



Current Research

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CURRENT RESEARCH

EDITED BY MARY ELIZABETH KING

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GREATER SOUTHWEST

NEVADA. Richard H. Brooks (Director, Nevada Archaeological Survey, Southern Branch) assisted by Daniel O. Larson and the Survey staff, continued survey and excavation along the Los Angeles Water and Power Navajo-McCullough Transmission Line Right-of-Way. Of the more than 100 sites recorded, 70% are surface sites and the remaining 30% have depth of deposition and are in process of salvage excavation. The Survey also has ongoing research contracts with the National Park Service and the Nevada Power Company. The Environmental Protection Agency recently allowed Survey members to utilize their research facilities for thermoluminescent studies. The overall thrust of the Survey is oriented toward analyses of aboriginal plant uses and migration and settlement patterns within the southern Great Basin environment.

Under the supervision of Michael S. Berry, National Science Foundation funded excavations were undertaken at a large open site in northeastern Nevada assumed to be a high elevation hunting camp. Cultural deposits up to 6 ft in depth were found to contain typical Desert Archaic projectile points, but no culturally derived features and virtually no bone.

UTAH. Douglas Brown (Museum of Northern Arizona) conducted archaeological investigations across the southwestern part of Utah in conjunction with a power line being constructed by the City of Los Angeles, Department of Water and Power. A total of 27 sites were located with excavations made at 15 of the sites. Late Archaic, Basketmaker II, late Pueblo II

to early Pueblo III, and Southern Paiute occupations were found.

From May to September, crews supervised by Michael S. Berry and Curtis Wilson conducted salvage excavations at 8 Mesa Verde Anasazi sites along the route of Highway U-95 about 25 mi west of Blanding. Over a period of 3 yr, a total of 16 sites, ranging in age from about 100 B.C. to late Pueblo III, have been worked on this Utah State Department of Highways funded project.

Of particular note for Utah archaeology is the last State Legislature's passage of a revised and updated antiquities law. Under the provisions of the law, a State Antiquities Board was established and the position of State Archaeologist created. This position was recently filled by D. Brigham Madsen.

William D. Lipe (Museum of Northern Arizona) and R. G. Matson (University of British Columbia) completed the second year of fieldwork on the Cedar Mesa Project—a study of archaeological and environmental variation in an area of southeastern Utah. Forty-eight 400 m² quadrats were intensively surveyed, completing a 7% random sample within 5 selected watershed units.

Under the direction of Paul Sneed (University of British Columbia), complete site inventories were obtained for canyon environments in 3 of the selected watershed units. In addition, Joseph Winter (University of Utah) carried out a program of limited excavations in 2 Basketmaker II, 5 Basketmaker III, 1 Basketmaker III-Pueblo I, and 3 Pueblo II-III sites.

Larry Agenbroad (Chadron State College) conducted a detailed study of the alluvial geology of the Grand Gulch drainage, and Phil Salkin (University of Wisconsin) is studying the snails from these deposits. Don Keller (Museum of Northern Arizona) continued a study of types and sources of lithic raw materials. Victor Fisher (Towson State College) expanded an experimental farming program using floodwater and irrigation techniques with varieties of Hopi maize. James West (University of California, Davis) continued studies of modern and prehistoric pollen, and Jack Major (University of California, Davis) surveyed modern vegetation.

Dan Brooks (Northern Arizona University), with the assistance of Carl Mahon (Bureau of Land Management), surveyed systems of check dams and associated Pueblo sites in the Horse Flats area of southeastern Utah. Several check dams and Pueblo sites were tested to obtain sedimentological data, pollen samples, and material for dating.

COLORADO. The Mesa Verde Research Center (University of Colorado) operated 5 projects concerned with Southwestern archaeology during summer 1973. Four of these projects were "inventory" or "impact" studies, and only 1 each were concerned with work on Mesa Verde National Park and excavation operations.

1. *Inventory of Mesa Verde National Park.* The third season of this project, under field direction of Jack E. Smith, recorded an additional 318 sites in the eastern portion of Mesa Verde National Park. The vast majority of sites are Pueblo II and Pueblo II-Early Pueblo III.

2. *Salvage Archaeology in Mancos Canyon.* All salvage excavations are connected with construction of the newly designed road up Mancos Canyon, as access to the proposed Mancos Canyon Indian Park. Five sites within the right-of-way were investigated in 1973: (a) a Basketmaker III pit house overlain by Pueblo II features, both of which were obscured by post-occupational alluvium; (b) ten test trenches into the trash of a Pueblo III site; (c) clearing of a 1-room "cliff dwelling"; (d) Preliminary tests in a Pueblo I-II complex, with promises of underlying Basketmaker materials; and, (e) Excavation of a 2-component, Pueblo II-III site with many unusual architectural and depositional features. Field supervision was by James A. Lancaster and Larry V. Nordby.

3. *Archaeological Inventory of Archaeological Resources, Southern Ute Indian Reservation.* E. Charles Adams was field director of this project, jointly sponsored by the Bureau of Indian Affairs and Southern Ute Tribe. Sixty sites, mostly assigned to the Pueblo I period, were found on some 16,000 acres investigated.

4. *San Miguel River Survey.* H. W. Toll, III field directed an archaeological survey, sponsored by the Bureau of Land Management, in the lower reaches of the San Miguel River. This drainage is outside of the general Southwestern archaeological province—of the 90 sites located, all were basically lithic concentrations, of as yet unknown affiliation.

5. *The Dolores River Project.* This project operated, or attempted to operate, during winter 1972-1973. Daniel W. Martin was in charge of field

direction. Involved with the proposed construction of the Dolores River Dam, the project recorded a large series of Anasazi sites both within the construction area, the pool area, and along the route of proposed canal systems.

NORTHERN ARIZONA. As part of the City of Los Angeles, Department of Water and Power transmission line project, the Museum of Northern Arizona located 32 sites in the northern part of the Arizona Strip from Page to the Nevada border. Twelve sites were excavated, revealing evidence of Basketmaker II, late Pueblo II, Pueblo III, and Paiute occupations. (See also Utah.)

Peter J. Pilles, Jr. (Museum of Northern Arizona) conducted an intensive archaeological survey of 3.25 mi² around Grand Canyon Village under contract with the National Park Service. Fifty-three sites were found, mostly lithic scatters, assignable to Kayenta and Cahonina occupations during the Pueblo I and Pueblo II periods of time. They indicate short-term, probably seasonal exploitations of the area, which appears to be a frontier between these 2 groups.

Three sites, primarily Basketmaker lithic sites on sand dunes, were excavated for the Bureau of Indian Affairs, Branch of Roads, between Page and Copper Mine. Combined with 2 other Museum of Northern Arizona projects, a picture of Basketmaker utilization of the Antelope Creek drainage is beginning to emerge.

A power line from Inscription House to Navajo Mountain was surveyed for the Navajo Tribal Utility Authority by Charles D. James (Museum of Northern Arizona). Sites were abundant in the Navajo Mountain area and the 56 sites recorded for the transect range from Archaic sites through those of the Kayenta, Pueblo III period. Navajo sites ranging from the 1890s to the present day were also recorded.

The Museum of Northern Arizona and University of Arizona joint expedition to Long House Valley concluded its fourth season of archaeological and natural resource surveys of the 6 mi² area valley with the final tally of 657 sites. The survey has recorded 432 prehistoric sites ranging from Archaic to Pueblo III times, 177 Navajo sites of recent affinity, 18 sites with Hopi pottery, and 30 sites of Anglo technological development. Analysis of the data is in progress, and certain portions of the data will be applied to the Southwestern Archaeological Research Group format. These investigations have been supported by the cooperating institutions, the Southwest Paleoclimatic Project, a University of Arizona Institutional Research Grant, and the Wenner-Gren Foundation for Anthropological Research.

The Black Mesa Archaeological Project, supported for the seventh year by Peabody Coal Company and now administered through Fort Lewis College, Durango, excavated 5 Kayenta sites in 1973. One is a Toreva phase (Pueblo II-Pueblo III) ruin consisting of a kiva, mealing room, and several jacal structures; 1 is a Dinnebito phase (Pueblo I) camp site; and 3 are lithic sites. Of the third group, 1 is the first Basketmaker II site so far reported on Black Mesa. It consisted of an irregular shaped shallow pit house associated with Basketmaker II projectile points; no ceramics were present. The work was directed by Robert C. Euler (Fort Lewis College) who was assisted

by John Ware (University of Colorado) and Carol Weed (University of Arizona).

Twelve sites were recorded by the Museum of Northern Arizona at Second Mesa on the Hopi Indian Reservation for a Bureau of Indian Affairs road project. These range from Tusayan-tradition to Pueblo I sites to historic Hopi petroglyphs and farming terraces.

Charles D. James (Museum of Northern Arizona) continued research into historic Navajo settlement and land utilization patterns in the Chinle and Canyon del Muerto areas.

Steven Fuller (Museum of Northern Arizona) conducted excavations for the National Park Service near Hubbell Trading Post in Ganado. Two sites ranging from Basketmaker III to Pueblo II include pit houses, kivas, and surface masonry structures. One historic site contained the remains of a Navajo Squaw Dance held in the 1930s.

Steven Fuller and Charles James (Museum of Northern Arizona) conducted excavations for the Bureau of Indian Affairs at 7 prehistoric sites in the vicinity of Ganado. One Pueblo I village consists of 13 surface adobe rooms and 2 large kivas. Several sites reflect seasonal usage, based on architectural features and a paucity of cultural material. This trend is reflected by the density of large, permanent to semipermanent sites on the higher ridges and mesas. Cultural affiliations are mixed between Cibola and Kayenta Anasazi.

Paul R. Fish directed a summer field school for Queens College, excavating part of an extensive Rio de Flag phase Sinagua site at Flagstaff. Three very large, partially masonry-lined pit houses were investigated and activity areas were defined both within the houses as well as outside them. A series of check dams at the site were also tested, which suggest that water control systems were adaptive features of the pre-ruptive Sinagua culture.

Excavations have been conducted by the Museum of Northern Arizona east of Flagstaff as part of a National Forest land exchange program. These studies have resulted in an improved understanding of the mortuary and settlement practices of the prehistoric Sinagua. Community centers with specialized architectural features and communal burial grounds are suggested.

An evaluation was made of the archaeological resources in the Joseph City area by the Museum of Northern Arizona to prepare an environmental impact statement for a proposed expansion of the Arizona Public Service Company Cholla Power Plant. Thirty-three sites located thus far within a 5-mi radius of the power plant range from an Archaic horizon through early Mormon history in the late 1800s. Lithic and petroglyph sites are the dominant prehistoric site types and indicate that this portion of the Little Colorado River valley was a cultural frontier only marginally utilized by various cultural groups.

Further downstream, in the Leupp area, archaeological clearance surveys were conducted for the U.S. Public Health Service. This area was found to have been mostly inhabited by people of the Winslow tradition with some Kayenta influence represented at the 16 sites recorded. A regional pattern of large

Pueblo I to Pueblo III village sites situated on the terrace of the Little Colorado River emerges from this work.

CENTRAL ARIZONA. Jonathan Haas (Museum of Northern Arizona) conducted an archaeological survey across central and southwestern Arizona for a proposed American Telephone and Telegraph Company buried cable line. Different settlement and exploitive patterns are represented by the 64 sites recorded on the project.

The Museum of Northern Arizona surveyed 88 sites along the 256 mi right-of-way of the Arizona Public Service Company 500 KV Southern Transmission System, Page to Phoenix. Twenty-two sites were excavated in the Kayenta, Cohonina, central Arizona, and Hohokam culture areas.

Excavations and survey in the Strawberry area began this year by the Central Arizona Archaeological Project, an amateur group led by Dorothy Ferguson, Peggy Gould, and Peggy Randall. Work focused on a small valley at the base of the Mogollon Rim. Excavations at I site suggest an occupation by Mogollon people in its early history and later by people of the southern Sinagua ceramic tradition.

The eleventh season of excavations at the Grasshopper Ruin was completed during the summer of 1973 by the University of Arizona Archaeological Field School. This work was supervised by Raymond H. Thompson, Institutional Director, J. Jefferson Reid, Acting Field Director, and Michael B. Schiffer, Assistant Director. Excavations were carried out in 16 rooms at the site. The investigation of the construction sequence was completed. Analyses of pueblo growth, organizational change, and ecological patterns continued. A total of 54 burials was excavated bringing the site total to 573. A pilot test of the SELGEM computer storage and retrieval program was completed prior to total conversion of all data to this system.

Michael Metcalf (Museum of Northern Arizona) excavated an early Sinagua pit house site on the edge of the Mogollon Rim (for the Arizona Highway Department). Although occurring on the border of the southern Sinagua area, it appears to be a typical Rio de Flag phase northern Sinagua site. This site and other evidence suggest that the "northern" and "southern" dichotomy needs review and that early Sinagua occupation of the Mogollon Rim was more extensive than has previously been considered.

SOUTHERN ARIZONA. The Arizona State Museum recently completed an archaeological survey of the proposed Orme Reservoir, part of the Central Arizona Project, for the Bureau of Reclamation. Slated to impound 24,000 acres of water within the Verde and Salt Rivers, the project is located 10 mi northeast of Tempe. The survey located over 175 sites; most of them were of Hohokam affiliation. Field supervisors were Timothy Kearns and Michael Polk. Due to the archaeological significance of the region, the survey report, assembled by Veletta Canouts and Mark Grady, recommended that the reservoir be relocated and the area be nominated as a district to the National Register of Historic Places. The survey was directed by R. Gwinn Vivian, State Archaeologist.

The proposed Buttes Reservoir, located 15 mi east

of Florence, is currently being surveyed by the Arizona State Museum as part of the Central Arizona Project environmental impact study. Funded by the Bureau of Reclamation, the southern portion of the reservoir was surveyed in summer 1973. The project included a survey research design oriented toward recording isolated artifacts and their relationship to sites and environmental phenomena. The crew located over 70 sites and more than 40 isolated artifacts. Coordinated by Mark Grady, the project is being directed by R. Gwinn Vivian, State Archaeologist.

Resulting from an environmental impact survey completed in 1972, the Santa Rosa Wash project is the first comprehensive follow-up by the Arizona State Museum of an impact statement assessment. Excavation and testing of archaeological sites are presently under way on Santa Rosa Wash, located approximately 15 mi southwest of Casa Grande, where the U.S. Army Corps of Engineers is constructing a reservoir. Study procedures are based on a research design emphasizing cultural-environmental relationships which was developed by Mark Raab, the supervisory archaeologist. The project is coordinated by Veletta Canouts and directed by R. Gwinn Vivian, State Archaeologist.

Surveys conducted between Phoenix and Tucson by the Museum of Northern Arizona for the Arizona Nuclear Power Project have found small Hohokam sites, including petroglyphs, lithic areas, sherd scatters, and "sleeping circles." To evaluate approximately 900 mi of possible power line corridors, a sampling procedure based upon biological communities and physiographic areas was devised. Fieldwork by Michael Metcalf, Dennis Roubicek, and Christian Zier has located sites with Paleo-Indian, Cochise, Ootam, and Hohokam components.

E. B. Sayles reports that the long-delayed Cochise Report is finally being brought up to date in preparation for publication by the University of Arizona Press. It has the excavation of materials defined as the Cazador Stage and includes a historical summary of work done since the discovery of the Cochise Culture in 1926, shown mainly by photographs covering the archaeology, geology, and ecology.

Stanley J. Olsen, long a contributor to southwestern archaeology, has resigned from his post as Professor of Anthropology at Florida State University to accept the joint position of Professor in the Department of Anthropology at the University of Arizona and as Zooarchaeologist with the Arizona State Museum. Olsen is also acting as curator of the faunal lab at the National Park Service Arizona Archaeological Center. The current project of analyzing the animal remains from Antelope House is almost completed.

NEW MEXICO. In 1973, Cynthia Irwin-Williams (Eastern New Mexico University) continued to conduct investigations on prehistoric Pueblo societies in the northern Southwest. One division of the research program focused on locational analysis of prehistoric settlement patterns in the middle Rio Puerco of northwestern New Mexico. In addition to the settlement patterns study, Lonnie C. Pippin (Washington State University) initiated full-scale excavations at the intrusive Chacoan Guadalupe ruin.

The second division of the Pueblo research program under Irwin-Williams's direction was centered at the Salmon ruin in the San Juan Valley. Here a team of over 100 specialists and students are investigating the large-scale Chacoan intrusion into the area as it typifies the peripheral Chacoan manifestations and as a key to improved understanding of the Chaco phenomenon itself. The laboratory and museum facilities at the new San Juan County Archaeological Research Center adjacent to the site are now in full operation.

Calvin R. Cummings (National Park Service, Santa Fe) has negotiated contracts with institutions within the Southwest Region boundaries. He has informed other federal agencies of their legal responsibilities concerning archaeological resources. Ronald J. Ice conducted archaeological clearances at San Felipe Pueblo and Puye Cliff Dwellings, and was involved in the Rio Grande Wild and Scenic River Study. Bruce A. Anderson did a reconnaissance survey for the Jicarilla Apache Tribe and conducted test excavations at Gran Quivira National Monument.

Charlie R. Steen reports the initiation of a 2-yr project—an archaeological survey of the lands of Los Alamos Scientific Laboratory and the Atomic Energy Commission at Los Alamos. The job also includes salvage excavations in advance of construction.

The Chaco Center, a joint research project of the National Park Service and the University of New Mexico, is engaged in excavation, survey, and remote sensing research in the Chaco Canyon area of northwestern New Mexico.

A. C. Hayes supervised excavations designed to gather new data for better definition of the Basket-maker III period. Four sites were extensively sampled and 12 pit houses, numerous storage pits, and a great kiva were dug. The archaeological survey of the Monument area continued and sites ranging from Navajo to Archaic occupations were identified. A preceramic site was excavated by T. W. Mathews.

Research in the application of remote sensing methods to archaeology under the direction of T. R. Lyons is centering on the Chacoan prehistoric roadway system and additionally on photogrammetric mapping of sites of different age, size, and complexities in the Chaco Canyon area.

Douglas W. Schwartz (School of American Research), with a National Science Foundation grant, continued the excavation of Pueblo Arroyo Hondo, marking the third year of intensive work at this late Coalition and early Classic site near Santa Fe. Thirty-three room strata, representing 48 rooms belonging to 2 distinct phases of occupation, were excavated, as well as half of 1 of the site's 11 plazas. The latter revealed extensive outside work areas, portales, and turkey pens. Excavations within room blocks in 1972 were oriented toward sampling each of the site's 21 unexcavated blocks, while excavations in 1973 were concentrated in 6 room blocks with the objective of increasing intraroom-block relationship and residence unit data. In addition, studies relevant to project interests in local subsistence potentials and ecology were continued by Wilma W. Koschik (University of Michigan), project ethnobotanist; while field studies of mortuary patterns and human skeletal

remains were carried out by Ann M. Palkovich (University of Chicago). Analysis of recovered material is being conducted by Marshall A. Beach (Grossmont College); John D. Beal, N. Edmund Kelley, Richard W. Lang, Laurance Lindford (School of American Research); Vorsila L. Bohrer (University of Massachusetts); Jeffrey S. Dean, William J. Robinson, Richard L. Warren (University of Arizona); Robert L. DuBois (University of Oklahoma); Arthur H. Harris (University of Texas); and Deborah J. Kepp (University of New Mexico).

Jonathan Haas and Christian Zier (Museum of Northern Arizona) excavated 7 sites on the Zuni Reservation for the Bureau of Indian Affairs, Branch of Roads. All are Pueblo III period Cibola Anasazi sites located on the side of the Nutria River. Several sites are large masonry pueblos, built during 1 construction period. Later additions are of much cruder construction. Associated keyhole-shaped kivas have slab-paved floors and are masonry-lined to varying degrees.

During the second season of work in El Morro Valley, the Cibola Archeological Research Project (NSF No. 32987), directed by Patty Jo Watson (Washington University), Steven A. LeBlanc (Wichita State University), and Charles L. Redman (New York University), continued excavation at a large, late thirteenth century sandstone masonry pueblo, Pueblo de los Muertos. An initial survey of the valley was also completed, and excavations at 5 other sites were carried out at: the Scribe S site (a series of small Pueblo III masonry room blocks lying on a ridge just southeast of Pueblo de los Muertos); the Mirabel site and the Cienega site (round basalt pueblos in the valley flat); Tinaja or Pueblito ruin; and Atsinna atop El Morro rock. Dendrochronology dates from the 1972 season in combination with stratigraphic relationships and pottery seriation from both seasons indicate a total time span of less than 150 yr (centering on the late thirteenth century A.D.) for major prehistoric settlement of the El Morro Valley.

Under the direction of Richard Bice, Phyllis Davis and William Sundt, the Albuquerque Archaeological Society is continuing its excavation of an Indian mine site near Cerrillos, New Mexico. This site was mined to obtain ore, probably a mixture of lead, iron, and manganese, for use in making glaze designs on Rio Grande glaze pottery during the late prehistoric and possibly early Spanish contact periods. The nature of the mine is a slit trench, a meter or less wide, cut deeply into a hillside to follow a vertically oriented ore vein. Stone tools, a modest number of pottery sherds and several fire centers have been exposed by the excavation. The tools and the stratigraphy are providing an insight into the mining techniques and sequences used.

A new quarterly newsletter entitled "Pottery Southwest" is being sponsored by members of the staffs of the Museum of New Mexico and the Albuquerque Archaeological Society. It will be published by the latter organization. The publication will provide a forum for the interchange of current information on Southwest pottery among the various agencies and individuals studying this field.

This past season Frank C. Hibben (University of New Mexico), assisted by Tommy R. Fulgham, continued excavation at the site of Comanche Springs, south of Albuquerque. This stratified site has several Paleo-Indian levels, including Sandia, Clovis, Folsom, and several others. There are some 4 m of Desert-Archaic deposit. Basketmaker and Pueblo are well represented, as are Apache and Comanche manifestations. There are 4 Spanish structures in the vicinity. Current work includes a bison and mammoth level, as yet unidentified, a Desert-Archaic bison bed, and 2 Spanish structures that are rather elaborate fortified haciendas. These latter apparently date close to A.D. 1600.

Rex E. Gerald (El Paso Centennial Museum) and T. Weber Greiser excavated a portion of a lithic site in southern New Mexico which would be destroyed by the construction of a retention dam. Randomly chosen squares were excavated with the aid of a small front-end loader and mechanized screen. Cultural remains were scant, but strongly suggest a preceramic assemblage of Chiricahua to San Pedro Cochise.

TEXAS. Rex E. Gerald (El Paso Centennial Museum) and T. Weber Greiser investigated a proposed spillway of the Northgate Range Dam, El Paso, during February 1973. Emphasis was on developing techniques of using mechanized equipment in order to excavate a large random sample for testing hypotheses. As a result of the fieldwork, it was possible to state with 95% confidence that no pit houses and no more than 6 hearths occurred in the area. Four hearths were excavated and revealed sporadic use of the area during the Mesilla phase of the Jornada branch of the Mogollon.

Bruce A. Anderson (National Park Service, Santa Fe) conducted an intensive archaeological survey of development areas at Amistad National Recreation Area, Texas.

ALEXANDER J. LINDSAY, JR.

CENTRAL AMERICA

NICARAGUA. Richard W. Magnus (Yale University) has completed the first stage of fieldwork on the Atlantic coast of Nicaragua between Laguna de Perlas and Bahia de Bluefields. He has established 4 ceramic complexes, one belonging to a polychrome tradition and 3 to an incised tradition. The polychrome complex is dated to 1975±85 radiocarbon years: 25 B.C. (1-7100); the 1 incised complex so far pinpointed in time has a date of 1460±85 radiocarbon years: A.D. 490 (1-7099). Comparative studies indicate a local development for the incised material with few parallels elsewhere. The second stage of the research in this zone will begin in 1974 and be aimed at ecological interpretations.

COSTA RICA. Carlos H. Aguilar (Universidad de Costa Rica) is continuing research on the Guayabo de Turrialba area in the central highlands. The Late Formative-Early Classic occupations he has defined belong to the Zoned Bichrome Period and bear close relations with the Nicoya Peninsula in the earlier periods.

Michael Snarkis (Columbia University) is also conducting research on the highlands, near Guapiles in the Linea Vieja area. His research will yield the first firm sequence for this region.

From February to April 1973, the Central American Field Program of the Associated Colleges of the Midwest, led by Frederick W. Lange (Beloit College), conducted a survey of the Nosara-Ostional Valley on the Nicoya Peninsula. The survey yielded 28 sites, 6 of which were tested, 1 extensively. They all belong ceramically to the Middle Polychrome period (A.D. 800 to A.D. 1200).

F. W. Lange's work continued from May to August 1973 in association with the Archaeological Field School of the Logan Museum of Anthropology, Beloit College, which sponsored intensive excavations at sites on Playa Panama, a small beach-valley on the Bay of Culebra, also on the Pacific coast of Costa Rica. Excavations centered on 3 shell-midden areas at varying distances from the coastal edge. Temporally the sites range from A.D. 500 to A.D. 1500. They have yielded extensive molluscan fauna that, together with the analysis of the flotation materials, will provide good data for interpretations of prehistoric subsistence here. These will be complimented by a geologic survey and facilitated by modern ethnobotanical and faunal collections made this season.

PANAMA. Under the supervision of Junius B. Bird (American Museum of Natural History) another field season was spent locating paleo-Indian materials in the Madden Lake area of Canal Zone-Panama. The second of 2 caves tested in 1972 was excavated more extensively this year, but it yielded only ceramic materials. In August, however, 2 fluted projectile points were recovered from surface contexts on the shores of this artificial lake. The largest of the 2 points had been broken at the base, but the line of fracture suggests a shape similar to that of the largest examples from Fell's Cave in Patagonia; the smaller was probably broken in antiquity and resharpened before discarding. This brings the total of fluted points found in Madden Lake to 4, all from the south bank of the now inundated Chagres River.

During June and July 1973, Anthony J. Ranere (Temple University), assisted by Richard McCarty (Idaho State University), surveyed the Pacific coastal lowlands of western and central Panama looking for rockshelters and caves containing preceramic deposits. The survey was sponsored by the Smithsonian Tropical Research Institute and was part of a large program begun in 1971 by Ranere (AMER. ANT. 38:234, 1973) aimed at examining preceramic adaptations to humid tropical environments in Panama. This time operations were moved from the Chiriqui River highlands to the coastal *llanos* of Coclé in the central provinces, where a rockshelter yielding a sequence of preceramic to ceramic occupations was excavated. Recovered from the stratified deposits were enormous quantities of stone tools and flakes, bone, shell, charcoal, carbonized seeds and nut fragments, and, in the upper layers, pottery. Analysis of these materials, and of the sediment and pollen samples collected, should provide much needed paleoecological data for the central Panama lowlands. It will also clarify the nature of preceramic occupations at Cerro Mangote,

documenting the processes involved in the transition from hunting-gathering to farming on the coast, and relating these to parallel developments in the highlands.

Richard G. Cooke (University of London and Museo Nacional de Panama) has completed the research started in 1969, and continued for several seasons, on the western sector of Coclé Province. By defining 4 major occupations dating from A.D. 200 to the Conquest, Cooke has brought his chronology in line with that from nearby areas. One of his phases, Santa Maria, has a date of 1640 ± 90 radiocarbon years: A.D. 310 (Gif. 2346), agreeing nicely with other estimates for this period. Cooke's research definitively shows that the provinces of Coclé, Los Santos, Herrera, Azuero, and Veraguas formed a single culture-historical unit for about 1000 yr, and that this unity was based on similar macroecological adaptations.

R. Cooke has also supervised the Museo Nacional de Panama's project on the Miraflores area of the Bayano River, in eastern Panama, bordering with Darien. Two of the 3 rock-cut tombs excavated here have yielded dates of 1135 ± 80 radiocarbon years: A.D. 815 (1-7309) and 1185 ± 80 radiocarbon years: A.D. 765 (1-7310). Although Azuero-type Macaracas polychrome sherds show up in the fill, they were far less prevalent than double-bridged spouted vessels, whistling jars and pornographic pieces suggesting eastward affinities. Implications are that the eastern half of the Isthmus, including possibly the low-lying Darien areas, forms part of South America, specifically of coastal Colombia on the Pacific side.

OLGA F. LINARES

CARIBBEAN

BAHAMAS. During summer 1973, study was carried out in a rock shelter on Crooked Island by John Winter (Northern Arizona University) under an agreement with owners Basil Kelly and Eugene Pyfrom.

Located on the north coast of the island, the rock shelter is about 3.5 m above sea level at the end of a sheltered cove. It lies about 20 m inland. The entrance is 17.5 m long, its greatest depth being 6 m. The height varies from 2 m at one corner to 5 m in the center.

Much of the earth had been removed from the cave prior to Winter's investigation, presumably because of its richness. Two 2 m² test pits were dug in arbitrary 10 cm levels. Numerous remains were found, including a tin can at 15 cm beneath the surface. In addition, Winter found worked stone (probably hammerstones), stone beads, small sea shells, shell scrapers, and some perforated shell fragments. Pottery fragments appear to be similar to Palmetto Ware described by Hoffman for other Bahamian Islands and to Haitian wares described by Rouse. Winter found fragments of disarticulated human bone, as well as many bones of nonhuman fauna, such as fishes and mammals, and remains of crustacea.

BARBADOS. Under an NSF grant, Jerome S. Handler (Southern Illinois University) and Frederick W. Lange (Beloit College) directed excavations at the Newton Slave Cemetery last spring. They were assisted by Robert Riordan and Crawford Blakeman (both of SIU). Remains of 48 persons were recovered, bringing the 2-season total to 90.

Major cultural variables include: group or single burial; orientation of body (head to east or west); presence or absence of coffins, clay pipes, items of personal apparel or adornment; and sex and age of individuals. Skeletal analyses are focusing on patterns of dental alteration (filing and pipe-wear), evidence of dietary relevance, and age and sex determinations for comparisons with archival population statistics from the estate.

Ethnohistorical data relevant to the Newton Cemetery was collected from the Barbados Museum Archives, and surface collections were made at 7 sites of suspected slave habitation.

JAMAICA. In January a brief mapping and test excavation program in a slave village site on one of the Jamaican estates was directed by Robert V. Riordan (Southern Illinois University). Riordan was assisted by students from The Johns Hopkins University and the University of the West Indies.

The primary aim was to test the feasibility of obtaining slave settlement data in archaeological form to supplement extant historical descriptions. Results were positive and more work of longer duration may be undertaken in the future.

TRINIDAD. A brief survey for lithic sites was made by P. O'B. Harris and J. M. Crucent. Three small sites were found on the Gulf of Paria and are tentatively dated at about 7400 B.C., based on known sea-level highs. Location is on ridges 8 to 12 m above sea level, between savannah and sea, or forest and ancient swamp. Artifacts consist of small chert flakes and broken cobbles—some flakes probably came from the rocks of the Guayana Shield.

Excavation at St. John has produced data complementary to Banwari, suggesting an early Archaic level with traits of hillock location between forest and ancient swamp, rich shell, fish, and animal remains, bone points, manos, flat grinding stones, pestles, and grooved axes.

Poonah Road excavations produced a date of 2120 ± 135 radiocarbon years: 170 B.C. (I-6444). Proximity to flat land, negligible animal and fish remains, and a complete absence of shells indicate an agricultural economy. Other implements are manos, grinding stones with a depression, pestles, a grooved axe/cobble celt, and abundant chert flakes. It is probably a late Archaic occupation.

Analyses of a surface collection from Atagual suggests that the makers of Palo Seco ceramics may have migrated from western Venezuela rather than the Orinoco delta, and brought with them Central American influences which then moved north into the Antilles. M. Veloz (Santo Domingo) has confirmed the Chicoid appearance of the St. Catherine material, but it has not yet been completely analyzed or dated.

CHARLES A. HOFFMAN, JR.

NORTHWESTERN SOUTH AMERICA

ECUADOR. Laboratory work of the Cochasquí Project under the direction of Udo Oberem (Seminar für Völkerkunde der Universität Bonn) is nearly completed. A ceramic sequence from about A.D. 900 to A.D. 1500, backed by a series of 26 radiocarbon dates, has been developed by Albert Meyers for the Province of Imbabura. Final publication is expected in 1974. Excavation of 2 shaft-and-chamber tombs at nearby Malchinguí yielded resist painted pottery and a single date of 1870 ± 70 radiocarbon years: A.D. 120 (Bonn 2030). Meyers has also completed a monograph on the Inca Horizon in Ecuador which will be published as No. 3 of *Bonner Amerikanistische Studien*.

Thomas P. Myers (Indiana University Museum) has initiated a project to determine the role of Lake San Pablo (2661 m) in the culture history of northern Ecuador. Forty-six sites in several different ecological niches have been located. Preliminary analysis suggests that the material recovered dates to the Formative, Regional Developmental, and Integration periods. However, the location of sites does not seem to confirm the hypothesis that lacustrine resources were vital to the highland adaptation. Work near Cayambe indicates the presence of prehistoric irrigation canals and ridged fields.

Highlighting a brief survey near San Antonio de Pichincha, north of Quito, by Van A. Reidhead (Indiana University Museum) is the identification of a site known as San Antonio de Pichincha, or Lulubamba. The Equator passed through this location during the prehistoric period. Reidhead's field observations open the possibility that this site might have been used as some kind of solar observatory. Among the sherds recovered from the site is one that should date to the Inca Horizon.

Emil Peterson (Peace Corps) has initiated an archaeological project in the Quito Valley.

COLOMBIA. New work rules adopted by the Instituto Colombiano de Antropología will have great effect upon the initiation or continuation of anthropological research in that country. Archaeologists planning research in any foreign country should always contact the national authorities at an early stage in the development of a research project.

Inés de Sanmiguel and Luisa Fernanda Herrera G. (Instituto Colombiano de Antropología) began a research project in the Department of Magdalena. Sanmiguel also continues her project in the Department of Nariño.

Gonzalo Correal U. surveyed briefly near the Gulf of Urabá. He reports finding a fluted projectile point on the beach.

From December 1972 to April 1973, Jack T. Wynn, assisted by Ann M. Johnson and Richard Cech, conducted a survey of the Buritaca and Don Diego river valleys in northern Colombia. Several cemeteries were found on the coastal plain and more than 45 habitation sites in the sierra. Excavations in the Buritaca cemetery indicate repeated occupations of the site, beginning with the First Painted Horizon. In the sierra worked stone is rare in house foundations.

terrace walls, and stairs outside of the Tairona Park. Only the steepest trails are paved with stone steps. One extensive habitation site includes many workshops and small terraces. Excavations behind a terrace wall in another site reveal 2 cultural strata separated by a sterile layer. This is the first reported occurrence of stratified Tairona materials on a habitation site.

VENEZUELA. Erika Wagner (IVIC) excavated a site near Lagunillas near the eastern shore of Lake Maracaibo. Prominent among the materials from the site is a white ware which features complex vessel forms and broad line incised decoration.

THOMAS P. MYERS

ANDEAN SOUTH AMERICA

ECUADOR. Recent excavations in and around Cuenca, in the Southern Highlands of Ecuador, shed light on the pre-Incaic, Inca, and Spanish settlements. Manuel A. Landívar (Casa de La Cultura, Azuay) reports that a Spanish mill and house built prior to the founding of Cuenca in 1557 utilize lintels and other stones from Inca buildings of pure Cuzco style. From the number and size of the walls, lintels, and other remains, and from the high quality of the stoneworking, Landívar is convinced that Cuenca was the site of an important Inca center. Benigno Malo y Vega, while in Manabí, surveyed and excavated some small stratigraphic trenches to make type collections for his classes and to demonstrate field and laboratory procedure. At home in Cuenca, he is investigating some sites with suspected Early Formative occupations.

The coastal edge of the Andean area saw work by Akkaraju Sarma (Temple University) in the Colonche Valley and the Santa Elena Peninsula. Ceramic studies show that the 2 regions are closely related. Taking advantage of the effects of the 1971 and 1972 rains, and the reversal to normal conditions in 1973, it was possible to observe the succession of vegetative cover. Sarma collected a wide variety of plants typical of both episodes.

Karen E. Stothert (Fordham University) reports successful completion of her application of a method for the analysis of technologically simple stonework to the flaked artifacts of the Santa Elena Peninsula. She is now using this method to compare her excavated collections from a nonceramic site to assemblages belonging to the Vegas and Valdivia cultures.

Preliminary study of Machalilla and Engoroy pottery from La Libertad (Guayas) by Allison Paulsen and Eugene McDougale has identified 5 provisional phases for the Engoroy occupation. Marked contrasts between terminal Machalilla and the earliest Engoroy occupation suggest that the transition between the 2 complexes did not take place on the Santa Elena Peninsula, a hypothesis supported by a series of radiocarbon dates.

PERU. Hermilio Rosas La Noire (Museo Nacional de Antropología y Arqueología) continues his search for Formative sites in the intermontane valleys of northern Peru. Work is underway in the basins of the Río Chotano (northern Cajamarca) and Río Utcubam-

ba (around Bagua, Amazonas), both tributaries of the Marañón.

During summer 1973, Donald E. Thompson (University of Wisconsin) worked in Lima on the analysis of data from the Upper Marañón survey and excavations at Uchucmarca in La Libertad, Peru. Ann S. Rovner studied the collections previously excavated in Uchucmarca and now housed in the Museo Nacional. Under a new permit obtained by Thompson, Dale McElrath returned to Uchucmarca to continue survey and mapping and to excavate for subsistence data, previous excavation in these high altitude sites having yielded well-preserved plant and bone materials.

John P. Thatcher (Wright State University) worked in Huamachuco, La Libertad, on a site survey begun in 1968 and 1969. He collected larger ceramic samples from the surface of sites dating Early Horizon through Middle Horizon I. Preliminary analysis indicates the presence of several decorative styles not previously encountered and much stronger Cajamarca influence during the first half of the Early Intermediate than evidenced in previous samples. Information was also obtained about Middle Horizon IB associations.

Excavations continued at Pashash, in the highlands of Pallasca, Province of Ancash, supervised by Terence Grieder (University of Texas). Alberto Bueno Mendoza collaborated in the project. Bueno cleared the large structure called El Caserón and proved the existence of interior ventilation shafts. Grieder continued excavation of a small 2-chamber temple, in which an elite burial with an offering of Recuay pottery, carved stone, and gold and bronze jewelry was discovered. The temple, which dates to 1400±60 radiocarbon years: A.D. 550 (Tx-1329), was constructed around the seated burial. Analysis of the materials, many of which were made with rotary tools, including wheel-thrown pottery, is in progress.

With economic support from ORDEZA, and under the auspices of the Museum of the Universidad de San Marcos, Hernán Amat Olazával proceeds on a 2-yr extension of the Chavín Project in Ancash.

The Huánuco Pampa project, led by Craig Morris (Brandeis University), spent the last few months computer coding data from the more than 300,000 sherds and other artifacts recovered in recent years. The third field season, begun this April, is concerned with testing an additional 75 to 100 buildings and mapping a small outlier near the Inca city.

J. P. Bradbury and H. E. Wright (University of Minnesota) began a study of the Junín Basin in conjunction with an archaeological investigation involving several members of the Museum of Anthropology of the University of Michigan and Ramiro Matos M. (Universidad de San Marcos). The sediments of Lake Junín were cored to a depth of 31 m and Barbara Hansen is working on the pollen stratigraphy. Prehistoric occupants of the area range from Paleo-Indian Megafauna hunters to the Incas, and the investigators hope to coordinate their efforts to provide an overall view of human ecology and environmental history.

Danièle Lavalée (Musée de l'Homme) reports completion of the fieldwork for the Asto-Chunkularaw Project in the Departments of Huancavelica,

Junín, and Lima. Surface collections, excavations, and topographic maps were made at 52 Prehispanic settlements.

John H. Rowe and Patricia J. Lyon (University of California, Berkeley), with participation by George R. Miller, Catherine J. Julien, and Richard L. Burger, excavated at Qotakalli near the Cuzco airport. Karen O. Bruhns (California State University, San Francisco) collaborated. They hoped to find stratified pre-Inca refuse; the refuse was there, but it was not stratified in any useful sense, having been moved and used as fill to level the ground for an Inca building. Some interesting information on Inca construction methods was recorded. Miller also recorded Inca pottery in the museums of Quito, Ecuador, for comparison with the Inca pottery of Cuzco; Julien studied Nasca 7 pottery at Ica; and Burger collected samples of obsidian with archaeological provenience for rapid scan X-ray fluorescent analysis.

Alfredo Valencia Zegarra of Cuzco is now the Peruvian archaeologist on the PER Project, which is to develop sites between Machu Picchu and Puno as tourist attractions. Valencia's first study for PER, jointly financed by the Peruvian government and UNESCO, is a detailed survey of the Inca occupation of the valley of Yucay, with special attention to terracing, irrigation, and communications. This area is of particular interest since it was completely remodeled by the Incas.

Luis Barreda (Universidad del Cuzco) continues his cleaning and stabilization of the temple of QoriQancha in Cuzco, as well as his studies of the urban centers of Qotakalli and Wimpillay, in the valley of Cuzco.

Manuel Chávez Ballón is also investigating Inca urbanism, principally in Machu Picchu. He mapped and excavated at Qata K'asa Patallaqta a complex of structures which functioned as storerooms 2 km from the city of Cuzco.

This past summer Karen L. Mohr Chávez and Sergio J. Chávez (Central Michigan University) headed an archaeological research and student training project in Cuzco and Puno. Karen Chávez studied modern pottery making in Raqchi, Province of Canchis (Cuzco), in part to provide models for prehistoric pottery production, distribution, and consumption. A preceramic site was located in the Raqchi area in the course of search for obsidian and basalt sources which may have been exploited in prehistoric times. At Taraco in Puno, Sergio Chávez excavated a strata cut through 5.6 m of refuse containing materials which appear to fill gaps in the Early Horizon and Early Intermediate periods of the Puno sequence, and continue through the Late Horizon. He also discovered 4 multicomponent sites near Taraco and collected, excavated, and registered numerous monoliths and artifacts for a new museum, and an inventory (with Abraham Valencia) of the sculpture and ceramics housed in the Puno museum as well. Samples from known sculptures in the region were taken to add to those previously collected for neutron activation analysis. The Chávez team cooperated with Jane and Edward Dwyer (Brown University; Rhode Island School of Design) in a reconnaissance of the Lucre Basin near Cuzco, in anticipation of a larger joint project, discovering 10 sites.

David L. Browman (Washington University) has been working on the origin of the Tiwanaku state and studying the stylistic development of more than 200 stelae found in the area. Asiruni style appears to be indigenous, predating expansion of Chavin influence, as typified by Pucara-Pokotia style, defined at the sites of Pucara in Puno and Pokotia in La Paz. Asiruni is also partly contemporary with the latter style. The Pajano and Luqurmata styles are transitional between Pucara-Pokotia and Classic Tiahuanaco, and are best represented at sites at the south end of Lake Titicaca. Browman is also studying llama and alpaca pastoralism from the development of the Tiwanaku state to the present. At first pastoralism provided 50% or more of subsistence and horticulture was secondary. Later, agriculture became primary for subsistence, while herds were important not so much for food production as for providing pack animals and trade goods to agricultural communities.

The work of the Andes Expedition continues under the direction of Kazuo Terada (University of Tokyo), who has started to analyze the 1960 and 1963 collections from the Celendín-Chahapoyas-Balsas-Olmos region. A number of radiocarbon dates have been released by the Gakushuin University laboratory from Las Haldas and Shillacoto, corresponding to the Kotosh, Waira-jirca, and Mito phases at Kotosh.

Fred G. Thompson (Florida State Museum) has completed his fieldwork on the land snails of Ancash, with emphasis on the Río Santa Valley. He also identified and is studying molluscan specimens submitted by various archaeologists from sites in the Ancash, Ayacucho, and Cuzco areas. In a long-term project Elizabeth S. Wing (Florida State Museum) is helping archaeologists to gain a better understanding of the prehistoric uses of animal resources and the origins of animal domestication in the Central Andes. She is working on collections submitted by Fung from south of Lima, Parsons from the Chilca Valley, Sergio Chávez from Puno and the coast, Dwyer from the Lucre Valley, Mohr-Chávez from Cuzco, MacNeish from Ayacucho, and Lynch from the Callejón de Huaylas and Azuay in Ecuador.

Robert Kautz (University of California, Davis) is processing Cordell's pollen samples from an intermontane valley near Otavalo, Ecuador, Lynch's samples from Guitarrero Cave, and samples from numerous sites on the North and Central Coasts of Peru, collected by himself and members of the Moseley team.

James B. Richardson (University of Pittsburgh) returned from his continuing fieldwork on the preceramic sequence and the Pleistocene and Post-Pleistocene climate of northwest Peru, while a project of the Royal Ontario Museum, led by Kent C. Day, began work in the Lambayeque Valley. Duccio Bonavía B. (Universidad Cayetano Heredia) reports discovery by himself and Rogger Ravines S. (Centro de Investigación y Restauración de Bienes Monumentales) of several lithic workshops on the North Coast, as yet unexcavated.

Working out of the lower Virú Valley, where he has built a field station, Michael West (Los Angeles) continues to test his model of prehistoric cultural

ecology during the Puerto Moorin period. Paul P. Ossa (Skidmore College) finished his survey of the pre-ceramic resources of the Moche Valley. In addition to the already described La Cumbre and Quirihuc sites, a number of other sites, all on the surface, contribute to a definition of the Paján Complex.

The Chan Chan-Moche Valley Project completed its fourth year of field studies under the direction of Michael Moseley (Harvard University) and Carol Mackey (California State University, Northridge). At the large Salinar site of Cerro Arena, Elias Mujica (Universidad Católica) cleared domestic and formal architecture, defining the nature of common household quarters, elite residential structures, utilitarian ceramic assemblages, and a ground stone industry. Theresa Lange Topic (Harvard University) made deep stratigraphic cuts at the Huacas del Sol and de la Luna, where Gallinazo occupation was found below material dating from Moche I through IV. With Mackey, C. B. Donnan (UCLA) excavated more than 50 Moche and Chimu interments, while Moseley and Charles Hastings (University of Michigan) studied the architecture of the Sol and Luna platforms. Adobe bricks carrying over 100 makers' marks proved useful as indicators of chronology as well as principles of labor organization. The Moche V Galindo site received further study by Garth Bawden (Harvard University). Excavations demonstrate that Galindo was the immediate urban antecedent of Chan Chan, and the range of domestic structures points to strict class segregation. In the compounds at Chan Chan, James McGrath (Harvard University) isolated the sectors inhabited by retainers of the elite. John Topic (Harvard University) worked intensively in areas of lower class residential structures, where most of the population resided. It now appears that the southern sector of Chan Chan was the first to be settled, and that the residential population at the urban center was much smaller than originally anticipated.

Cristóbal Campana Delgado (Universidad Nacional de Trujillo) has begun investigation of more than 40 new sites in the Moche Valley, including Mochica cemeteries and fortifications and Salinar, Cupisnique, and pre-Chavín occupations. Among the most important are preceramic structures shaped like horse-shoes that are associated with the cultivation of totora and junco.

On the central coast of Peru, Rosa Fung Pineda (Universidad de San Marcos) obtained 2 dates on Curayacu I and II, which should correlate with the Ofrendas Complex at Chavín: 2370±80 radiocarbon years: 420 B.C. (Tk-114) and 2600±100 radiocarbon years: 650 B.C. (Tk-115). From Bermejo she has a Bonn University date of about 500 B.C. for a stratum containing ceramics of the Rocas-Chavín type. Most recently, Fung recovered material of at least 3 preceramic periods from Bandurria, near Huacho. The middle period seems to be linked to the preceramic of Río Seco, to the south, and dates 4420±140 radiocarbon years: 2470 B.C. (I-7448). From the lowest level, dating about 3000 B.C., there is a nearly complete figurine baptized "the preceramic Venus" by the Peruvian press.

María Rostworowski de Diez Canseco (Museo Nacional de la Cultura) completed her study of

prehispanic coca plantations on the western slopes of the Andes, working from early documents. She is now investigating the etnías of the Lurin Valley. By means of the administrative and judicial documents she has located upriver the Viejo Pueblo de Pachacamac, where there are walls with construction details identical to those of the ceremonial center.

Josefina Ramos de Cox (Universidad Católica) perseveres with her work at Pando and Tablada de Lurin. Occupation begins 9150±200 radiocarbon years ago: 7200 B.C. (Gak 2470). The dolichocephalic people utilized quarry and preform workshops in the surrounding hills, finishing the stone tools in the village. House construction and the nature of the mixed economy (hunting, fishing, gathering, and incipient agriculture) are now under investigation. Three compounds at Pando show evidence of internal functional specialization by A.D. 1260.

The French archaeological mission headed by Frederic Engel (Universidad Agraria) concluded the Chilca program and is beginning a new one in the Chillón Basin, with the collaboration of Hugo Ludeña (Instituto Nacional de Cultura). Some of the Chilca discoveries have already been published, but the pattern of land use and settlement density is just emerging. An apparent hiatus exists between the end of Chavín influence and the beginning of the Lapa Lapa culture. An even larger gap separates final Lapa Lapa (A.D. 200) from Classic Tiahuanaco, except in the Chilca highlands. Settlement density was approached in 3 ways: number of villages and inhabitants per village; nutritive values of food remains, especially shells from the early Lomas villages; and carrying capacity of the land. Engel calculates that the Chilca population grew from 0.2 per km² in the Early Holocene to 10 per km² during late prehispanic times. The latter figure seems too high, in that it requires each usable km² to support 100 persons, in disagreement with the productive capacity of the area, even taking pastoralism into account.

The administration of archaeology in Peru has been completely reorganized. In place of the old Casa de la Cultura, the central coordinating institution is the Instituto Nacional de Cultura, directed by linguist Martha Hildebrandt. Within the Instituto, the office in charge of archaeology is the Centro de Investigación y Restauración de Bienes Monumentales, headed by architect José Correa Orbegoso at Jr. Ancash 769. Two divisions of the Centro are concerned with archaeology: the Departamento de Monumentos Arqueológicos headed by Hugo Ludeña, and the Sección de Investigaciones led by Rogger Ravines S.

John H. Rowe reports that a number of branches of the Centro are being set up in the provinces. In Cuzco, for example, Augusto Cruzatt Anaños directs a Centro Regional de Investigación y Restauración de Bienes Monumentales with jurisdiction over the Departments of Cuzco, Puno, and Apurímac. The supervisor for Puno is Abraham Valencia E., and the one for Apurímac is Fidel Ramos C.

With the retirement of Jorge C. Muelle, the Museo Nacional de Antropología y Arqueología has gained a new director, Luis G. Lumbreras, who will construct new exhibits, reorganize collections, and construct new storage and laboratory space. Muelle, Toribio

Mejía X., and Julio Espejo N. retain study space in the museum. Dr. Pedro Weiss replaces Lumbreras as Director of the Museo de Arqueología y Etnología of the University of San Marcos; Rosa Fung P. is the new Subdirectora.

New regulations governing excavation permits have been issued. Foreign excavators are required to include in their budgets funds for the expenses of a representative of the Centro de Investigación y Restauración de Bienes Monumentales. Permits are issued for 1 yr only but can be renewed. Archaeological specimens may not be taken out of Peru even on loan for study, so, Rowe advises, archaeologists should make provisions to study their collections locally. In view of the lack of storage and study facilities in most areas, such provisions might well include a budget item for study space.

CHILE. Organized reporting of research in Chile was understandably sparse after the coup. Furthermore, even before the takeover, the gasoline shortage curtailed field activity, such as the excavations by Julio C. Montané (Museo de Historia Natural) at Quereo. Earlier, the Smithsonian Institution had contracted with the Museo Arqueológico (La Serena), represented by Jorge Iribarren C. and Montané, for a 5-yr study of the Paleo-Indian occupation of Chile. Survey and excavation were to be undertaken in several zones: the desert and semiarid North; the central zone, where artifacts have been found in association with extinct Pleistocene fauna; the central and southern zone, where mastodon and horse have similarly been found with artifacts; and the South, where the early Palli Aike and Fells Cave sites are already well known.

Gonzalo Ampuero Brito (Universidad de Concepción) continues his project in the "Norte Chico" of Chile. Objectives include the reinterpretation of data in terms of the socioeconomic system of prehistoric culture and an understanding of changes introduced through the Inca and Spanish conquests. The Concepción team is studying the complex and changing ecology, transhumance and mobility across and along the Andean Cordillera, and contacts with the South-Central region. The San Pedro Viejo rockshelter (Pichasca-Ovalle) was restudied by Osvaldo Silva Galdames, many new rock paintings and a burial being recovered. This and other sites in the area make evident a continuum of societies based on seasonal hunting and gathering, with stations also located on the coast, leading up to sedentary farming as personified by the El Molle ceramic complex.

Hans Niemeyer F. and Virgilio Schiappacasse F. (Academia Chilena de Ciencias Naturales) continue their study of the human occupation of the Camarones Valley in the extreme North. During the 1972 and 1973 seasons, they confined their attentions to the mouth of the *quebrada*, excavating 2 sites which had been used by late (about 2000 B.C.) preagricultural and transhumant groups. These are related to other sites in the middle reaches (Conanoxa) of the *quebrada*, which were previously published. Niemeyer and Schiappacasse place emphasis on determining the various cultural expressions provoked by exploitation of different ecological niches. They have

also proceeded with their program of testing and determining the settlement patterns for sites corresponding to the Middle Horizon, Late Intermediate, and Middle Horizon.

The North Coast was also the scene in 1973 of the successful and truly international Primer Congreso del Hombre Andino, organized by Lautaro Núñez A. (Universidad del Norte, Antofagasta). Shortly before the coup Núñez reported continuation of his excavations at the preceramic site at Aragon, as well as stratified midden, preceramic maize, and house remains at Tiliviche.

BOLIVIA. In collaboration with Maks Portugal Zamora, Maz Portugal Ortiz (Museo Nacional de Arqueología, La Paz) began work at the newly discovered Kallamarka site 20 km southeast of Tiwanaku. Although utilized as late as Tiwanaku IV times, Kallamarka was built before the famous type site and is characterized by elaborate terraced ceremonial structures. Portugal Z. sees relationships with the ruins of Konko Wankani, discovered by him in the Jesús de Machaca Basin. Aside from the impressive and novel architecture, Kallamarka is remarkable for a diversity of new ceramic features, such as hollow-footed tetrapod vessels, effigy jars (especially frogs), human statuettes, and incised edges and appliqué. Two of the 5 major types at Kallamarka are familiar from Tiwanaku III contexts, but the smooth black, modeled, and plastic-decorated wares are said to resemble more some types from Waira Jirca, Chanapata, and even the lowland Río Beni area.

ARGENTINA. After 6 yr of field and laboratory studies involving 17 specialists, the Museo de La Plata has issued 2 definitive reports on Tastil, the major pre-Incaic urban center of northwestern Argentina. Through the use of analytic codes museum personnel hope to determine the nature of pre-European urbanization in that area. Architectural data, burials, middens, and house remains from Las Cuevas and Cerro El Dique (Salta) also permit reconstruction of the basic elements of Formative culture. Radiocarbon dates now establish the beginnings of pottery in northwestern Argentina, in an agricultural context, by the sixth century B.C. Eduardo M. Cigliano (Museo de La Plata) reports that his research group is placing special emphasis on ecological studies and utilization of ethnohistoric sources.

In Santiago del Estero, Argentina, Ana María Lorandi (Universidad y Museo de La Plata) is working toward a new synthesis of the regional chronology with emphasis on the ecosystem, its relationships to the settlement pattern, and the processes behind cultural change. Over the past 5 yr she has obtained numerous radiocarbon dates on various ceramic phases, especially in the Río Salado and Santiago basins. Lorandi concludes that, as the settlement pattern and economy (agriculture mixed with hunting and gathering) remain substantially the same through time, the moment has come not to only question the periodization but also the traditional concept of "archaeological cultures."

THOMAS F. LYNCH