TAIRONA CERAMIC CHRONOLOGY

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Folder

A DISSERTATION ABSTRACT

The Tairona culture occupied the northern slopes of the Sierra Nevada de Santa Marta, Colombia, at the time of European contact. They had one of the most highly developed social organizations in northern South America at that time, but little is known of the cultural evolutionary sequence there or of the origins of the Tairona.

Two objectives are pursued here: the first is methodological, in the construction of a ceramic chronology for Buritaca, east of Santa Marta, then a culture-historical model is suggested for the position of Buritaca relative to the neighboring areas.

Previous research has provided only Early (Nahuange) and Late (Pueblito) Phases, based on a single case of stratigraphic deposition, since other excavations had revealed only single-component sites. The seriational approach presented is based on new stratigraphic excavations in the eastern portion of the Tairona area. The seriation is constructed using a method recently developed in the Cibola area of North America, and uses time-sensitive ratio scale variables derived from the excavation data.

In the Marquardt method, ratio scale variables are defined as time-sensitive elements, and constructed so as to avoid problems inherent in Ford's "battleship curve" method because each varies independently within its own strictly defined universe. Once established through the use of computer-assisted statistical analyses, these parametric variables are applied to the seriation of excavation units from the Buritaca Cemetery and Quebrada Maria sites, then checked against the stratigraphy and the literature for validity.

A model is suggested for reconstruction of possible relationships between Buritaca and the neighboring areas based on the chronology presented, on data from the excavations, and surveys conducted in the Buritaca and Don Diego river valleys, in addition to the historic, ethnographic, and archaeological literature.

* Dissertation Defense Examination tentatively scheduled for the week of December 9, 1974.

DOCTORAL DISSERTATION RESEARCH SUPPORT PROPOSAL SUBMITTED TO THE

SOCIAL SCIENCE DIVISION OF THE NATIONAL SCIENCE FOUNDATION

by

THE CURATORS OF THE

UNIVERSITY OF MISSOURI

Columbia, Missouri 65201

TITLE: Archaeological Survey and Ceramic Chronology of the Tairona Culture of Buritaca, Colombia

DOCTORAL CANDIDATE: Jack T. Wynn

SSN 258-56-0966

Department of Anthropology

PROPOSED STARTING DATE: November 1, 1972

PROPOSED DURATION IN MONTHS: 14

AMOUNT REQUESTED FROM N.S.F.: $5067

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Abstract

This proposal is a request for funds in support of research to be undertaken in the vicinity of the Buritaca River, east of Santa Marta, Colombia. The research will be the basis for a doctoral dissertation in Anthropology on the chronology and settlement patterns of the ancient Tairona Indian culture.

The area is now virtually unknown archaeologically; thus before one can plan excavations to solve particular anthropological problems, it is vitally necessary to lay the groundwork through the ceramic chronology and extensive site surveys.

The research design includes archaeological survey to locate the pre-conquest Tairona occupation sites in that area, with test excavations of sites in each major ecological zone, and refinement of the Tairona ceramic chronology. These steps will provide the bases for the formulation of hypotheses concerning community populations, settlement patterns, and the relationships between communities.

I. Background: The Tairona Culture

The Tairona culture was found along the coast and on the slopes of the Sierra Nevada de Santa Marta by the Spaniards in Colombia in the early 16th Century (Reichel-Dolmatoff 1951). They were then one of the two most advanced indigenous cultures of Colombia. Subsequent wars with the Spanairds led to the decimation of the Tairona population by 1599. The remnants of the tribe fled into the mountains and no longer threatened Spanish control of the lowlands.

Investigators have studied the Sierra Nevada from numerous scientific fields, including ornithology (Todd and Carriker 1922), herpetology (Ruthven 1922), and geography and geology (Wollaston 1925; Taylor 1931; and Seifriz 1934). The Sierra proper was of principal interest; data was collected on a number of altitudinal and climatic zones defined by Taylor from the coastal plains to the paramos, or high-altitude grasslands.

The contemporary populations of the Sierra Nevada were reported by Bolinder (1925) on the Ica, Preuss' (1919-26) linguistic studies and Park's (1946) ethnography of the Cágaba. J. A. Mason (1926) reported briefly on the Arhuacos. More recently the Reichel-Dolmatoffs (1950) have studied the Kogí, as well as the modern peasants of the general area in People of Aritama (1961).

The early reports begin with the first Spanish contacts and include Father de la Rosa's 1739 description of eleven Indian tribes of northeast Colombia, from the Sierra Nevada and the Goajira Peninsula (Nicholas 1901). Reichel-Dolmatoff (1951) studied the 16th Century documents and presents a coherent picture of western Tairona culture from them. Elsewhere (1965), he describes the protohistoric Tairona political organization as two tribal "Village Federations" under strong rival chieftains. The western "capital"

is known to have been at Bonda, near the modern city of Santa Marta (see map Fig. 1). The eastern center was a mountain community called Pocigueica, which has not been located. According to the early manuscripts, the central Sierra Nevada coast had a much higher population than it does today. A "city" was mentioned for the Buritaca valley, and Reichel-Dolmatoff interprets the Don Diego River as the populated valley the Spaniards called the Tairona or Taironaca River. There is, however, little trace of a large prehistoric population on the coastal plain today, beyond the urn-burial grounds recently disturbed by bulldozers and looters. The population may have lived by the sea or in a large valley about 200 meters above the coastal plain, which is drained by both the Buritaca and Don Diego Rivers. Most of our knowledge of Tairona culture is based on investigations in the territory near, and presumably under the control of Bonda. However, 16th Century sources indicate that Pocigueica was expanding its control at that time. This suggests that the eastern area should be carefully examined archaeologically, in order to explain the expansion.

Archaeological research on the Tairona culture was begun with excavations of coastal and upland sites by J. A. Mason (1931, 1936, 1939) and G. Mason (1940). Bennett's (1944) ceramic survey of Colombia used J.A. Mason's data. The next work was that of Reichel-Dolmatoff at Pueblito (1954b, 1955) near the coast, and La Mesa (1959) in the highlands. Archaeology at the Tairona type-site of Pueblito resulted in published plans of stone-reinforced house-mounds, stone paved roads and bridges. Elsewhere excavators reported briefly on mortuary sites (Bolinder 1942) and coastal living sites (Mason 1931), which were not considered to be productive, although ceramics were associated with house-mounds.

Although Colombian archaeologiests Marquez and Parra have studied the Tairona for some years, their results have not been published.

All excavations have indicated considerable time depth to the occupation of the Sierra Nevada, but due to the thin, mixed deposition, very little chronological data was obtained from the periods prior to the Spanish contact. Reichel-Dolmatoff (1954a) made a preliminary effort to organize the northern Colombian data spacially and temporally, and recently Bischof's (1961, 1968a, 1968b) work at Pueblito and Mina de Oro has helped tie the Tairona sequence to those of neighboring areas. Bischof has related the Nahuange Phase (AD 500-700) of Pueblito to the materials from El Horno site, on the Rancheria River to the east, and Phase C at Mina de Oro, on the Ciénaga Grande to the west. Chronologically much later, the Late Pueblito Phase materials include European iron objects, indicating occupancy of Pueblito when the Spaniards arrived. Very little is known of the intervening millennium of occupation and cultural evolution in the area. This project proposes to fill some of this long void in the chronology.

The author visited the Buritaca area during March, 1972, to determine the feasibility of the proposed project. Three Tairona burial areas were located, and a number of probable habitations were indicated along the river. Ceramics of both major types in the literature were on the coastal plain there, and both naturally and artificially shaped tabular stones were in the lower valley, strongly suggesting the presence of village architectural features farther upriver.

II. The Problem

General knowledge of the Tairona culture has been summarized in Reichel-Dolmatoff (1965) and Willey (1971). Certain problems remain unsolved, however, in spite of the apparently clear picture presented by these two authors. Of primary importance is the augmentation and clarification of the ceramic chronology through seriational analysis of the ceramics and the addition of radiocarbon dates to the sequence from stratigraphic excavations.

If, as the 16th Century reports indicate, there was a large population with an expanding political organization in the Buritaca-Don Diego area, then several large population centers (or a number of villages) should have been on the coastal plain and upland valleys. The lack of obvious large-scale prehistoric architecture and other public works give no such indication today. The size of one large Tairona urn-burial area, the relatively close proximity (within 2 km.) of two smaller ones, and the frequency of worked stone slabs in the area near the river mouth strongly suggest a large ancient population, however.

Present sources of data on Tairona society in this area are the ethnohistoric writers and archaeology in the western area. Relationships between the Tairona populations (western and eastern) are unknown, as are those between lowland and highland villages in various ecological zones. Preliminary observations have indicated that many of these zones were utilized in the past, but it is uncertain if they were used simultaneously. Extensive use of multiple areas might provide support for an expanding political entity, and possibly one which was in transition from the tribal village federation level to an incipient state level of socio-political organization. These are problems for later investigations.

Before these cultural problems can possibly be approached, it is

vitally necessary that an extensive site survey of the eastern Tairona territory be undertaken. Sites must be located and plotted on maps to relate them to the environment and to each other spacially, and tested through surface sampling and excavation to relate them chronologically. Only when these data have been analysed will it be possible to pose testable hypotheses on the nature of eastern Tairona culture, its population and extent.

III. Objectives

A. Location and plotting on topographic maps of sites on the Caribbean coastal plain north of the Sierra Nevada de Santa Marta, and the adjacent upland valley drained by the Buritaca and Don Diego Rivers.

B. Refinement of the ceramic chronology of the study area, based on seriational analyses and excavated samples.

References Cited:

Bennett, W. C.
1944 Archaeological Regions of Colombia: A Ceramic Survey. Yale University Publications in Anthropology, 30. New Haven.

Bischof, Henning
1961 News Report from Bischof: Colombia. Katunob, 2, No. 3:41-45.

1968a Contribuciones a la Cronologia de la Cultura Tairona (Sierra Nevada de Santa Marta, Colombia). 38th International Congress of Americanists, Stuttgart. pp. 259-269.

1968b La Cultura Tairona en el Area Intermedio. 38th International Congress of Americanists, Stuttgart. pp. 271-280.

Bolinder, Gustaf
1925 Die Indianer der tropischen Schneegebirge. Stuttgart.

1942 Urn-burials in Full-sized Mortuary Urns in Sierra Nevada de Santa Marta, Colombia (A Preliminary Report). Ethnos, 7, No. 1.

Mason, Gregory
1940 South of Yesterday. Henry Holt and Company, New York.

Mason, J. A.
1926 Coast and Crest in Colombia: An Example of Contrast in American Indian Culture. Natural History, 26:31-43.

1931 Archaeology of Santa Marta, Colombia. The Tairona Culture. Part I: Report on the Field Work. Field Museum of Natural History, Anthropological Series, Vol. 20, No. 1.

1936 Archaeology of Santa Marta, Colombia. The Tairona Culture, Part II, Section 1. Vol. 20, No. 2.

1939 Archaeology of Santa Marta, Colombia. The Tairona Culture, Part II, Section 2. Vol. 20, No. 3.

Nicholas, Francis C.
1901 The Aborigines of Santa Marta Colombia. American Anthropologist, n.s., 4:606-649.

Park, Willard Z.
1946 Tribes of the Sierra Nevada de Santa Marta. Handbook of South American Indians, Vol. 2. Bureau of American Ethnology Bulletin 143. Washington. pp. 865-886.

Preuss, Konrad T.
1919-26 Forschungreise zu den Kagaba. Anthropos, Nos. 14-21.

Reichel-Dolmatoff, Gerardo
1950 Los Kogí: Una Tribu de la Sierra Nevada de Santa Marta, Colombia. Revista del Instituto Etnológico Nacional, Vol. 4, Nos 1-2.

1951 Datos Historico-Cultural Sobre Las Tribus de la Antigua Gobernación de Santa Marta. Instituto Etnológico del Magdalena, Santa Marta.

1954a A Preliminary Study of Space and Time Perspective in Northern Colombia. American Antiquity, 19:352-366.

1954b Investigaciones Arqueológicas en la Sierra Nevada de Santa Marta, Revista Colombiana de Antropología, Tomos 2-3. Bogotá.

1965 Colombia. Frederick A. Praeger, New York.

Reichel-Dolmatoff, Gerardo and Alicia
1955 Investigaciones Arqueológicas en la Sierra Nevada de Santa Marta, parte 4. Revista Colombiana de Antropología, Tomo 4, Bogotá.

1959 La Mesa: Un Complejo Arqueológico de la Sierra Nevada de Santa Marta. Revista Colombiana de Antropología, Tomo 8. Bogotá

1961 People of Aritama. Routledge and Kegan Paul, London.

Seifriz, William
1934 The Sierra Nevada de Santa Marta. Geographical Review, 24:478-85.

Ruthven, Alexander G.
1922 The Amphibians and Reptiles of the Sierra Nevada de Santa Marta, Colombia. University of Michigan Museum of Zoology, Miscellaneous Publications, 8.

Taylor, Griffith
1931 Settlement Zones of the Sierra Nevada de Santa Marta, Colombia. Geographical Review, 21:539-58.

Todd, W. E. C. and M. A. Carriker, Jr.
1922 The Birds of the Santa Marta Region of Colombia: a study of altitudinal distribution. Annals of the Carnegie Museum, Pittsburg, 14.

Willey, Gordon R.
1971 An Introduction to American Archaeology, Vol. 2: South America. Prentice-Hall, Englewood Cliffs, N.J.

Wollaston, A. F. R.
1925 The Sierra Nevada of Santa Marta, Colombia. Geographical Journal, 66:97-111.

IV. Plan of Investigation

Phase I, from November 15, 1972 to December 31, 1972, will consist of a site survey. The coastal plain between the mouths of the Guachaca and Don Diego Rivers (including the Buritaca River; see map) will be surveyed on foot and horseback. The object will be to locate archaeological sites and plot tham on aerial photographs and maps in relation to topographic and ecological settings and to each other. Surface collections of the artifacts will be taken from one or more 2 x 2-meter squares in occupation areas of each site. From these it will be determined which sites may be excavated most profitably during Phase II.

The second part of the survey (also on foot and horseback) will be conducted along the drainage of the Buritaca River, checking natural terraces and the large upland valley south of the coastal ridge. The rugged terrain makes it unlikely that there were many sites directly on the river bank itself, but numerous small quebradas and natural terraces suggest many possible living sites and activity areas. These may contain the worked stone residential architecture reported by other investigators. All sites will be sampled in the manner described for those on the coastal plain.

The field work will be conducted with the assistance of a qualified field assistant, and a crew of local Colombian semi-skilled laborers. A field laboratory will be set up a Buritaca, and operated throughout the project, thus facilitating the start of the analysis period.

Phase II, from January 1 to February 28, 1973, will be the excavation period. At least four sites will be tested in each of the two major ecological zones. These will involve one or more 2 x 2-meter squares dug to sterile soil or bedrock to provide stratigraphic columns for each

site. Midden sites on the alluvium will be sought and excavated for stratigraphic data, as previous chronologies have neglected such areas and have been limited by the lack of stratified deposits elsewhere.

The areal extent of each site will be determined, and the possible range of activities suggested for each case. Horizontal excavations will be pursued if time permits, to determine the sizes of structures and extent of occupation. Visible architecture will be sketch-mapped.

Phase III, March 1 to April 1, 1973, will involve mapping and limited excavation of a large coastal Tairona cemetary, already badly looted by local grave robbers. A sketch map will be prepared of the looters' pits, and prediction will be made as to where the remaining portions of the cemetary may lie. Limited excavations will be conducted to obtain (a) a total collection of artifacts associated with each burial, (b) data on spacial deposition and possible chronological relationships between individual burials, (c) controlled samples of funerary ceramics, and (d) basic physical anthropological data on the Tairona population. The ceramics used in funerary offerings presently appear to have included both ceremonial and utilitarian wares.

Phase IV, the analysis, will begin at the field laboratory during the rainy season, about April 1, and last until December 31, 1973. During this time, material from the surveys and excavations will be analysed and preliminary reports will be drafted for the granting agency and the Instituto Colombiano de Antropología in Bogotá, and the initial portions of the dissertation will be prepared. The final analyses and the writing of the dissertation will be done in Columbia, Missouri, to be submitted in Winter Semester, 1974.

V. Special Facilities Available to the Student Investigator

1. Landowners on the coastal plain near Buritaca have offered a number of facilities for the field research. These include laboratory and living space.

2. The Department of Anthropology of the University of Missouri--Columbia has one of the most active facilities for advanced archaeological research in the Midwest. Specialized laboratories can be utilized for the proposed project. Soil samples taken from site excavations are to be analysed in the Soil Chemistry laboratory by Mrs. Ann Leaf, and some assistance in identification of faunal remains has been offered by Dr. B. Miles Gilbert, the remainder to be sent to South American faunal specialists.

VI. Personal Data

Student Investigator: Jack Thomas Wynn

Date and Place of Birth: August 16, 1940; Hawkinsville, Georgia

Sex: Male

Marital Status: Married,
1 daughter, 2 years

Citizenship: U. S. A.

Home Address: 1601 Highridge Drive, Columbia, Missouri 65201

University Address: Department of Anthropology, 201 Switzler Hall,
University of Missouri, Columbia, Missouri 65201

Telephone: 314/ 442-3005

Present Status: Fourth year graduate student; Ph.D. Comprehensive
Examinations scheduled for September, 1972.

Education:

M.A., Anthropology, University of Missouri--Columbia, 1971.
A.B., History, Georgia State College, Atlanta, 1968.

Fellowships and Grants:

National Science Foundation Traineeship, University of Missouri, 1968-1972.
University of Missouri, Museum of Anthropology, Ethnographic Collection
Grants: 1969, for Mexico and Guatemala; 1970 for Tula, Mexico; and
1972, for Colombia.
University of Missouri, Graduate Research Support Fund, Transportation
Grant, March, 1972, for reconnaissance at Buritaca, Colombia.

Foreign Language:

Spanish

Teaching Experience:

Teaching Assistant, University of Missouri, Department of Anthropology,
Fall Semester, 1971. Introductory Anthropology.

Professional Societies:

American Anthropological Association
Society for American Archaeology

Field Experience: (Inverse chronological order)

March, 1972. Archaeological Site Reconnaissance, Buritaca, Colombia.

June-August, 1971. Tula Project, University of Missouri, Tula, Mexico. Archaeological survey and topographic mapping.

June-September, 1970. Tula Project. University of Missouri, Tula Mexico. Excavation; co-crew chief.

June-August, 1969. Kaminaljuyú Project, The Pennsylvania State University Guatemala City. Excavation and Laboratory work.

December, 1968. Archaeological Site Reconnaissance, Tula, Mexico.

June-August, 1968. Archaeological Field School, University of Missouri, Miami, Missouri, and other sites.

Other Work Experience:

Professional Photographer, Full or part time, 1959-1968.

Publications:

n.d. (with Richard A. Diehl) Residential Architecture at Tula. American Antiquity. (in press).

n.d. (with Richard A. Diehl and Roger Lomas) Long-Distance Trade in the Mesoamerican Post-Classic. Archaeology. (in press).

n.d. (with Carl A. Bebrich) Excavation of Mound B-V-6. In W. T. Sanders and J. W. Michels, eds., Final Report of the Kaminaljuyú Project, Guatemala. Department of Anthropology, The Pennsylvania State University. (in press).

n.d. Inferences From Toltec Residential Architecture. Unpublished M.A. Research Paper, on file with the Department of Anthropology, University of Missouri.

References:

Dr. Richard A. Diehl, Assistant Professor, Department of Anthropology, University of Missouri--Columbia; Major Advisor, Ph.D. Committee Co-Chairman.

Dr. Ralph M. Rowlett, Associate Professor, Department of Anthropology, University of Missouri--Colombia; Ph.D. Committee Co-Chairman.

Dr. Michael Robbins, Associate Professor, Department of Anthropology, University of Missouri--Columbia; Ph.D. Committee member.

Dr. William T. Sanders, Professor, Department of Anthropology, The Pennsylvania State University, State College, Pennsylvania.

The student investigator has had four seasons of archaeological experience, beginning with a Field School in Missouri, on sites dating from the Archaic to the Historic Periods. The second season involved the excavation of a Formative Period earth mound and laboratory work at Kaminaljuyú, Guatemala, under the direction of Drs. W. T. Sanders and J. W. Michels. A paper based on the excavation, written in conjunction with C. A. Bebrich, was given at the Society for American Archaeology Convention at Norman, Oklahoma, May, 1971.

The first of two seasons at Tula, Mexico, under the direction of Dr. R. A. Diehl, the student investigator worked as co-crew chief, excavating a non-elite residence in the Toltec city. The second season he prepared a topographic map of a portion of the city, and participated in the archaeological survey of the boundaries of the ancient city, utilizing aerial photographs in the location of sites in the field.

On a recent reconnaissance trip to the Buritaca area, Colombia, the student investigator surveyed portions of the coastal plain and the adjacent river valley to determine the feasibility, costs, and time requirements of the proposed investigations.

His training in Mesoamerica gives the student investigator experience in excavation, survey, settlement pattern and residential analysis, and an awareness of the problems of cultural process in Latin American prehistory. These, along with coursework and extensive readings in the archaeology and ethnology of South America, both at the University of Missouri--Columbia, and under South American specialists at The Pennsylvania State University as a visiting student for two trimesters in 1971, make him fully capable to carry out the proposed research.

The student investigator views this project as an extremely important primary step in a continuing series of studies of the evolution of large-group societies in northern South America. As in Mesoamerica, much of the previous work in this area has concentrated on the elaborate architecture and craftsmanship, while less is known of the political and economic entities which supported them. These are the interests he proposes to pursue now and in the future.

Through the assistance of a Dissertation Improvement Grant, the proposed research can be accomplished within a year and a half in total. The data will be gathered in the coming dry season, and analysis can be conducted beginning the following rainy season, in an area otherwise inaccessable to the student for an extended period of time.

VII. Proposed budget

Wages

Field Assistant, 10 months, $100 per mo.	$1000	
3 Colombian laborers, 140 days, $2 per day	840	
2 Colombian laborers, 70 days, $2 per day	280	
Subtotal		$2120

Equipment

Laboratory lamps, tables, chairs	50	
Laboratory shelving	30	
Laboratory supplies, drawing board	35	
Film: Black and White, 2 rolls, 100 ft.	15	
Color, 7 rolls, with processing	50	
Bulk film loader, for Black and White film	15	
Reuseable film cassettes, Black and White film	6	
Processing, Black and White film	40	
Film storage sleeves for negatives	5	
Aerial photographs of terrain, 4 sheets at $20	80	
Stereo-pair viewing lenses for aerial photographs	7	
Sliding calipers	10	
Field and Laboratory Forms	10	
Cordage	5	
Aluminum foil	5	
Cardboard storage boxes	30	
Cloth field collection bags	25	
Paper bags	5	
Specimen tags	5	
Excavation kits, small tools, 2 at $2.50	5	
Levels, 5 at $1	5	
Shovels, 3 at $5	15	
Trowels, 6 at $2	12	
Buckets, 6 at $3	18	
Screens, 2 at $5	10	
Machetes, 4 at $3	12	
Hand axes, 2 at $5	10	
Metric tapes: 1-50 meters	20	
3-3 meters, at $4	12	
Subtotal		547

Transportation

2 Round-trip air fares, Columbia, Mo., to Bogotá, Colombia, 1 ea., Investigator and Assistant	700	
Local travel in Colombia, including horse and mule rental during survey phase (3 animals, 50 days, at $2 per day)	350	
Per diem, student investigator, 30 days, at $10	300	
Subtotal		1350

Specialized Laboratory Analyses

Dating of Radiocarbon Samples, 6 samples at $150	900	
Identification of ethnobiological samples, 5 hours at $10 per hour	50	
Subtotal		950

Other

Shipping costs for archaeological materials from Buritaca to Bogotá at end of project	50	
Shipping costs for carbon, biological and soil samples to U.S. laboratories for analysis	50	
Subtotal		100

Total Project Request from N.S.F.: $5067

Justification of Budget Items

Wages: Local Colombian laborers will be involved in the survey and excavation phases, directly supervised by the student investigator and field assistant. A qualified field assistant will greatly increase the amount of data collected and shorten the time required for laboratory analysis. At present, two such persons are under consideration for the position.

Equipment: Due to the bulk and high transportation costs of these items, most of them must be purchased in Colombia.

Per diem: This will be used by the student investigator en route to and from research area. He will also be in Bogotá and Santa Marta a short time, while making arrangements to begin work, buying equipment, etc. Near the end of the project, he will also utilize the Museum collections in Bogotá for one to two weeks of comparative research.

Radiocarbon Sample Dating: Lack of absolute dates is a major problem in Tairona chronology; C-14 dates will be a significant contribution of this project. Some laboratories offer free or low-cost work, but the time they require is greater than that planned for this entire project, thus the dates could not be included in the dissertation.

Ethnobiological Identification: Portions of this analysis will be done in Colombia, when possible; the remainder must be brought to the United States for identification by the University of Missouri--Columbia Faunal Laboratory and by ethnobiological specialists elsewhere.

Shipping costs: Colombian Law 163 (1954) concerning archaeological projects, states that the artifacts must be brought to the National Museum at the completion of the project. They will be shipped by truck and train from Buritaca to Bogotá.

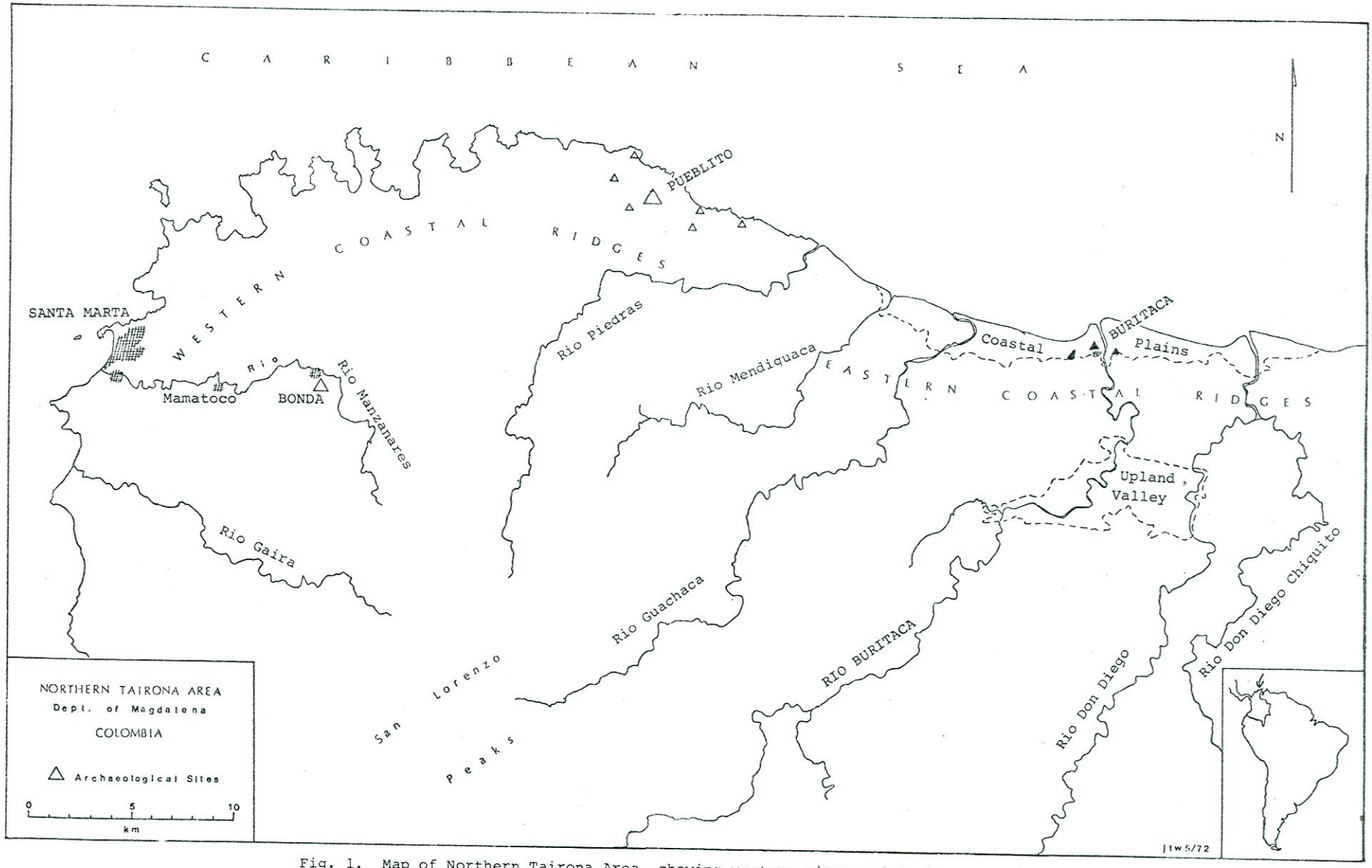

Fig. 1. Map of Northern Tairona Area, showing western sites and Buritaca on the East Broken lines enclose proposed survey areas. Base: Instituto Geografico "Agustin Codazzi," Mapa General de Colombia, 1:100,000 series, Planchas 11,12, and 19.