeological material on the island by unauthorized persons should be halted.

(11) Environmental studies related to a detailed understanding of the prehistory of the island should be part of the archeological program. They would include research of the geological history of the island; definition of past and present microenvironments; identification of exploitable plants (food, medicinal, fish poisons, etc.); determination of the prehistoric flora through palynological research.
(12) Reexamination of known historical documents and search for and translation of new archival material should be undertaken. New data on the ethnology of the island and adjacent mainland are necessary before a firm definition of the Karankawan and Coahuiltecan cultures can be made, and their relationships to each other and to prehistoric populations on the island are understood.

(13) The following documented historic sites should be located, carefully surfaced collected, and placed on the National Register of Historic Places: Rancho Santa Cruz de Buena Vista, Singer Ranch Headquarters, Rancho Santa Petronilla, and the Dunn Ranch Headquarters.

(14) A synthesis of the large amount of diverse cultural and environmental information which would come from the above studies should be made for use in an in-depth interpretation program of the prehistory and history of Padre Island, both for the professional audience and for the park visitor. This should include a museum located at the present headquarters site; in-place exhibits at visitor access points on the island; "popularly" written booklets and brochures on the prehistory/history of the island; evening programs on the archeology, ethnology, and history of the island presented by National Park Service personnel and an education program established in Corpus Christi's public schools with the aid of the National Park Service. Humans and environment should be a dominant theme throughout the interpretive program.

Joseph Meeker (1973:16) has said, "it has become possible in our time to consider the development of a true environmental ethic based upon our experience of events in the world, upon the evolutionary history of our own and other species, and upon the new knowledge of ecological principles which govern the relationships of organism to their nature environments...[Such an ethic's] methods must provide for adaptation to the natural environment rather than conquest of it." The creation of Padre Island National Seashore as a place where the ecological principles that govern organisms can follow their course with relatively minor human interference is a remarkable achievement. It is the responsibility of the National Park Service to provide its visitors with the information of these ecological principles and how humans' constantly changing role and influence within these principles has operated in the past and present. The end result of this is to convey to the public an understanding that the development of an environmental ethic within the total population of the United States is essential to the continued well-being of all life forms on our planet.

Budget

A comprehensive archeological program encompassing the above specific recommendations and employing the techniques outlined and carried out under the challenging environmental conditions present will not be easily nor inexpensively accomplished. The following budget for a four-year archeological program will reflect these two facts.
Headquarters Administrative and Research Staff

Personnel
Project Coordinator @ $1,500/mo. for 48 mos. $72,000.00
Secretary @ $650/mo. for 48 mos. 31,200.00
Historian @ $800/mo. for 24 mos. 19,200.00
Lab Technician @ $500/mo. for 48 mos. 24,000.00
Typist @ $500/mo. for 6 mos. 3,000.00
Vertebrate Paleontologist @ $800/mo. for 12 mos. 9,600.00
Darkroom Technician @ $600/mo. for 24 mos. 14,400.00

Office Expenses
Phones, Phone Calls 500.00
Equipment 2,000.00
Darkroom Supplies 500.00
Miscellaneous 500.00
Cameras 1,000.00
Final Report 1,000.00

Vehicles
Purchase: 1, 2-wheel carryall 4,500.00
1, 4-wheel drive carryall 8,000.00
Operation for 48 mos. 9,000.00
Maintenance for 48 mos. 1,500.00

TOTAL $200,900.00

Proton Magnetometer Survey Equipment
(for Land and Marine Surveys)

1 Proton Magnetometer $25,000.00
1 Position System 55,000.00
1 Catho Ray Terminal Teletype 1,500.00
1 Calculator/Plotter System 14,000.00
Several Magnetic Tape Reels 2,000.00
1 Digital Data Acquisition System 10,000.00
1 Theodolite 1,300.00

TOTAL $108,800.00

Helicopter-Magnetometer Surf Zone Survey*

Location: Surf zone (0-12 feet deep) adjacent to Gulf side of Padre Island
Survey Time: Three months
Report Preparation: Three months
Personnel
1 Marine Archeologist @$1,200/mo. for 6 mos. $7,200.00
1 Assistant Marine Archeologist @$1,000/mo. for 6 mos. 7,000.00
Key Punch Operator @$500/mo. for 1 mo. 500.00
Per Diem for 2 archeologists @$18/day for 126 days 2,268.00

Miscellaneous Equipment and Supplies 200.00
Computer Time @$30/site for 100 sites 3,000.00
Report Preparation: Drafting, Editing, Printing 750.00

TOTAL $21,118.00

*Helicopter and pilot from military source

Underwater Site Evaluation and Recovery Operation (Surf Zone)

Location: Anomalies located by helicopter survey of surf zone

Survey Time: Three months

Report Preparation: Five months

Personnel
1 Marine Archeologist @$1,200/mo. for 8 mos. $9,600.00
1 Assistant Marine Archeologist @$1,000/mo. for 8 mos. 8,000.00
1 Diving Officer @$1,200/mo. for 3 mos. 3,600.00
1 Medical Officer @$1,200/mo. for 3 mos. 3,600.00
8 Divers @$800/mo. for 3 mos. 19,200.00
1 Mechanic @$750/mo. for 3 mos. 2,250.00
1 Electronics Specialist @$1,000/mo. for 3 mos. 3,000.00
Per Diem for 2 archeologists @$18/day for 66 days 2,376.00
Per Diem for 12 persons @$18/day for 66 days 14,256.00

Vehicle Expenses
Two, 4-wheel drive support vehicles
  Operation 12¢/mile for 1,500 miles 180.00
  Maintenance 100.00

Equipment
Mobile, offshore survey and recovery platform 40,000.00
Miscellaneous equipment and supplies 200.00

Report: Drafting, Editing, Printing 750.00

TOTAL $104,112.00
Conventional Land Survey

Location: Five study areas

Survey Time: Eight months

Report Preparation: Sixteen months

Personnel

1 Survey Archeologist @$800/mo. for 24 mos. $19,200.00
1 Assistant Marine Archeologist @$1,000/mo. for 8 mos. 16,800.00
1 Geologist @$800/mo. for 4 mos. 4,000.00
1 Botanist @$800/mo. for 2 mos. 1,600.00
1 Lab Technician @$400/mo. for 4 mos. 1,600.00
1 Darkroom Technician @$500/mo. for 1 mo. 500.00
1 Secretary @$600/mo. for 24 mos. 14,400.00
1 Typist @$450/mo. for 3 mos. 1,350.00
Per Diem for archeologists @$18/day for 336 days 6,048.00
Per Diem for 1 geologist @$18/day for 42 days 742.00
Per Diem for 1 botanist @$18/day for 21 days 371.00

Vehicle Expenses

2-wheel drive
Operation @12¢/mile for 4,000 miles 480.00
4-wheel drive (purchase) 10,000.00
Operation @12¢/mile for 13,000 miles 1,560.00
Maintenance 1,000.00

Equipment
Surveying, equipment, photographic supplies (film, developing, printing), miscellaneous 500.00

TOTAL $78,551.00

Magnetometer Survey of Land Sites
(Estimated 10 Sites)

Location: Sites 41KN11, 41KL64 and others to be selected

Survey Time: Two months

Report Preparation: Two months

Personnel

1 Archeologist @$900/mo. for 4 mos. $3,600.00
1 Assistant Archeologist @$750/mo. for 4 mos. 3,000.00
1 Inductor/Detector Operator @$750/mo. for 2 mos. 1,500.00
2 Instrument Controllers @$850/mo. for 2 mos. 1,700.00
1 Electronics Specialist @$900/mo. for 2 mos. 1,800.00
Per Diem for 2 archeologists @$18/day for 42 work days 756.00
Per Diem for other 4 personnel @$18/day for 126 days 2,268.00
Vehicle Expenses
- Fuel: 12¢/mile for 1,600 miles = 192.00
- Maintenance = 200.00

Equipment
- Purchase of 1 specially equipped vehicle = 20,000.00
- Purchase of 1 infrared ranging device = 1,000.00
- Miscellaneous equipment and supplies = 500.00

Report: Drafting, editing, printing = 750.00

**TOTAL** = $37,266.00

Testing and Excavation of Land Sites

Location: Estimated 12 sites within the Seashore for testing (two teams; 1 archeologist, 2 laborers in each)

Estimated 6 sites for extensive excavation

Field Time: Eight months

Report Preparation: 16 months

**Personnel**
- 1 Chief Archeologist @$1,000/mo. for 24 mos. = $24,000.00
- 1 Assistant Archeologist @$800/mo. for 24 mos. = 19,200.00
- 4 Laborers @$450/mo. for 8 mos. = 14,400.00
- 1 Lab Assistant @$500/mo. for 3 mos. = 1,500.00
- 1 Typist @$450/mo. for 2 mos. = 900.00
- 1 Draftsperson @$500/mo. for 1 mo. = 500.00
- Per Diem for archeologists @$18/day for 336 days = 6,048.00

**Vehicle**
- Fuel: 12¢/mile for 10,000 miles = 1,200.00
- Maintenance = 300.00

**Miscellaneous Expenses**
- Photographic = 500.00
- Office and Field = 250.00
- Report = 750.00

**TOTAL** = $69,548.00

**TOTAL FOR ALL PROGRAMS** = $620,295.00

20% CONTINGENCY = $124,059.00

**GRAND TOTAL** = $744,254.00
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