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**CONTRIBUTIONS
OF THE
UNIVERSITY OF CALIFORNIA
ARCHAEOLOGICAL RESEARCH FACILITY**

Number 26

June, 1975

**BIBLIOGRAPHICAL HISTORY
OF
CALIFORNIA ANTHROPOLOGICAL RESEARCH**

1850-1917

ARCHAEOLOGICAL RESEARCH FACILITY

Department of Anthropology

University of California

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Elizabeth Wuertele

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UNIVERSITY OF CALIFORNIA
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EDITORS' PREFACE

The present monograph was written by Elizabeth Wuertele as a Senior Honors Thesis in the academic year 1973-1974. Starting from scratch, Elizabeth spent a good deal of time in one or the other of the half-dozen campus libraries locating and reading published reports. Then came the organization of her notes and finally the writing of the text and listing of references. The project was, in our opinion, a major effort for an undergraduate student who was carrying a full course load. There is much of value in her thesis, and we have thought it worth publishing for the assistance it will provide other students of California Indians.

The author takes 1850 as the beginning date of her survey since this year marked admission of California to the Union and the end of the Spanish-Mexican regime. 1917 is the terminal date, chosen because this was the year A. L. Kroeber completed the writing of his Handbook of the Indians of California, a volume which waited eight years for publication, in 1925.

A companion honors thesis on ethnohistory written by Barbara Beroza and covering the period of 1542-1850 was written during the same year, and it is our intention to publish this in the near future.

There remains to be written the story of anthropological research in California from 1917 on. Since this would cover 60 years of investigations it might be best to divide the whole into a series of separate studies, among which would be folklore, linguistics, archaeology and general ethnography.

John A. Graham
Robert F. Heizer

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INTRODUCTION

Purpose of the Present Study

This paper is an effort to survey ethnological and archaeological research on California Indians carried out in the period from California statehood in 1850 to the year 1917.

The purpose and intent of this paper, as of any annotated bibliography, is to provide a list of the major sources on a particular subject, arranged and organized in such a way as to be useful for those doing research in the field. Many fruitless hours spent in a library searching for a source which may or may not be useful to the researcher can be eliminated, or at least reduced, with the aid of an annotated bibliography. Of course the good researcher will probably check these works anyway, but titles can be deceiving and some sources hard to locate--in such cases an annotated bibliography is useful.

Besides the practical purpose of the bibliography, this paper aims at a broad tracing of the history and growth of the ethnological and archaeological fields of research in California in the period 1850 to 1917.

Coverage of Bibliography

Because of the abundance of research on California Indians some limitations on the coverage was necessary. 1850 was chosen as an arbitrary beginning date since it coincides with American statehood and the first professional attempts to study the California Indians. 1917 is the arbitrary terminal date chosen because it was at the end of this year that A.L. Kroeber finished writing his Handbook of the Indians of California (1925). Kroeber's Handbook marked the climax of a period in which most of the theory and methods of researching and reporting were developed, setting a precedent for the trained workers who followed to elaborate and improve on as the needs and aims of research in the field became apparent. Some of the earlier research, however, cannot be improved upon and remains of basic importance to the California Indian ethnologist and archaeologist.

Of the four anthropological subdisciplines only ethnology and archaeology are considered here. California physical anthropology and linguistic studies are not covered. This is mainly because the author does not feel competent to judge the worth and significance of the research particular to the development of these fields in this time period. In addition the abundance of material and brevity of time available to collect and annotate each work would not allow the thoroughness intended in the paper; therefore, it was thought better to limit the research here to a coverage of ethnology and archaeology in California.

The researcher interested in linguistic overviews of California Indians to fill in the gap in this paper is referred to two works: R.F. Heizer's Languages, Territories and Names of California Indian Tribes (1966), and William Shipley's article on California in Current Trends in Linguistics (1974). Heizer's book provides a brief bibliographic history of language classification in California from the earliest explorers up to the 1960's. He includes a discussion of tribal identification and classification on the basis of linguistics (dialects) and political units. Shipley's article also provides a history of the linguistic research in California. He points out the major theories and work in the early research, some of which has remained the basis of present research.

Another limitation is placed on the coverage of this bibliography. Only so-called "professional" research is considered. "Professionals" are not restricted to trained anthropologists. Only rarely was a California researcher in this period a trained anthropologist. As it is meant here, a "professional" is any individual who went into the field for the purpose of making ethnological or archaeological observations of California Indians. Thus reports by geologists, geographers, botanists, U.S. government officers, agents, and commissions, museum representatives, and anthropologists are included here. However, except for the occasional "amateur" who provides a scientific observation or who provides the only information available on a particular subject, tribe or tribelet, accidental or occasional observations by "amateurs"--travelers, settlers, soldiers, and journalists--are not covered by this bibliography. This distinction between "amateurs" and "professionals" is made not only to reduce the listing of the inaccurate reports (as these occasional observations tended to be) but also so that the growth of knowledge of anthropological research in California could be more clearly seen from the chronological procession of professional reports from 1850 up to 1917.

Major Sources

Several bibliographies were utilized in the compiling of bibliographic information for this paper. These are entered in the "List of Other Works Consulted". Four bibliographies in particular formed the basis for this paper: that in A.L. Kroeber's Handbook of the Indians of California (1925); R.F. Heizer, A.B. Elsasser, and C.W. Clewlow's Bibliography of California Archaeology (1970); G.P. Murdock's Ethnographic Bibliography of North America (1960); and W. McConnell's California Indians (1915). These were supplemented by E. Anderson's Bibliography of the Chumash and Their Predecessors (1964), and R.F. Heizer's Bibliography of the Archaeology of California (1949). The researcher is referred to two bibliographies: Bibliography of Ancient Man in California (Heizer 1952) and Original Accounts of the Lone Woman of San Nicolas Island (Heizer and Elsasser 1961) for more specific and thorough coverage of these two subjects.

It was thought unnecessary to duplicate the work of these as they adequately cover the subject and are readily available. Both are annotated.

Organization

A great deal of thought was given to the manner in which the bibliography should be organized to be the more useful. A strict chronological ordering was first attempted but found cumbersome, dull, and difficult to use when attempting to locate specific resources. Therefore, to simplify the process of locating a certain work the 1850-1917 period was arbitrarily broken up into seven decades and seven respective chapters--each considering the work researched or published separately by decade.

To bring out the major areas in which contributions to the field were made and to illustrate the gaps in the research, the chapters are further divided into sections. Each section considers the type of ethnological or archaeological research that was being done in that decennium. Within the sections the sources are considered chronologically by the date the research was carried out (if known) or by the publication date (which is noted throughout the text in parentheses).

Some works which fall within the scope of this bibliography unavoidably have not been included because of the difficulty in locating them.

A full bibliography of the works annotated in this paper chronologically ordered by publication date and an author list alphabetically ordered will be found at the end. It is hoped that these along with the subject and tribal indexes will enable the researcher to locate sources.

1850 - 1859

The main kind of report published in this period was the brief ethnological report by U.S. government agents or officers on government surveys. One of the stated aims of these surveys was to assess the physical and mental 'condition' of the California Indian which involved describing their location, numbers, lifestyle, and culture. However, the major concern of the government at the time is reflected in the emphasis of these reports on the status of the Indian/White relationship (Goetzmann 1967).

Planned archaeological research in California in the 1850's did not exist, but accidental finds during mining operations produced

a good many artifacts which created both public and professional interest. Exploration of shellmounds was the first type of archaeological research to be carried out.

General Surveys

California: Alexander Taylor's Indianology of California (1860-1863) was the first major work on California Indian cultures. The Indianology is an extensive collection of articles written or rewritten (many were 'borrowed' by Taylor from earlier works) in the 1860's for the California Farmer. Taylor collected articles and information including vocabularies, mission population statistics, and miscellaneous customs and practices of the California Indians. The original data published by Taylor were taken from mission records, historical accounts, and miscellaneous newspaper reports. Because of the numerous copying or printing errors the material contains many mistakes. A selection of Taylor's articles was reprinted in 1973 by the Archaeological Research Facility, University of California, Berkeley.

Archaeology

Site Reports: Shellmounds: Leander Ransom (1853) explored four shellmounds near San Pablo Bay in 1850 and interpreted reasonably well the process by which they were formed. The popular theory at this time was to compare the California shellmound to the Mississippi mound builder sites thus attributing California Indians with purposeful mound construction for "ceremonial temples", "burial grounds", etc. From archaeological evidence, Ransom concluded that the formation of the mounds resulted from the natural process of gradual accumulation of living waste through long occupation. He suggested that the Indians first chose a locality in proximity of fresh water and necessary shellfish resources. He proposed that they then dug depressions around which bones or sticks were stuck into the ground forming a conical frame of which their house was constructed. Ransom supposed that the shells of their daily food were discarded around the living area creating a build up of waste and smell that was unbearable after a substantial period of time. Because of this he speculates the group would move away (until the weather had dissipated the odor) to return some months later and construct their houses again.

Rock Art: J.G. Bruff (1873) was apparently the first person to describe and record California rock art. In 1850 while traveling through Snowstorm Canyon in Lassen County he encountered petroglyphs on the cliffs. What is interesting about Bruff's work is that his series of sketches of this petroglyph site became more and more distorted in each successive copy. Bruff (1873) describes in a romanticized fashion his experiences in recording this petroglyph

and offers his own interpretation of the features in the rock art. The 1873 drawing appears as a 'copy' of his 1850 original. However it is changed in certain areas and features, and both vary greatly from the original rock. Bruff's two sketches plus a photograph taken by Dr. Dale Ritter of the actual rock can be found and compared in Heizer and Clewlow (1973:P1.21a-c).

E.M. Kern (1854) was the next California researcher to report on California aboriginal art. As a traveler through the King River Valley he noted the carving of figures on a tree. His report includes a sketch of the carvings.

Ethnology

A considerable amount of incidental observation of Indians encountered by miners or travelers in California during the Gold Rush can be found in published diaries. While important in its totality, few single accounts contain more than a few facts, and for this reason no effort has been made by the author to extract these. Much of this information is contained in H.H. Bancroft's Wild Tribes (1883).

Notes and Government Reports: With the coming of statehood, California, its peoples, cultures, geography, and resources, were the subject of many government surveys. One of the first was an expedition of a Lieutenant George Derby in 1849 and 1850 for the purpose of obtaining topographical data. Derby (1850) traveled with his small party in 1849 to the Sacramento Valley taking various readings and measurements and collecting general geographical and populational data of the inhabitants (both native and White) of the area which would be of interest to the government.

Lt. Derby (1852) made a second expedition in 1850 to survey the southern half of the state, especially the San Joaquin Valley area. Although Derby provides scattered ethnological data (mentioning only population and subsistence data of the native villages he encountered) the significance of his 1850 and 1852 reports is in the historical information they offer on the dismal situation the California Indians faced with the loss of their homelands and resources to encroaching White civilization.

In 1850 California had its first United States government appointed Indian agent--Adam Johnston. Johnston (1850) made a long report on the California Indian's situation in the early Gold Rush days to the Commissioner of Indian Affairs. This report contains some ethnological information on the various tribes he observed.

James Mooney (1890) edited the ethnological notes of Colonel Z.A. Rice who had made various observations of the Cosumnes tribes on a journey in the Sacramento Basin in 1850. While Kroeber (1925: 959) seems to doubt the ethnological facts reputed, they do seem authentic and not out of place.

In 1850-1851 the original inhabitants of Yosemite Valley, the Southern Sierra Miwok Indians, resisted the invasion of their land by gold seekers, settlers, and government parties. L.H. Bunnell (1880-1892) wrote of the incidents surrounding the first military encounters with these people and the events leading to their removal from the valley. Although he made some brief notes on their culture, his report is mostly concerned with the Indian/White conflict.

Galen Clark (1904) also wrote about the Yosemite Valley Indians. His report covers their customs, subsistence resources and technology, religion, and oral tradition. He also discusses the conflicts between the Indians and the U.S. government over the Indians' right to live in the valley. He presents an Indian version of the Yosemite Valley War of 1851.

From 1850-1853 the United States and Mexican Boundary Commission surveyed the boundary line of the U.S. and Mexico. John R. Bartlett (1854) who was the U.S. Representative on this commission recorded the incidents of this survey including his observations on various Southwestern and California Indians.

Baron Karl Von Loeffelholz (1893) provides one of the earliest foreign views on the relations between the California Indians and the gold miners. On this subject he offers a perspective which is probably as objective and revealing of his own ethnocentrism as the government's policy and attitude toward Indians in the 1850's. He speaks of Indians as children who need protection, guidance, and a strong disciplinary hand to bring them into White culture and society. However, Loeffelholz makes an effort to describe the culture of the Yurok Indians in the village of Tsurai at Trinidad Bay from his observations of them in the years 1850-1856.

In 1851 a report (Anonymous 1851) was made of the "Atache" or Tulare Lake Indians (Southern Valley Yokuts). The author describes these people and their activities in some detail, noting their environment at adaptation.

In the 1850's Henry R. Schoolcraft compiled in six volumes his Historical and Statistical Information, Respecting the History, Condition, and Prospects of the Indian Tribes of the United States (1851-1857). Contributions concerning California tribes were made to these volumes by various people involved in early California Indian research (Emmons 1852; Gibbs 1853; Henley 1857; Johnson 1854, 1857; Kern 1854, 1855; McKee 1853, 1857; and Schoolcraft 1855 cited below).

A.M. Wozencraft (1851) was one of three of the Indian treaty commissioners sent to California in 1851 to negotiate treaties with the Indians. His report to the Commissioner of Indian Affairs describes his activities on this visit and includes some ethnological data on the Indians he encountered. The eighteen treaties were not ratified by the Senate and remained secret until 1905. They

have recently been reprinted by Heizer (1972). Except for the groups (tribal, tribelet or village) names there is no ethnological information contained in them.

G.F. Emmons (1852) as a member of the U.S. Exploring Expedition collected ethnological information on the California Indians in the area of the Shasta, Klamath, and Destruction Rivers and near the headwaters of the Sacramento River in the Sacramento Valley.

In 1852 Hugo Reid published a series of letters on the Indians of Los Angeles County in a Los Angeles newspaper. According to Barrows (1900:13) Reid was

"a liberally educated gentleman of Scottish birth who resided in San Gabriel for twenty years prior to his death in 1853, and whose observations recorded in the above papers, constitute undoubtedly one of the most authentic accounts of the Indians of Southern California."

These articles contain important ethnological data on the Gabrielino Indians. Reid's letters have been reprinted several times, most recently by Heizer (1968).

In the fall of 1851 Redick McKee, one of the three Indian Treaty Commissioners in California, traveled through the Coast Ranges north of San Francisco Bay on a treaty-making expedition. George Gibbs (1853) accompanied him as interpreter on this expedition. Gibbs kept a journal of the McKee expedition in which he recorded the treaty-making activities and the ethnological observations on the Indians they encountered. The report contains some valuable ethnological information on the northwestern California Indians. An official record of the expedition kept by McKee's son, John, was published in 1853 (McKee 1853).

In 1852 George Gibbs (Heizer 1973) returned to northwestern California to engage in gold mining. His report on his observations of the Klamath River and Humboldt Bay Indians (he refers to the Shasta, Karok, Yurok, Tolowa and Wiyot tribes) in the early 1850's make him the first ethnographer of the region. The report is concerned with tribal boundaries, village locations, customs, geography, and natural resources. He gives a general cultural description of each tribal group he visited.

In 1852 Benjamin D. Wilson (1868) was appointed Indian Agent for the southern California district. In this office he was "responsible for" the so-called Mission Indians (the Tulareños, Cahuilla, Luiseño, Diegueño, Serrano, and San Juan Capistrano Indians) and the Yuma and Mojave tribes. He submitted a report concerning these tribes (including some ethnological information) to the Interior Department in 1853. For detailed bibliographic information on

Wilson see Caughey (1952).

E.M. Kern (1853) observed the Indians in the San Joaquin and Sacramento Valley areas in the early 1850's. In his report he generally describes the physical characteristics, dress, houses (method and material of construction and use) division of labor, subsistence resources (procurement and preparation of food) objects and tools utilized, religious beliefs, ceremonies, social customs, language, and the inter-tribal relations of the Indians living in these areas.

N.A. McLean (1853) reported in a journal his observations of the Yokuts Indians he encountered while on a journey from Fort Miller to Walker's Pass in 1853. The report contains miscellaneous ethnological information on these people and it suggests the difficulty this 'Indian official' experienced in trying to deal non-ethnocentrically with the people he was 'responsible' for.

In 1853 and 1854 a government survey party explored the Southwestern United States territories to establish a route for a railroad from the Mississippi River to the Pacific Ocean. A.W. Wipple, T. Ewbank, and W.W. Turner (1855) reported their observations of the peoples which the survey party encountered. The California Indian tribes they observed included the Paiute, Yuma, Chemehuevi, Mohave, and Cahuilla. The ethnological information on each of these tribes is brief; the locations of villages, dwelling types, dress, and subsistence of the people are noted.

Lt. E.G. Beckwith (1855) while on the Pacific Railroad government survey of 1854 made some observations of the Paiute Indians of California and Nevada. His ethnographic information on these people is brief and mainly concerns their appearance and villages.

Adam Johnston (1854) made perhaps the first attempt at collecting extensive ethnological information about various California tribes. As the first Indian Agent appointed in California, he observed and described the San Joaquin Valley Indian tribes and the Indians in general (he referred to them as "lazy savages", "degenerate" and "dirty") he does provide some specific ethnological data. These reports are also valuable for revealing the nature of the U.S. government's intended policy at the time to remove the "Yosemite" Indians. As a result of his prejudice his conclusions are a little far fetched--especially his belief that Indians, like animals, have definite mating seasons! This same error was also made by Loeffelholz (1893) cited above, who observed in 1850 that most of the Yurok babies were born in the spring. Kroeber (1925:44) provides the reason for this erroneous interpretation.

Adam Johnston (1857) also describes the Sacramento Valley tribes. It is difficult to identify the specific Indian groups Johnston

was referring to in this and his 1854 publication.

Thomas J. Farnham (1855) wrote of his adventures and travels in California in the early 1850's. He includes a brief but very generalized description of some California Indian tribes which he encountered in his travels.

Henry R. Schoolcraft (1855) wrote one section in his six volume work (1851-1857) on the history and government of the U.S. Indians on the California tribes. In this he described the general character of the California Indian (miscellaneous information on dress, houses, religion, beliefs, and other social customs). His characterization appears to be based upon observation of the San Joaquin Valley and southern California "Mission" Indians only.

William H. Emory (1857) was another government explorer who made a number of ethnological observations of Indian tribes of California and the Southwest. His report of 1857 contains general information on the Yuma and Diegueño Indians.

Population Estimates: Redick McKee (1853), as U.S. Indian Agent, collected population statistics and estimates of various Northwestern California Indian tribes (including the Pomo, Klamath River Yurok and Karok, and Trinity River Hupa, Shasta, and Russian River Pomo, and the Indians along the north coast south to San Francisco Bay).

In 1851 R. McKee (1857) collected population statistics from his own observation, as well as information from settlers, to estimate the population of the coast and interior tribes north of San Francisco Bay.

Colonel T.J. Henley (1857) was Superintendent of Indian Affairs in the State of California in the 1850's. He made some population estimates of each of the reservations in California, which he listed: Klamath, Nomelacke, Mendicino, Fresno, Tejon, Nomecult Valley, and Kings River.

Ceremonies: Most of the short ethnological reports in early California Indian research were concerned with only one or two specific aspects of native culture--usually: native religion, subsistence, technology, art, ceremonies, or dances. One of these specific ethnological reports was J.J. Warner's (1857) account of the Luiseño Eagle ceremony.

Tool Manufacture: One of the earliest reports which deals with the technology of the California Indians is C. Lyon's (1859) report of arrowhead manufacture by the Shasta Indians.

1860 - 1869

In the 1860's very little research on California Indians was carried out.

General Surveys

California: From 1863 to 1866 Alexander Taylor published his Bibliografia Californica 1510-1863 in a series of newspaper articles. This is a bibliography of California works (either concerning California or published in California) in the years 1510 to 1863. In terms of the scope of this paper, Taylor's Bibliographica contains little useful information. It is not annotated.

Archaeology

Ancient Man: One of the California archaeologist's first concern was with the question of the antiquity and origin of the California Indian. This interest stimulated a series of cave and "early man" site explorations and investigations.

J.D. Whitney (1867), an eminent Harvard professor of geology, became interested in the antiquity of man in the North American West through having been appointed to make a study of the geology of California. He carried out research in the cave sites in California, exploring a cave and a number of sites in Calaveras County to assess the geological and associated information that might verify the antiquity of human remains. (For a listing of the published sources on the Calaveras County caves and other alleged California ancient man sites found and explored in the years 1850-1917, see Heizer 1948).

Ethnology

Notes and Government Reports: In 1860 John S. Hittell collected some ethnological information on the Wintun Indians of Napa Valley. His report is brief.

Continuing in the vein of earlier observations of the U.S. government and White relations with Indians J. Ross Browne (1861) made some historical and political observations of the treatment of the Indians while he was serving as a special Agent of the U.S. Treasury. This work particularly deals with the reservation situation of the 1860's.

Tool Manufacture: E. Belcher (1861) made some brief observations concerning California Indian bow and arrow construction and use. He details stone arrowpoint chipping construction, comparing California methods of manufacture with Alaskan tribes.

Monetary Systems: Robert E.C. Stearns (1869) was one of the first workers interested in the shell money used by California Indians. His research in California in 1861 and 1867 was among the northern California coast tribes. He mentions the Tolowa, Yurok, Wiyot, Wailaki, Coast Yuki, and Pomo. Stearns made an extensive study of the monetary value of the Dentalium pretiosum and Tapes gracilis and compared this with shell monetary systems from other parts of the world.

1870 - 1879

In this decade two major works appeared: Stephen Powers' (1877) extensive ethnological survey of California tribes in the northern portion of the state; and the Wheeler Survey Report (1879) on the archaeology in the Santa Barbara area. Other researchers in this period were Paul Schumacher, Stephen Bowers, and Leon de Cessac--all of them concentrating their research in the Santa Barbara area.

Most of the early work in California archaeology was essentially of a surveying and collecting nature. Very little scientific excavation took place. If a site was found its general geographical location was noted, but only in exceptional cases was its relationship to environmental features indicated. If artifactual material was collected these were described and general associations of burials or house remains were noted. After many such collecting expeditions by museum representatives or the interested layman collector, the wealth and types of items collected stimulated a number of researchers to deal with questions concerning the use and manufacture of these items. There appear a number of studies of this sort in the 1870-1879 period.

General Surveys

North America: At this time a number of general surveys dealing with North and South American Indians were being written. Four were published in the late 1870's that dealt with California Indians.

H.L. Oak (1875) who was one of H.H. Bancroft's writers devoted a monograph to the antiquities of the Pacific states. He emphasized research in the Mexican and Guatemalan areas, but California is also covered briefly. For each area he generally discussed the antiquities reported to have been found there. On H.H. Bancroft and the writing of his volumes on California history and Indians see Clark (1973).

C. Rau (1876) examined the archaeological collection of the U.S. National Museum in 1876. He discusses the various stone, copper,

bone and horn, shell, clay, and wooden artifacts collected by the representatives of the Museum in the U.S. The artifacts in each of the above tool material categories are discussed in terms of form, shape and construction. California specimens are included, most of these coming from the Santa Barbara Channel Islands and mainland.

In 1877 William W. Beach published a volume of articles dealing with the Indians of North America. Two articles reprint papers on California Indian tribes, one by J.R. Browne and one by A. Gatschet.

Edward Palmer (1878b) published a monograph on the plants used by the Indians of the United States. He included a discussion on California tribes.

In 1879 and 1880 H.C. Yarrow (1880) wrote on the mortuary customs of the North American Indians in which he covered all reported types of mortuary customs and the related ceremonies. This extensive monograph is organized into seven sections--each devoted to a type of mortuary custom and the tribes which practice them. California is included.

California: In 1870 Edward Chever published his observations on the Indians of California after living among four or five tribelets (probably Maidu and Wintun) in the Sacramento Valley area. His observations are perceptive of the Indians' philosophy and relationship to their environment which he points out are reflected in their adaptive subsistence pattern and social and cultural development. He discusses their fear of the effects of the White man on their environment, their physical appearance, dress, and social relationships; religion; subsistence, hunting and technology; ideals of reciprocity; their conservation of their resources; marriage customs; dances; foot races; games; diseases and their treatment; mortuary customs; and various other social customs reflecting social philosophy.

Stephen Powers, in the 1870's was the first California ethnographer to recognize the heterogeneity of California tribes and attempt a broad scale comparative study of California cultures. His Tribes of California (1877) is still one of the most valuable sources for northern California ethnology. Powers' volume is organized loosely by tribe, and the amount of detail varies per tribe. The appendix includes an extensive comparative list of vocabularies from thirteen linguistic families in California which were edited by J.W. Powell. The tribes that Powers distinguished and reported on were: The Karok, Yurok, Tolowa, Hupa, Tubatulabal ("Patawat"), Southern Maidu, Mattole, Wailaki, Yuki, Southern Valley Yokut, Pomo, Central Pomo ("Yokaia"), Miwok, Southern Pomo ("Gallinomero"), Southwestern Pomo ("Gualala"), Atsugewi, Eastern Pomo ("Kabinapek"), Southeastern Pomo ("Makhelchel"), Central Sierra Miwok ("Yosemite"), Yokuts, Wintun, Shasta, Modok, Achomawi, Yana, Maidu, and Northern Paiute.

In 1874 Stephen Powers published an article (1874b) dealing with the question of the origin of the California Indians. He tried to prove the Chinese ancestry of some California tribes, particularly those around Healdsburg, California, for which he cites supposed Chinese linguistic affinities as evidence. He also cites linguistic, ethnographic, and physical comparisons to support the theory of an early migration of the California tribes across the Pacific.

Felix Gillet (1874), a Frenchman then living in Nevada City, wrote a general account of the Indians of California. He discusses *their social life and customs*.

Powers (1875a) wrote another article dealing with this question of Indian origins in which he offered some explanations--principally the degeneration theory--for the California Indian's racial similarity but cultural dissimilarity with Asian peoples. This is repeated in his Tribes volume (1877).

In 1875 Powers (1875b) published his notes from a comparative study of the physical and cultural characteristics of various California tribes. This is perhaps the earliest comparative study of California Indians on this topic.

In 1875 the United States Government conducted an archaeological survey, under the supervision of George Wheeler and the direction of F.W. Putnam (1879), into the southern California area--principally excavating and collecting artifacts at three sites in the Santa Barbara area: Dos Pueblos and La Patera on the mainland, and at Prisoner's Harbor on Santa Cruz Island. A large number of professionals were involved in the survey--archaeologists, geologists, physical anthropologists, and linguists (see articles cited separately below under Abbott [1879], Gatschet [1879], Haldeman [1879], Putnam [1879], Schumacher [1879], and Yarrow [1879]). A report on the results of the survey was published in 1879 (see Wheeler Survey Report 1879). This volume remains a useful source on the archaeology of southern California, and for this reason each article in the volume has been annotated and listed separately in the bibliography.

In the introduction to the Wheeler volume Putnam (1879:1-31) summarized what was then known about the material culture of the Santa Barbara and southern California Indians from the archaeological evidence. He discussed the questions of the time concerning the origins, migration, and tribal contact of California Indians. Using physical anthropological, linguistic, and archaeological evidence, Putnam (1879:18) concluded:

The Californians have probably developed by contact of tribe with tribe through an immense period of time, and the primitive race of America which was as likely autochthonous, and of Pliocene age, as of Asiatic origin, has retained its impress on the people of California.

In the appendix of the 1879 Wheeler Survey volume Albert S. Gatschet (1879:403-485) compiled a comparative list of vocabularies from 40 dialects which he classified into seven linguistic stocks: Tinne (Athabascan), Numa (Shoshonean), Yuma, Rio Grande Pueblo, Kera Pueblo, Wintun, and Santa Barbaran (Chumash). This was one of the earliest linguistic classification systems developed for California tribes.

Archaeology

Site Reports: Collections: Many of the professional artifact collectors in the 1870's (including the archaeologists who were scarcely more than mere collectors) addressed their research to questions about the manufacture and use of the artifacts they collected.

One such worker was J.G. Henderson (1872) considered the problem of the function of the so-called 'plummet stones' found in many California sites. He described the 'plummets' and the associations in which they were found in archaeological sites, and discussed their possible uses suggested by this data.

In 1873 an anonymous report (Anonymous 1873) was made concerning an implement ("plummet like") found near Woodbridge, California in a well 30 feet below the surface. The report briefly describes this artifact.

James Blake (1873) made a similar report, briefly describing two serpentine "sinkers" and the circumstances of their alleged recovery from Pliocene gravels in 1872.

In 1873 A.W. Franks collected and briefly described a Modoc bow and two arrows which he claims he found in the camp of Captain Jack.

C.C. Abbott (1879:49-69) described the form and characteristics of the chipped stone artifacts found in the Santa Barbara area sites by the Wheeler Survey party. He speculated on the probable use of some of the implements.

Abbott (1879:70-92) considered mortars and pestles from the collections of Dr. Yarrow's exploration party in the Santa Barbara area. He described them and discussed their manufacture and use by the California Indians.

Abbott (1879:93-116) described the steatite cooking pots, plates and culinary vessels found by the Wheeler Survey party. He proposed the methods by which these were manufactured and used.

Several implements made of wood were collected during the 1875 survey. Abbott (1879:122-124) described these and suggests their probable use and manufacture.

Determining the functions of the so-called stone smoking pipes found in many southern California sites was a problem for early archaeologists. Abbott (1879:125-134) discussed the difficulties in classifying pipes by form (these pipes are tubular in shape). He cited ethnological evidence from California to support their use as smoking pipes and he discussed comparable pipes from other tribes in North America.

Abbott (1879:190-217) also described and discussed the probable functions of several miscellaneous stone objects collected by the Wheeler-Yarrow survey around the Santa Barbara region. He treats tubes, 'plummets', sinkers, arrow straightening stones, various grooved, pecked and polished stones, hammerstones, and ornamental objects.

In the Wheeler Survey Report C.C. Abbott and F.W. Putnam (1879:222-233) considered the bone and wooden objects found. They very thoroughly described the various fishhooks, harpoons, awls, weapons, "marrow extractors", pins, "daggers", etc., found in the three sites excavated in the Santa Barbara area.

The only musical instruments found in the 1875 survey were some bone whistles which Abbott (1879:234-238) briefly described.

S.S. Haldeman (1879:263-271) contributed an article to the Wheeler Survey Report on the manufacture of beads and the various forms which are found in the Santa Barbara region.

F.W. Putnam (1879:135-189) discussed and described the distribution and forms of "clubheads", "spindlewhorls", and "sinkers" found in the three archaeological excavations in the Santa Barbara area. He provides some comparative data from other parts of the world and ethnological evidence to support his conclusions concerning their use.

Putnam (1879:218-221) also considered production of what he called "sculptures" made of steatite. He presented three examples of animal representations.

One of the most detailed reports in the Wheeler Survey volume was Putnam's (1879:239-250) article on the textiles, fabrics, and basketry collected from two sites (Dos Pueblos and La Patera). He described the articles and textile fragments which were found, and the plants which were used in their production. This article includes a short list of the plants identified as used by the Indians for textiles and basketry.

Putnam (1879:251-262) described several miscellaneous ornamental objects found on the 1875 survey including beads, body paint, and decorative objects of shell and bone.

Some articles of metal were secured by the Santa Barbara (Chumash) Indians from European visitors and from the missions. Putnam (1879:272-276) describes how these were "adapted to native requirements and customs".

One of California's first archaeologists was Paul Schumacher. As a representative of the Smithsonian Institution, he concentrated his research generally on southern California coastal regions, specifically the sites in the Santa Barbara area. Schumacher made numerous trips to the Santa Barbara Channel Islands to survey and excavate the shellmounds. His early reports were concerned with the composition and processes of formation of these "kitchen middens", as he called them. His later work was more problem oriented-- dealing with the function and the methods of manufacture of the various artifacts he had collected for many years. In 1875 Schumacher (1879:117-121) collaborated with the Wheeler Survey of the Santa Barbara area reporting additional information on the method of manufacture of steatite bowls. His report gives some of the locations of the steatite quarries where these bowls were manufactured on Santa Catalina Island. He suggested there was a trading network between the Channel Island Indians and the Indians of the mainland for stone goods, seed, acorns, skin, fur, and roots.

In another article Schumacher (1875b) described several shell fishhooks found in various stages of manufacture in graves in sites he excavated on the Santa Barbara Channel Islands.

Schumacher (1876b) also described the process by which arrowshafts were straightened with a grooved stone.

In 1875 Dr. H.C. Yarrow (1879:32-46) and a special part of researchers "excavated" two sites in the vicinity of Santa Barbara. Their collections and explorations were the basis of the Wheeler - USGS survey report for 1875 (1879). Yarrow wrote in the introduction of this volume his account of the survey and excavations of the La Patera and Dos Pueblos sites. He includes a translation of the report on Cabrillo's explorations in the area in 1542-1543.

A report was made in 1876 (Anonymous 1876) of the objects collected by Professor Baird and Paul Schumacher from burials near Santa Barbara and the Channel Islands that were donated to the Peabody Museum. The objects are listed and briefly described.

In the years 1877-1879 Leon de Cessac (1882), a French scientist, carried out ethnological and archaeological research in the Channel Islands and Santa Barbara southern California coast and inland areas. De Cessac originally came to California to do his research with the financial support of Alphonse Pinart, a wealthy Frenchman. When Pinart's financial means ran out, de Cessac was forced to abandon his research. Most of de Cessac's work has remained unpublished, including his extensive collection of artifacts,

fossils, zoological and botanical specimens. Cessac (1882) described a collection of stone animal fetishes which he had found on San Nicolas Island. This is the only publication (except for E.T. Hamy's 1882 report on the Pinart and de Cessac expedition--see 1880 chapter) by de Cessac of his efforts in California. (See Reichlen and Heizer 1964 for detailed biographical information on this almost forgotten but important California researcher.)

R.E.C. Stearns (1877) discussed the identification of the molluscan species of some shell beads found in Arizona sites. He determined these beads had been either made by California Indians and traded to Indians in Arizona, or had been traded in whole shell form to be made into beads. He also discussed the problem of identifying the possible trade routes.

In 1878 D.D. Duns made a report of his explorations on the mainland in Santa Barbara county and San Luis Obispo county, and the islands of San Miguel, Santa Rosa, Santa Cruz, San Nicolas, Santa Catalina, and San Clemente. He describes the artifacts he found. This work was little more than pot-hunting.

E. Palmer (1878a) addressed the problem of the manufacture by the Mohave Indians of fishhooks. He described how they used cactus spines where shell was unavailable.

While surveying on Santa Catalina Island in 1878 Schumacher (1878a) discovered a steatite quarry site with the remains of ollas (stone bowls) in various stages of manufacture and the chisels and scraper tools used in their manufacture. He proposed his theory that one group of miners and olla manufacturers would trade their finished bowls, plates, and other steatite objects for certain foods which were more accessible on the mainland.

In 1878 Paul Schumacher (1878b) analyzed a variety of items from his collections to determine the method of their manufacture. He considered stone ollas (steatite), basalt mortars, digging stick weights, and pipes found on Santa Catalina Island.

In 1879 Schumacher (1880) studied the pottery and basketry of the southern California Indians and described in detail the techniques and materials involved in pottery and basketry manufacture.

Site Reports: Shellmounds: In the 1870's a number of site surveys and excavations were made--especially in the shellmounds of the southern California coast and islands. Paul Schumacher and Stephen Bowers were the two most active workers.

Gustav Eisen (1905) studied the aboriginal occupation of the Santa Barbara Islands in 1873 and again in 1897. His report of these visits is a full, accurate report covering the prehistory, geography, and ecology of the islands, and the history of and effect

on the inhabitants of European contact. He also discusses the plank canoes constructed by the natives of the Santa Barbara coast and used for travel between the islands and the mainland. Eisen's report contains a fairly accurate account of the "San Nicolas woman" who lived alone on San Nicolas island for eighteen years.

Another article on shellmounds (Anonymous 1874) gives a general description of the San Francisco Bay shellmounds and discusses burial practices of the Indians of this area.

Paul Schumacher (1874) described in a brief article the objects he found in or associated with graves in some village sites he excavated in the Point Sal area along the southern California coast.

In 1874 Schumacher (1875a) excavated four sites and several temporary occupation sites which he discovered while surveying in the San Luis Obispo area. His report describes the remains in the graves he excavated. It contains a relatively thorough discussion concerning length of occupation periods, grave differences and composition of shellmounds in the area.

Another archaeological enthusiast was A.S. Hudson (1875) who investigated an Oakland shellmound. Hudson described the general composition of the mound in his report and speculated on the reason the Indians "constructed" the mound.

In 1875 A.W. Saxe explored a shellmound at Laguna Creek, six miles north of Santa Cruz. He published a report of his exploration which describes briefly the mound and his finds.

Schumacher (1875d) discussed the differences seen in California and Oregon shellmounds of temporary and permanent occupation remains. He compared the composition of graves and sites in California and Oregon.

In 1875 Paul Schumacher (1875c) visited the Channel Islands to excavate graves in the many shellmounds on these islands. His report generally described his finds on San Miguel, Santa Cruz, San Nicolas, and Santa Catalina islands.

In 1875 Schumacher (1877b) made various expeditions to the Channel Islands (San Miguel, Santa Cruz, San Nicolas, and Santa Catalina) and the Santa Barbara mainland. He states (1877:37) the reason for his expeditions:

The principal aim of the expedition to this region was the collection of implements left by former inhabitants, the observation of particulars in connection with such finds, the description of the mode of burial practiced by these people, and the delineation of topographical characteristics, together with the preparation of sketches of such former settlements.

Lorenzo G. Yates (1875-1877) wrote a series of newspaper articles describing his explorations in shellmounds around San Francisco Bay. He details the locations (with respect to historical features) of several Indians mounds and describes the "relics" which he recovered from some of the mounds.

G. Laidlaw (1885) was another worker interested in the California shellmounds. He studied the Emeryville shellmound in 1876 and proposed an explanation of the "mystery" of its formation. He concluded the Indians were "building pyramids of worship" of which the only evidence remaining was the earthwork foundation.

In 1876 a natural history field party made several explorations in the Santa Barbara area. A member of this party, J.T. Rothrock (1876) reported the results of explorations of several shellmounds on Santa Cruz Island.

Santa Cruz Island was the scene of Paul Schumacher's research. In 1876 he explored Tinkers Cove on Santa Cruz Island. His report (1876a) gives a description of the environmental location of the site as well as the archaeological composition of the site. He compares the stratification and graves of this site with one in Oregon at the mouth of the Pistol River.

In another article Schumacher (1877a) again considered the Tinker's Cove site on Santa Cruz Island. He describes in some detail the contents of the mound and in general the contents of other shellmounds of the southern California coast.

Another worker who devoted research time to the Channel Island Indians and associated mainland Indians in the 1870's and 1880's was the Reverend Stephen Bowers. While on an expedition to Santa Rosa Island in 1877 Bowers (1877) explored some grave and village remains and collected antiquities which he describes in his report. He also described and discussed rather thoroughly the geography, geology, and history of White contact with the inhabitants of the island.

Ethnology

Notes: In the 1870-1879 period the major ethnological work was done mainly by one man--Stephen Powers. Powers published a number of articles from 1872 to 1874 on the tribes he observed in northern California. These articles were the basis for his extensive monograph, Tribes of California, which appeared in 1877.

W.J. Hoffman (1878) made some miscellaneous ethnographic observations on the Paiute Indians of California in 1871 and 1872. His report generally covers Paiute dress, food, fire making, tools, and weapons, curing and medicine, mortuary customs, pictographs, and archaeological remains in the areas he traveled.

Stephen Powers (1872a) wrote an exceptionally perceptive article on the White mistreatment of Indians in California and the Indians' reaction in which he included a discussion of the reservation system in California in the 1870's. He discusses the difficulties on obtaining original information on native life and culture that was unaltered by Indian assimilation into or contact with the White culture. This article provides ethnological information about the Karok, Yurok, and Modoc Indians in Northern California.

In a second article Powers (1872b) discusses the Karok World Renewal ceremony, Salmon dance, and shamanism. Various other Karok social customs (dealing with hunting, death, origin myths, etc.) are discussed.

Powers (1872c) next reported on Yurok dress, houses, geography, technology, subsistence, various social customs, wealth values, etc. He makes many comparisons between the Yurok and Karok in this article.

In another article Powers (1872d) described various cultural features of the Hupa Indians, including some Hupa myths.

In 1872 Powers (1872e) studied the "Yukas" (Yuki) living in Round Valley. He made notes on various features of the culture of these people.

The Pomo Indians were the subject of Powers' (1872f) next article. His notes from his observation of these people briefly cover Pomo culture.

In 1873 Powers (1873a) published his notes on the culture of the Sierra Miwok Indians. This report includes creation myths.

In another short ethnological report Powers (1873b) described the culture of the Modoc Indians of northern California--including houses, dress, subsistence, and various social customs.

In 1873 Stephen Powers (1873c) wrote the first general ethnology of the Yokuts Indians. He included discussion on their geographical location, language, political organization, religious beliefs, clothing, subsistence, and technology.

In 1874 Powers (1874c) published his ethnological notes on the Nishinam (Nisenan) Indians (Southern Maidu) which included information on their social customs, political organization and warfare.

Stephen Powers (1874d) also studied the Patwin Indians. His report of this culture in comparison with neighboring tribes.

From 1872 to 1880 Livingston Stone (1872-1880) was commissioned by the U.S. Fisheries Department to establish a salmon hatchery in northern California, and to procure salmon eggs for shipment to hatcheries in the East. He made a series of reports on his activities

which include some historical and ethnological notes on the Wintu Indians. This report provides some interesting information on the Indian/White relations in the 1870's and the Indian's reaction to Salmon fisheries.

In 1873 Indian Agent John G. Ames (1874), on official directive, made some observations of the "Mission Indians" in southern California. His report is concerned with the Indian/White/U.S. Government relationship and contains some information of the population, location, and condition of these "Mission Indians" (Diegueño, Luiseño, Juaneño, and Cahuilla) in 1873.

C.A. Menefee (1873) reported his observations of the Napa Indians (Wappo or Wintun) generally describing their appearance, population, subsistence, sweathouse, and mortuary customs. He had a rather prejudiced view of these people.

W.M. King (1875) while on an expedition through San Bernardino County in 1874, observed the cremation ceremony of an Indian woman which he described in his report.

The so-called Mission Indians were the subject of O. Loew's (1876) research for a USGS survey in 1876. His report is mainly concerned with the impact of White American and Spanish contact with these people. He also describes the locations of these people at this time and he includes vocabularies and some ethnological information on them.

In 1876 Alfred B. Meacham published a report on the Modoc Indians of Northern California. He is mostly concerned with presenting the events of the conflicts between the Modocs and the U.S. government in the war of 1872-1873. He also provides some useful information on Modoc social relationships and values instilled in childhood training, and some details on Modoc warfare, oral tradition, and mortuary customs.

W.H. Jackson (1877) published a descriptive catalog of the photographs of the Indian tribes encountered in the Hayden U.S. Geological survey. The Modoc Indians are the only California tribe treated.

In 1878 and 1879 J.M. Hutchings (1888) collected some ethnological information on the manners and customs of the Yosemite Valley Indians. His report covers village location and population, physical features of the people, subsistence (procurement and preparation) basketry, dances and ceremonies, religious beliefs, and mortuary customs. He also deals with the history of the Indian/White conflict over Yosemite Valley.

Ethnobotany: Perhaps the earliest ethnobotanical study of California Indians was Stephen Powers' (1874a) work on the Bear River

Indians of northern California. He identified the plants known and used by these people, and the sources and processes of preparation of the plant material. This report was not as extensive as the later ethnobotanical reports were, but it is another "first" in California Indian research that Powers contributed.

Tool Manufacture: Early in California research archaeologists and ethnologists became interested in the problem of determining the processes of manufacture of the various tools and artifacts of native culture. In the 1870's techniques of stone tool manufacture--particularly chipped stone arrowheads and projectile points--were examined by three people: B.P. Avery (1873), E.G. Waite (1874), and B.B. Redding (1879). Their ethnological observations helped to clear up questions of the process of obsidian arrowhead manufacture and suggested some techniques previously not recorded ethnologically.

Until B.P. Avery's report in 1873 the only technique for stone tool manufacture used by California Indians that was known was the hard hammer stone-on-stone direct percussion technique. Avery (1873) discussed the materials and geographical location of the resources from which the arrowheads (found in a site in the Sierra Nevada) were made. He suggested the Indians used a soft hammer (e.g., antler) for chipping such finely made tools. E.G. Waite (1874) also observed the use of the soft hammer in arrowhead manufacture by pressure technique.

In 1879 B.B. Redding (1879) related his ethnological observations on stone flaking from direct observation of a McCloud River Wintu named "Consolulu". He discussed the earlier reports of Avery and Waite establishing the native use of punch technique involving a soft punch (bone) and a hammerstone. As far as it is known this was the first ethnological evidence reported of this technique in California.

Monetary Systems: In 1877 Lorenzo G. Yates published a detailed report concerning aboriginal money of California. He described the process of manufacture of a drill and the method of using the drill to bore holes in shell and discussed the different forms and values of shell and stone money in California.

1880 - 1889

In the 1880-1889 period the usual archaeological reports of excavations, collections, and surveys, and the usual ethnological report describing either a whole culture or one particular aspect of a culture were published. However, specific problem-oriented research was becoming more common. Among the problems considered in the 1880's were: the question of man's antiquity in California (Calaveras skull, etc.); pictographs and petroglyphs; comparative

studies of tool function and manufacturing techniques--specifically the function of the stone "plummet"; and monetary systems. The apparent interest of this type of research is perhaps a reflection of the abundance of collected artifacts and cultural items filling museums across the country, permitting comparative studies and probably stimulating function-oriented research problems.

General Surveys

North America: One of the most extensive monographs on the Indians of western North and Middle America was H.H. Bancroft's Native Races of the Pacific States (1883). This five volume work covers California Indian tribes, languages, myths, and antiquities. Bancroft considers the various theories of California Indian origin and migration and provides a thorough history of European contact from the earliest explorers to the Mission, Mexican, and American periods.

In the 1880's several researchers concerned themselves with the products of aboriginal manufacture and art--W.H. Holmes (1883) was one of these. Holmes was a talented artist with an interest in the earth sciences. He obtained a position as Assistant in the U.S. Geological Survey early in his career. In this capacity and in his work for the Bureau of American Ethnology at the U.S. National Museum of Natural History his interests gravitated to Indian artifacts and the problem of determining the antiquity of man in North America. His artistic capabilities and interests surfaced in 1880 and 1881 when he wrote a report for the Bureau of American Ethnology on shell art of the American Indian (Holmes 1883). He organized the material by form and function and then discussed the artistic aspects. California shell artifacts are briefly discussed.

In 1882 Garrick Mallery (1886) working under the Bureau of American Ethnology collected in one monograph all the information available at the time about petroglyphs and pictographs of North American Indians. Although the coverage is broad, California rock art is amply treated. His discussions include distribution of designs, styles, etc. and methods of production.

Otis T. Mason worked in the U.S. National Museum. In his attempts to establish classification systems for the various antiquities and cultural items that were deposited in the museum, he had the opportunity to study in detail these objects and make a number of comparative conclusions concerning the implements of the North American Indians. In the 1880's as a result of his curatorial efforts with these collections in the Museum, Mason (1885) wrote a monograph on basketry of the North American Indians. He discusses in detail California basketry styles, manufacturing techniques and designs.

In 1887 Elbridge S. Brooks published a monograph on the North

American Indian. He includes a brief discussion on California tribes, shell fishhooks and dwellings from California.

Elijah M. Haines (1888) published an extensive monograph on the American Indian. He discusses briefly California Indian burial customs.

In 1889 O.T. Mason (1889b) published another report resulting from his analysis of museum specimens. He studied the collection of cradles, and he describes various cradle constructions and types for California tribes (Hupa, Modoc, Pitt River, Tule, and Tejon and Mohave). His report includes related information on child care where ethnological data were available on these tribes.

California: Evidence of ancient man on the Pacific coast was the subject of a lecture by F.W. Putnam (1880) at the American Museum of Natural History in 1880. He paid particular attention to the evidence from California reported to be associated with extinct animal remains or in geological contexts. He discussed the Bering Strait migration theory in an attempt to explain the "Eskimo element" in the California Indian physical type and the theories of the early and later spread of different physical types in California.

A few comparative studies were made in the 1880's. J.D. McGuire (1883) attempted to compare Eastern U.S. Indian methods of steatite mining and manufacturing of bowls and tools with southern California artifacts and data derived from Paul Schumacher's explorations in the 1870's.

Charles Rau (1884) published a monograph dealing with prehistoric fishing techniques and resources in Europe and North America. He referred to California briefly--including in his work an article by John McLean (see McLean 1884 below) on shellmounds in Humboldt County.

In 1886 publication (Anonymous 1886a) reported the work of Dr. Charles Rau. Rau apparently compared Polynesian and California fishhooks to prove, by their similarity, a relationship and contact between these two areas.

In 1888 Lorenzo G. Yates wrote an essay dealing with the prehistory of California. In general he discussed the evidence and theories of man's prehistoric occupation of California contemporary with extinct forms of mammalian fauna, viz, mastodon, horse, camel, tapir, etc. He cites as evidence of man's presence in the Pliocene in California, human bones associated with stone implements (spears, pipe, "scoops" of steatite, charmstone, and needle). He concludes that there existed a race of man antecedent to the 'present' Indians of California which was more advanced but died off with the coming of geologic and climatic catastrophic changes. He is not entirely conclusive on this theory because he recognizes the lack of supportive archaeological evidence. He also devotes some

effort to discussing the present Indians of California, covering their subsistence, stone technology, religious beliefs, mortuary customs, and ceremonies. He offers some perceptive observations concerning the character and locations of the mounds in Alameda County which he explored, listing six priorities for aboriginal selection of village location and thus made the first contribution to California settlement pattern studies.

Archaeology

In the 1880's a number of site reports of collections and shellmound explorations were published. The question of man's antiquity in California was still one of interest and rock art research was becoming more popular. A number of problem-oriented studies were carried out concerning the question of the function of the so-called plummet stones found in so many southern California sites.

Site Reports: Collections: In 1881 R.E.C. Stearns (1882) explored Howell Mountain in Napa County collecting obsidian arrowheads, mortars, and pestles. His report of his discovery of three sites in the Pope Valley area describes the artifacts he collected and includes his speculation on the native life and culture at these sites.

E.T. Hamy (1882) published a short account of the Pinart and de Cessac expedition in California in 1877 to 1879. When de Cessac returned to France he deposited some of his papers and collections with Hamy. Hamy's only publication of this material was de Cessac's own short account of his expedition activities, another short article on the shell fishhooks from the Channel Islands (see Tool Manufacture and Use section below) and this summary by Hamy (1882) of de Cessac's activities.

The Reverend Stephen Bowers contributed a great deal to the early archaeology work of the Santa Barbara coast. In one article, Bowers (1883) describes and discusses shell and bone fishhooks from the Santa Barbara area which he collected with Paul Schumacher. He argues that the curved shell pieces were ornaments and not fishhooks.

Stephen Bowers published another article (1887) dealing with the shell and bone fishhooks found in the Santa Barbara area. He develops more concretely in this article his theory that these objects are ornamental.

In 1884 Bowers (1884b) explored the region around the mouth of Rincon Creek (14 miles west of San Buenaventura, on the Santa Barbara and Ventura County line). His report of his discoveries of sites and several graves is brief.

Bowers (1884a) in another report describes the character of the sites and relics he found in the graves of the Indians along the Santa Barbara coast (from Point Conception to Point Mugu).

Bowers (1885) did surveying and collecting of aboriginal implements. On one of his surveying trips in the San Martin Mountains in Los Angeles County he discovered a cave in which nine baskets containing a large number of various objects (suggesting "ceremonial significance" to Bowers) were deposited. Bowers points out the lack of evidence for the occupation of the cave--its use being restricted to storage. (See Elsasser and Heizer 1963 for more detailed information on this cave and reports referring to it.)

In 1886 F.W. Putnam (1887) made a report to the curator of the Peabody Museum concerning Stephen Bowers' explorations in southern California. This report contains a listing of the articles found by Bowers in Bowers Cave, and some discussion by Putnam of perforated and plummet stones added to the museum collections from California.

In another report Putnam (1888) described a collection of perforated stones from a cave in California. He discusses the manufacture of these objects, and their possible use as war clubs.

Site Reports: Shellmounds: In 1883 John J. McLean (in Rau 1884) surveyed a shellmound complex of forty-two mounds near Cape Mendocino in Humboldt County. He identified the species of shells in the mounds.

Stephen Bowers (1886) excavated a cemetery shellmound in Ventura County, California in 1886. His report describes the graves and artifacts he found including a metal fishhook. The presence of metal, a European trade item, in one of the graves led him to conclude the age of the site as less than 300 years old.

In 1886 H.C. Ford (1887) from the Santa Barbara Society of Natural History, conducted the excavation of a Chumash cemetery and occupation site in Carpinteria. He described the seafood resources and plants of the area and the use of these resources by the Chumash. He reported the findings from this rather undisciplined excavation--describing generally the objects recovered from graves and associated locations in the site.

In 1889 Bowers (1890) surveyed San Nicolas Island. His investigations in the "shellheaps" on the island were the basis of his artifact collections. His report on this expedition is mainly concerned with the zoology of the island, but he does discuss the remains of the islanders and the geology of the island.

In the late 1880's Lorenzo G. Yates (1890a) became involved in research on the Indians on the Channel Islands. He made a survey of the islands listing the species of mollusca found on each. This work is essentially a zoologic list of genera and species of mollusca,

however, it is of interest to anthropologists because he also notes those species which were utilized by the island and mainland Indians for manufacturing of beads and shell implements.

Ancient Man: Four contributions to the ancient man controversy were published in the 1880-1889 period. As mentioned in the general survey section above, F.W. Putnam (1880) published an article dealing with the theories and evidence of the time and origin of an Indian migration to California.

W.O. Ayres (1882) was concerned with authenticating the Table Mountain ancient man finds. He provided names of people, circumstances and incidents involved in the finding of the various ancient objects including the Calaveras skull.

In 1885 Lorenzo G. Yates (1887) discussed the evidence for prehistoric man in California. He mainly covers the Calaveras skull and related evidence.

Sydney B.J. Skertchly (1888) examined the "evidence" of early man artifacts (consisting of stone mortars) found in a Butte County, California mine. Like many of these ancient man reports his geology is not substantiated and his conclusions are not borne out by the "evidence" he reports.

Rock Art: Rock art has been the subject of many explorations into the foothills and mountains of California. In the 1880's the rock art of the California Indians received its share of attention from anthropologists (as well as travelers). As mentioned in the general survey section above, Garrick Mallery (1886) collected information in 1882 for his monograph on Indian rock art in North America.

Another researcher, W.J. Hoffman (1883) traveled to various locations in California studying the rock art. In 1882 he surveyed the Tule River area and reported on the pictographs he discovered. He compares these pictographs and their manufacture to features in Eskimo art. He gives a fanciful interpretation of the figures on one particular boulder.

In 1884 W.J. Hoffman (1884) recorded the rock art in the San Gabriel area, Owens Valley and in the Santa Barbara area (specifically a painted rock shelter near Santa Barbara). His technique was rather thorough for the time in that he noted for each site the geographical location, details of the figures, and his interpretations of the art which he supported with historical and ethnological information. He includes in his report some examples in drawings (3 plates).

In 1888 and 1889 Garrick Mallery (1893) presented in a report the rock art from various localities in California (Owens Valley,

Tule Lake, Death Valley, Santa Barbara, etc.). He is more specific in this report than his earlier monograph (1882), treating each area and site in some detail. Each pictograph or petroglyph is described, the figures are noted and the method of production is determined, styles and features are compared, and a determination of age is made if possible.

In the late 1880's Lorenzo G. Yates (1869f) devoted some of his time to Indian petroglyphs in the Santa Barbara area. His discovery of "La Piedra Pintada" (the Painted Cave of Santa Barbara in 1885) stimulated a succession of petroglyph recordings in the Chumash area. He describes this cave and the paintings and compares them to California petroglyphs and pictographs found earlier. He discusses the form, meaning and significance of some of the figures in these paintings and in other California rock art sites.

Plummet Stones: In 1885 H.W. Henshaw (1885) studied "plummetts" from collections in North America--particularly California. Henry W. Henshaw had no specific anthropological training--his first archaeological experience was on Santa Cruz Island with Paul Schumacher. Later he carried out his own excavations and did some work in linguistics and ethnology. In his 1885 report Henshaw discusses the techniques of manufacture of the plummetts and presented his arguments, based upon archaeological associations for the probable function of these objects. His conclusion about the Santa Barbara specimens was that they were "medicine stones"; however, he qualifies this by pointing out that the variety of shapes and sizes probably reflect different uses and functions--perhaps as sinkers, plummetts, and pestles as well as charmstones.

The function and method of use of these objects prompted many speculations as to their supposed "sacredness". The archaeological evidence suggests various possible uses but none are consistent for any large area (see Henshaw 1885). Ethnological information concerning the use of these objects is even more vague. Indian informants seemed reluctant to speak of their function as if they were sacred. Many ethnologists therefore concluded that the "plummet stone" had some ceremonial use that the shaman alone knew. The suggestion was made by one researcher (Anonymous 1886b) that the function may just as well be practical--the response of the informants reflects neither ceremonial use of these objects nor ignorance of their function, but rather reflects a reverence paid to ancestors not to speak of the dead.

Lorenzo G. Yates (1889) considered the plummet stones from California. He referred to and reviewed the arguments of earlier research on the subject and he based his conclusions of the use of plummetts on his own ethnological research. He concluded they served some religious function.

Ethnology

Notes: In this period no really full ethnologies were written, most reports were brief descriptions of specific aspects of one culture. O.T. Mason's (1889) report on the Ray collection from the Hupa Reservation describes Indian culture as well as artifacts.

In 1881 W.W. Elliott (1882) wrote a brief history of Humboldt County, which contains some information on Indian and White conflicts from the time of the first explorers to the 1880's. Ethnological information is scarce; some oral tradition is related.

In the 1880's B.B. Redding became involved in studying the Wintun Indians of northern California. In 1881 Redding (1881a) reported in detail his observations of Wintun food procurement and preparation. He specifically described the processes of acorn meal preparation, snaring water fowl, and trapping salmon.

Later Redding (1881b) described in detail the Wintun mode of salmon spear fishing which he had observed.

Sherman Day (1883) reported census information on California Indians in a brief article. He collected his data from previous census and added information from reservations and Indian schools. He discussed the problems of the adequacy of the previous census and the bureaucracy involved.

L.M. (1884) made some observations of the Indians in Nevada County near Grass Valley (southern Maidu) in which he briefly describes their appearance, subsistence, social organization, and ceremonies.

A.G. Tassin (1884a) was also concerned with Indian/White relationships. He relates the conflicts between the "Concow" and the "Che-es-see" Indians of Butte County and the Whites of that area. His informant, the "chief" of the "Concows" relates several of the more violent incidents, particularly one that occurred in the year 1863.

A.J. Bledsoe (1885) wrote a historical account of various conflicts between Northern California Indians. He mentions the Klamath, Karok, Wiyot, Eel, and Mad River Indians, Yurok, Wintun and Yuki Indians.

One of the few studies of California native medical practices was made by Dr. J.F. Thorworth, M.D. (1886) in the 1880's. This physician had many an occasion to treat Indians in the northern California coast area where he practiced medicine. His observations are of little ethnological value because he gives little information on actual native medicine. However he provides some information regarding the Indian's reaction to European medical practices.

In 1885 Lieutenant P.H. Ray traveled to the Hupa reservation where he recorded ethnological information on Hupa culture and obtained various objects and articles of Hupa manufacture. This collection and the accompanying notes came to the Smithsonian Institution in 1886, where Otis T. Mason (1889a) catalogued and organized the notes and specimens into a monograph. Ray made notes on Hupa dress, habitations, wood working, food preparation and culinary tools, pipes and smoking, basketry, hunting and fishing, bows and arrows, boat construction, money and its value, gambling, medicine, and Hupa ethnobotany.

E. Trippel (1889) wrote a very thorough report on the Yuman Indians of California and Arizona based upon his research among them. He discussed their physical environment, subsistence, technology, physical appearance and dress, social customs (seasonal calendar, childbirth, children and naming, marriage, and mortuary customs) political organization, religion and ceremonies, pottery, industry and art, and bow and arrow construction.

Ceremonies; Dances: Lucy Sargent (1880a) observed a special ceremony of the Wintun Indians. She described in lucid but romanticized prose the activities of the McCloud River Wintu people as they prepared for and participated in the Bear-Dance or "Chil-chu-ha" dance.

George H.H. Redding (1880) wrote an interesting report of his own experiences and observations of some Wintun Indians at a dance ceremony. He also briefly described the process by which one of these Indians made fire by friction.

Ceremonies; Mortuary: A brief newspaper article (Anonymous 1889) described a cremation ceremony among reservation Luiseño Indians. The author also discussed the much misunderstood (by Whites) girls' puberty ceremony common among southern California tribes, which involved the practice of burying the girls up to their necks for a number of hours as a test of strength.

Oral Tradition: In 1884 Jeremiah Curtin (1912) collected 59 myths from the Modoc Indians in Northern California. He relates these including a brief explanatory note on each and his interpretive comments at the end.

A.G. Tassin (1884b) related a legend of the "Concow" Indians which involves much of their religious belief. This legend shows some similarities with the Ghost Dance religion.

A.G. Tassin (1884c) also collected some Yuki myths and legends. He relates several interspersed with his interpretations and comments.

Sometime in the late 1880's Lorenzo G. Yates (1896d) collected legends from two California tribes (a southern California tribe probably Chumash, and a Napa tribe, either Wappo or Wintun). He

relates these briefly without comment in an article published ca. 1887-1890 in a Santa Barbara newspaper, and later (Oct. 1896) in a San Francisco newspaper.

Tool Manufacture and Use: B.B. Redding (1880) made some ethnological observations of the method of use and especially of manufacture of stone tools by the Wintun Indians. His report includes information on the source materials used and the social value of the tools.

Walter J. Hoffman (1896) wrote a report on the Menomini Indians of the Northeastern United States. In his monograph he makes a brief reference and comparison of Menomini methods of shell bead manufacture with Island Chumash methods of shell bead manufacture, discussing the results of an 1884 expedition on the Santa Barbara Channel Islands.

In 1885 E. Hamy published a report describing the process of manufacture of shell fishhooks collected by M. Leon de Cessac in 1877-1879 on Santa Cruz Island. He points out a similarity between Hawaiian and Santa Cruz Island fishhook construction.

P.H. Ray (1886) examined the Klamath and Hupa processes of manufacture of the bow and arrow and arrowhead. His description of these processes is brief, but adequate to convey the expertese necessary and appreciated in Klamath and Hupa society for producing these implements.

H.W. Henshaw (1887) made a detailed study of the perforated stones from California. He presented his arguments for the function of these objects considering ethnological, linguistic and archaeological evidence. He cited the use-wear and the methods of manufacture of the specimens to support his conclusion that these were digging stick weights.

Monetary Systems: Aboriginal money of North America was the subject of research by E. Ingersoll (1883). He investigated all North American forms of shell money but specifically studied California types--their values and distribution. His survey and ethnological information included the Klamath and Hupa area in northern California (where Dentalium shells were most valued), as well as the area south of the Eel River on the coast, and in central and southern California (where Haliotis rufescens and Olivella biplicata were most used).

In 1887 R.E.C. Stearns (1889) made a study of primitive money for the U.S. National Museum. This was a general survey of aboriginal shell money including an extensive section devoted to California monetary systems.

Oliver C. Farrington (1900) published a report concerning some dolomite (magnesite) money collected by G.A. Dorsey in 1889 from

Pomo Indians. Farrington discusses the locations of the dolomite mines, the value of dolomite as money, and the mining and preparation of the stone into beads.

San Nicolas Island Woman: In 1853 the last survivor of the San Nicolas tribe was taken from the island. This person, a woman of middle age, had lived alone on San Nicolas for 18 years. Many people, either directly connected with this woman's history or learning of it from the memories of people who had known her, wrote accounts of how she became marooned, her long and solitary seclusion and her final "rescue" from the island. Emma Hardacre (1880) wrote one of these accounts which is in general inaccurate--containing many errors and elaborations on the original stories concerning this woman's life. (For a compilation of the most reliable reports and documents on this woman see Heizer and Elsasser 1961.) Hardacre's report, however, is important as one of the first reports to record the four words of this woman's dialect. The rest of the report offers little ethnological information on the culture of this woman, the last known representative of her people. Beyond the human interest aspect of the woman's unique experience, the case is also interesting from the standpoint of how much inaccuracy can enter into what purports to be straight forward historical accounts of a recent event.

1890 - 1899

Most of the research in this decade was a continuation of the kind of work of previous years. The problems of ancient man, rock art, oral tradition, ceremonies and monetary systems of the California Indians continued to be recorded in this period.

General Surveys

North America: In 1892 and 1893 James Mooney (1896) made an effort to collect all the information about the 1890 Ghost Dance religious movement. The Bureau of American Ethnology annual report for 1892 and 1893 was written from notes of his investigation of the Sioux, the Northern Paiute and the Washo Indians. Mooney was commissioned by the U.S. government to investigate the Ghost Dance religion. In his report he examined the aims and methods of previous prophets and visionaries predicting Indian resurgence of power, culture and/or religion; and he discussed from his personal observations, the practices, people, and situations which lay behind the Ghost Dance in tribes across the country. There is, of course, a slight bias to the U.S. Government's position in some parts (particularly his coverage of Indian-Government conflicts), but in general the work is a good attempt at elucidating the religion, and dispelling

rumors and misconceptions on the part of many Whites at the time about the religion. It contains some brief ethnological notes on the Washo and Northern Paiute tribes.

Walter Hough (1895) in 1893 examined the U.S. National Museum collections of Indian armor. His report to the Museum contains brief references to the armor of California Indians particularly that of the Hupa, Klamath, and Shasta.

Lorenzo G. Yates (1896e) discussed the Indian "medicine men" of North America and the objects they used in their profession. San Gabriel, Tulare, and Santa Barbara Island Indians are mentioned.

1896 to 1897 was the period when C.C. Royce (1899) researched all the U.S. Government interactions with the Indians in North America concerning Indian land cessions and the treaties and terms which were involved in each. The eighteen unratified treaties of 1851-1852 of California are treated, and the treaties with the California "Mission Indians", Yuma, Klamath, Hupa, and Round Valley Indians are discussed.

Cyrus Thomas (1898) wrote an introductory guide to the study of North American archaeology. He covered California antiquities, describing the artifacts and general localities of prehistoric man in California.

Fishhooks and the various forms and kinds was the subject of an article by Lorenzo Yates (1899b). He discusses various forms in North America and mentions forms from southern California.

Yates (1899c) also studied aboriginal pipes in North America. He describes and illustrates some pipes from California discussing their manufacture and use.

California: L. Belding (1892a) described some of the methods and implements with which the Indians of California, Alaska, Washington, Oregon and the Great Basin hunted game. The same author (1892b) describes some finds made in an occupation-burial site on Stockton Slough, San Joaquin County.

Lorenzo G. Yates (1896a) attempted a systematic study of weapons in California. His essay covers stone and wooden implements such as spears, arrowheads, spearheads, bows, knives, clubs, slings, bolas, etc. He discussed the chronology of the forms and equated simplicity with antiquity. In general he describes these objects quite thoroughly but he gives no evidence of their uses in war activities. Instead he mentions the skill and use of these implements in procuring food (citing ethnological evidence) and in ceremonial activities. It appears that his conclusion of the war use of these implements is speculation.

Yates (1899a) also studied some California cradles (frames, boards, etc.) specifically mentioning Hupa, Pomo, Modoc, and Tulare Indian forms in his report.

Archaeology

Site Reports: Collections: In 1890 George W. Stewart published his report on his explorations of mounds in Tulare Valley in southern San Joaquin valley. He briefly describes his finds in the burial mound which he examined.

In 1890 Lorenzo Yates (1890b) explored some caves on Anacapa Island. He recovered some remains on Santa Cruz and Santa Rosa Islands on which he reports briefly.

In the early 1890's L. Yates researched further on the Santa Barbara Chumash Island Indians (1896c) while collecting specimens for the Smithsonian Institution. He described what could be found on the islands to reconstruct the life and culture of the islanders. He explored caves and "kitchen middens"; studying their distribution on the islands. Brief mention of the San Nicolas Island woman is made.

In 1892 Otis T. Mason published a brief paper on the wooden spear thrower (atlatl) collected by Captain G. Vancouver at Santa Barbara in 1792. He pointed out a relatively continuous distribution of this weapon from Mexico to Santa Barbara.

In 1894 (Anonymous 1894) a report appeared which described some objects collected from San Nicolas Island. These included: a mortar and pestle, arrowhead, awl, "war club", and several bolas. The San Nicolas woman is also briefly mentioned.

Charles F. Lummis (1895) wrote a short account of a collection of Indian relics from southern California accumulated by Palmer.

In 1896 J.W. Fewkes (1896) suggested a shell trade existed in aboriginal times between California and Arizona Indians. He based his conclusions upon consideration of shells and shell objects excavated at three Arizona sites.

San Clemente and Santa Catalina Islands were the subject of "excavations" of graves by C.F. Holder (1896). He described the artifacts and remains of aboriginal life on these islands that he uncovered. His techniques of excavation were, as common in this time, to dig up as many graves as possible and collect as many artifacts as possible. Other associations or information of site environment or geographic location were rarely recorded.

Lorenzo Yates (1896b) wrote a brief report discussing some Santa Barbara and Channel Island relics (stone pipes) which he had collected in 1896.

In 1897 Stephen Bowers described in a brief report the results of his exploration and collecting on San Nicholas Island including a description of several skeletons he dug up.

In 1899 H.C. Meredith (1899) described the "Stockton curves" (a lunate chipped obsidian tool) found in central California sites. He discussed the probable geographical locations of the source material (obsidian).

Ancient Man: William H. Holmes devoted a great deal of effort to clearing up the ancient man controversy which was raging in the late 1880's and 1890's. On behalf of the National Museum, Holmes (1902) traveled to California--touring among the various tribal groups in Central California making ethnological notes on them as he went along and examining the evidence of the alleged early man finds in the auriferous gravels in the Sierra Nevada.

Holmes' (1899a) thorough and scientific examination of the ancient man evidence was effective in dispelling further argument of the intrusive mortar and pestle element in the gravels as being evidence for degeneration theories of the present tribes or an ancient Pliocene (10 to 20 million year old) race. He reviewed the results of Whitney's (1867) study of the geology and Calaveras County finds; he then reviewed the animal remains found in the gravels, the plant remains, human remains and artifacts (which do not differ materially from those of present California Indians).

Holmes' (1899b) treatment of the Calaveras skull controversy is just as scientific. He includes a discussion of the stories and rumors of the events of the skull's origin and discovery.

Rock Art: In 1897, 1898, and 1900 N.J. Chittenden (1903), an explorer commissioned by the Canadian government to collect ethnological information of California Indians, explored the San Jacinto Mountain range for petroglyphs. His travels were mainly in the San Jacinto Range, but he also visited the Santa Barbara area (Santa Inez Valley) and the Arizona Gila River area. He made copies of various petroglyphs and collected ethnological data on the practice among Yuma women of tattooing. His report contains the original copy of a sketch of a pictograph found in the San Jacinto Mountains. He includes a discussion on the universality of the symbols utilized by man throughout the world.

Plummet Stones: In 1890 Lorenzo Yates (1890c) published another article relating some information on the plummet stones and sinkers he had considered earlier (1889). He discussed the possible uses and functions of these implements.

Ethnology

Notes: In 1890 George Allen (1891) studied the Mohave Indians. His report is brief but broad in coverage--he discusses religion, mortuary customs, ceremonies, rock art, pottery, and food preparation.

In 1890 F.O. Dorsey (1890) briefly mentions in an article largely devoted to southern Oregon Indians the native names of villages in the northwestern California area which had some interaction with the Oregon tribes.

Robert E.C. Stearns (1890) made a comparative study of one Nishinam (Southern Maidu) and one modern Boston game. He considered these games from each group, discussing origin, history and cultural contact as evidenced in the distributions of the games.

E.W. Nelson (1891), while traveling in the area occupied by the Panamint and Saline Valley Indians, made some brief notes concerning the condition of these people and their occupations at the time. His report is of some ethnological interest, providing the geographical location of small groups of these tribes.

In 1891 Lorenzo Yates (1891) collected information dealing with the missionaries' first attempts to establish relations with the Indians of the Santa Barbara mainland and islands. His informants were Indians from the area who had relatives, or heard stories from relatives about the first Spanish contact with the Indians and the state of the intertribal relations at the time. These notes are brief and mention such ethnological features as dwellings, sleeping habits, eating and food, and mode of dress.

The Panamint Indians were studied by B.H. Dutcher (1893) who made notes on the process by which these peoples gathered the piñon pine cones, separated the nuts from the cones, and stored them in granaries or prepared them for food.

W.S. Green (1895) reported on the "Colon" Indians of the Sacramento Valley. He briefly describes their mortuary customs, dress and appearance, subsistence, monetary practices, government and social organization, and religious beliefs and ceremonies.

W.T. Hefferman (1896) became interested in Indian treatments of illness and sickness. He made some observations of Yuma Indians on this point and noted aspects of their everyday activities which he believed led to contraction of the diseases he observed. Although his viewpoint is ethnocentric he does make some perceptive observations of the condition of these people.

E.C. Stone (1896) made some brief observations on the method of spearing salmon by the Wintu Indians in the late 1890's.

Mabel L. Miller's (1897) work on the Maidu Indians was perhaps the most extensive ethnological report on a people that was published in this time period from 1890 to 1899. She described aspects of Maidu material culture, social customs, religious beliefs and practices, oral tradition, technology, and subsistence activities dealing with food procurement. An unusual feature of her report is a description of arrowhead manufacture by the process of fracturing heated stones with water drops.

Ethnobotany: Few ethnobotanical studies were done in California from 1850 to 1917. This kind of ethnological research required different data collecting techniques and a familiarity, if not expertise, with botanical systematics. Thus the concept of this kind of research and the first efforts in it in California were generally by botanists (usually associated with survey expeditions employing a variety of scientists from the earth sciences fields). Two of the most influential researchers in California ethnobotany were V.K. Chesnut and F.V. Coville.

In 1892, 1897, and 1898 V.K. Chesnut (1902) studied the ethnobotany of the Indians of Mendocino County in the Round Valley vicinity. Chesnut discusses each plant as to its use, collecting methods, availability, preparation, etc. The value of the report, especially the classified list of economic plants (organized by the food use--and including the Indian names and the scientific names) is reflected in its fullness.

Frederick Coville (1892) made a substantial contribution to the early studies in ethnobotany with the publication of his brief field notes recorded while serving as botanist on the Death Valley Exploring Expedition of 1891. He observed the Panamint Indians who lived in this area, detailing their use of plants, particularly those used for food. There was some discussion on the processes involved in food preparation from the raw plant sources, and he described some of the culinary utensils and the implements produced from plants.

The first extensive ethnobotanical study of a particular California tribe was a monograph by David P. Barrows (1900) on the Cahuilla Indians of southern California. Barrows covered the entire array of the plant culture of these people dealing with plants used as a food, as a material in manufacturing various implements, and used as medicines. He discussed how plants are related to and to what extent they determined the social customs, geographical location, and movement of these people. The research was carried out in 1897 for his doctoral dissertation at the University of Chicago and later in 1898 and 1899 after the completion of his dissertation. He provided an extensive list of plants and their Cahuilla names.

Ceremonies: C.E. Woodruff (1892) published his ethnological notes on the dances of the Hupa Indians. Despite a good deal of value judgment in his interpretation of the meanings of the dances he does describe the dances and costumes.

David P. Barrows (1895) recorded several Cahuilla songs and dances which he observed while completing his ethnobotanical research among these people. His report relates one game, a dance, and several songs.

G.R. Putnam (1895) published a detailed account of a Yuma Indian's cremation ceremony which he witnessed.

Oral Tradition: A.S. Gatschet contributed a great deal to California linguistic research. His comparative vocabularies (Wheeler Survey Report 1879) set a pattern that many later linguists followed in classification and comparative research. He also contributed to research of Indian oral tradition. In 1894 Gatschet (1894) collected some information on songs of the Modoc Indians--setting a pattern again with this report. He relates three songs with the direct translation printed above the original. His brief interpretation is included at the end of the report.

In 1898 Jeremiah Curtin published a report on the creation myths of two northern California tribes. He relates 9 Wintu and 13 Yana myths discussing the content and comparable features of the myths. His report includes some additional ethnographic information.

Basketry: Jeanne C. Carr (1892) wrote a good account of Indian basket making in California. She discusses the different types of baskets and styles and manufacturing techniques.

Pomo Indian basketry is renowned today for its technical workmanship and beauty. It also was recognized by many early ethnologists and collectors for its value in the late 1800's. James W. Hudson (1893) discussed in a report on California Indian basketry the high value Pomo society placed on their basketry. He described the manufacturing process--the materials used, and their preparation and use in making the basket. Hudson gives a quite thorough list of the names and Indian explanations of differences in weaves according to the types of basket and their functions.

Tool Manufacture: Horatio N. Rust (1897) obtained from a Washo Indian informant (named Tom) the details and a demonstration of the process involved in manufacturing projectile points. The technique used at one point in the process was the pressure technique (using an antler tool)--this is one of the earliest ethnological reportings of this technique in California.

Monetary Systems: J.W. Hudson (1897) made a study of Pomo money ("wampum" as he called it) manufacture in the late 1890's. He discussed the value of different kinds of beads and described in detail the process of manufacture from the initial collection, to grinding the general shape, drilling of the hole, smoothing the disc, and finally the stringing of the piece.

1900 - 1909

In the 1900 to 1909 period it is evident there was a great surge in the kind and quantity of research being carried out. In archaeological research interest in the familiar and only partly solved problems of the last three decades (ancient man, shellmound excavation, stone tool manufacture, and rock art) continued in the 1900's. However, the growing concern among archaeologists for developing culture classifications and culture sequences prompted the development of new techniques of site analysis and excavation, and stimulated several new expeditions to explore the caves of California.

In ethnological research this period saw a number of new questions being raised resulting in additional ethnobotanical research; ethno-geographic work; observations of mortuary customs, religion, and ceremonies; population estimates; and the recording of the oral tradition of native California cultures. Beginning in 1906 the Journal of American Folk Lore published notes on California Indian oral tradition. Although much of the actual collecting had occurred a few years earlier this marks a beginning in California folklore research when much more data became accessible for comparative work. The early 1900's was also the period when the large ethnological monographs (such as P.E. Goddard's on the Hupa 1903) began appearing. These results were a reflection of the greater number of trained workers now involved in ethnology in California. A systematic ethnographical overview of California tribes and culture types within the North American area could be accomplished because collecting work of the last five decades had provided the basic ethnographic information on most California tribes, Powers' (1877) work still being the significant ethnographic report in this respect. F.W. Putnam (1903: 727), director of the Museum and Anthropology Department at the University of California, Berkeley, summed up the state of the anthropological research and its aims in California in the 1900's:

Systematic explorations are being made of the later gravel deposits, of several caves, and of the ancient shellheaps, in order to ascertain when man first occupied the region. The languages of the existing Indian are being studied by experts of this department; the customs and mythology of the different tribes are being carefully recorded; and collections illustrating their arts are being formed for the Museum....By correlating the physical characters, the particular cultures, of the past and present Indian, and the various linguistic stocks or families still extant, it is hoped to solve the great problem of the relationship with peoples of other parts of the continent and possibly with certain tribes of Asia.

Thus there appeared in this decade Goddard's monograph on the Hupa (1903); Uhle (1907) and Nelson's (1909b) work on shellmound excavation; J.C. Merriam's cave explorations (1906); Constance G. DuBois' work on Diegueño mythology (1901, 1902, 1904a, 1904b, 1905, 1907b, and 1908); H.N. Rust's (1907) and O.T. Mason's (1902, 1904) observations on museum collections; R.B. Dixon (1900a, 1902a), O.T. Mason (1904), C.H. Merriam (1903), A.L. Kroeber (1905a, 1909b) and S.A. Barrett's (1905, 1908c) work on California Indian basketry; S.A. Barrett's (1908a, 1908b) work on ethno-geography; and finally A.L. Kroeber's (1904b, 1908a) work on California culture areas. Each of these works is considered below chronologically under the relevant heading.

General Surveys

North America: In the late 1890's and early 1900's several general North American surveys were published. California Indian tribes are usually well represented in most of these.

In 1902 Stewart Culin (1907) researched and published an extensive monograph on games of the American Indians. California Indian games were well represented. The report included a useful tabular index of the tribes and the particular games of each.

In the early 1900's Otis T. Mason contributed two general works dealing with North American Indians that included California tribes. He was curator in the U.S. National Museum which put him in a position where he could easily make comparative studies of the various Indian artifacts collected by Museum representatives across the country. One such comparative study was on aboriginal harpoons (Mason 1902). He described and discussed the methods by which these harpoons were manufactured and used. California Indians are mentioned.

In 1902 O.T. Mason (1904) wrote what has become the classic work on aboriginal American basketry. This illustrated monograph covers the subject thoroughly, discussing the definition of the art, materials and tools, processes and products; the materials used including lists of plant, animal, and mineral sources (with the Indian and scientific names); the processes involved in basketry construction (harvesting and preparation of materials, and manufacturing techniques); ornamentation; symbolism; and uses of basketry. He included various examples arranged according to tribe, and discussed distribution of varieties.

Ales Hrdlicka (1905) who contributed a great deal to the early physical anthropometric research of California Indians, published a report dealing with the practice of painting human bones. He discussed bone painting as practiced in various cultures all over the world, especially in North America. This practice among California Indians was mentioned--the evidence he cited were two painted skulls from southern California.

George W. James (1905) wrote a short article on the homes of Southwest and California Indians. He provided photographs of most of the California dwellings he discussed.

In 1909 R.I. Geare published a report on the dwellings of the American Indians. He includes a brief discussion of California types, particularly those of the "Digger" Indians (Maidu) of central California.

In 1907 and 1910 the Handbook of American Indians North of Mexico was published. This two part work is actually an encyclopedia of American Indian tribes edited by F.W. Hodge (1907, 1910). It was originally begun in 1873 by O.T. Mason, contributed to by various other workers and finally completed under Hodge's direction in the early 1900's. It is an attempt to collect together in one work an apt description of the important distinctive features of all known North American tribes:

...A descriptive list of the stocks, confederacies, tribes, tribal divisions, and settlements north of Mexico... together with biographies of Indians of note, sketches of their history, archaeology, manners, arts, customs, and institutions, and the aboriginal words incorporated into the English language.

California Indians are, of course, included. Many of the articles dealing with California were written by Kroeber and Henshaw.

From 1907 to 1924 Edward S. Curtis (1908, 1924, 1926) carried out research among California Indian tribes and reported this in four volumes of his 20 volume work on the North American Indian. The California tribes he covers are: The Mohave, Yuma, Hupa, Yurok, Karok, Wiyot, Shasta, Achomawi, Kato, Wailaki, Yuki, Pomo, Wintun, Maidu, Miwok, Yukot, Luiseño, Cahuilla, Diegueño, Washo, Mono, and Northern Paiute. Each tribe is covered generally in terms of geographical location, physical appearance, oral tradition, structures and dwellings, dress, technology, subsistence, political and social organization, and religion and ceremonies. Curtis provides extremely good photographs of most of the tribes he covers in this monumental work.

California: A number of general surveys of California Indians as part of a distinct culture area were made in the 1900 to 1909 period. These broad California-wide surveys on specific topics such as religion, population, material culture, etc., were made possible by the work of the previous four decades on specific tribes or tribelets.

Lorenzo G. Yates (1900) wrote a summary of the archaeological evidence from southern California concerning prehistoric Indian life and culture. He reviewed the evidence and speculated on the type of culture existing in this area in prehistoric times.

H.C. Meredith (1900) wrote a similar review of the archaeological evidence of material culture of northern and central California prehistoric Indians.

One of California's most important and influential anthropologists who began publishing in the 1900's was Alfred L. Kroeber. He came to the University of California in 1901 to teach and carry out linguistic and archaeological research on California Indians. Unlike many of the scientists before him he devoted his attentions to almost all the California Indians. His major work was in ethnology, however, archaeology, physical anthropology, and linguistic anthropology received his attention. His most significant contribution, however, was his insistence on strict scientific methods in ethnographic reporting and his systematic overview of California Indian culture. His most important work of the latter type was the Handbook of the Indians of California (1925) which was based on all the work done in California up to 1917. In 1904 Kroeber published an article on the types of native culture in California (1904b)--a systematic overview of California Indian tribes. This is a significant work and the first of a series of articles by Kroeber dealing with the classification of California Indian culture types and subculture areas. He distinguishes four major culture areas in California: Northwestern, Central, Southern, and Southeastern areas.

In 1905 C.H. Merriam published his estimations of California aboriginal population. His estimate of 210,000 natives in 1834 is based upon the Mission records of baptisms, environmental and population density estimates and settlement pattern studies. He also discusses the amount and probable causes of the decrease in native population from the years 1834 through 1856.

C.E. Kelsey (1906) was appointed as a Special Agent of the Commissioner of Indian Affairs in the early 1900's. In response to an official directive he made a report in 1906 on the condition of the Indians in California as a result of Spanish, Mexican, and Anglo contact. The report has value in emphasizing what was lost in native material culture through White contact. It is an important historical source dealing with the problems of Indian/White relations, especially as it regards the policy in effect at the time regarding Indian land allotments and reservations.

A.L. Kroeber (1907b) made a thorough study of the religion of California Indians drawing together information from previous research. Wherever possible he made comparisons between California Indians and other North American Indians, detailing the special characteristics of certain tribes in California who had developed variations of the major types of religion.

A.L. Kroeber (1908d) also published historical information concerning the condition of the Indians in the Missions in the year 1811 as reported in replies to the Interrogatorio sent to each

mission. These reports include considerable ethnological information on native culture which Kroeber discusses and evaluates for its accuracy.

In 1908 Kroeber (1908a) gave a lecture concerning the status of anthropological research in California and the needs and aims of further research. He stressed the need of more linguistic research especially for illustrating the problems of ethnogeography. The important ethnological work was concerned with determining the distribution and locations of tribes and tribelets, and tracing origins and culture contact between these groups. Kroeber also summarized the early archaeological work in California: the first studies were concerned with establishing the age of man in California (e.g., the auriferous gravel research), later the emphasis was in the shellmound research and cave archaeology. In regard to the field of physical anthropology, Kroeber pointed out that research in this subject was in its infancy. The data necessary was lacking and the contemporary studies necessarily becoming more concerned with photographing and measuring remnant tribes.

In 1908 T.T. Waterman published a survey of the musical instruments made by California Indians and compared these to early musical instruments from elsewhere in the world. He treats rattles, whistles, flutes, and stringed instruments.

In an important article Kroeber (1909a) summarized the state of archaeological research and knowledge in California up to the year 1909, and defined the aims of future research. He dealt with the prehistory (time and origins) and the culture of the California Indians by considering the archaeological evidence from three general culture areas: Southwestern, Northwestern and Central California. Specifically he examines the evidence covering: ground stone implements, chipped stone implements, bone objects, horn and shell objects, pottery, implements made of wood and fibers, and pictographs. He concludes that the most important problem which California archaeologists must address themselves to solving is the determination of the origin and antiquity of man in California. He suggests (1909: 38-39) that

the greatest opportunity for the discovery of evidence on this question seems to lie in the exploration of caves. The gravel deposits so far have yielded negative results, and the shellmounds, while their antiquity is great from a historical point of view, are almost certainly too recent to throw much light on the first appearance of man in the region.

However, he also points out the value of the shellmound excavations in the study of culture change and the determination of regional cultural sequences. Kroeber ends this significant critique on an optimistic note pointing out the need of more research.

In 1909 and 1910 A. Kroeber wrote on the general types of culture represented in California.

Archaeology

Site Reports: Collections: In 1901 Charles Peabody (1901) examined the collections of the stone "plummets" from California and suggested their possible uses. He reviewed the earlier opinions on the function of these objects.

M. Burton Williamson (1904a) made a list of relics found on Santa Catalina Island which were deposited in the Los Angeles museum, the Smithsonian Institution, and the Peabody Museum of Archaeology and Ethnology. The description of each item is brief.

F.M. Palmer (1905) described the various objects (including steatite bowls, projectile points, mortars and pestles, awls, pipes, needles, fishhooks, bone implements, ornaments and wooden objects) collected in southern California and deposited in the newly established Southwest Museum.

In 1905 Palmer (1906) reported the findings of the Southwest Society of Archaeology exploration in a quarry and habitation site near Redondo Beach, California.

Horatio N. Rust (1906a) recorded an unusual cache of twenty-one stone bowls found near San Fernando.

Rust (1907) described another collection comprised of blades, drills, picks, shell pendants, charmstones, ground stone objects, shell fishhooks, bone awls, and needles from San Miguel Island. He briefly discussed the manufacture and use of these objects.

L. Claire Davis (1907) offered some ethnological information on the San Joaquin Valley Indians (Yokuts) based upon his own observation and the archaeological collections of J.A. Barr. He cites Barr's field notes for information on the associations of the various objects.

P.G. Gates (1909) was apparently impressed by the stone structures near Salton Sea, California. He described them concluding that they were "gardens".

Site Reports: Shellmounds: In the early 1900's Phillip Mills Jones, from the University of California, carried out a number of excavations of shellmounds in southern California and the Sacramento Valley. His methods and technique of excavation were thorough even by today's standards and the detail in his reports reflect this. In 1900 Jones (1923) excavated some mounds near Stockton. He describes these mounds, his excavation technique (trenching) and finds. He discusses the mound stratification and the artifacts in terms of their use and manufacture.

In 1900 J.R. Mead (1901) surveyed Santa Catalina Island. He briefly describes his activities, the relics, and the general character of the mounds which he explored on the island. He discusses the steatite quarries, pictographs, and the subsistence, population, and history of the aboriginal inhabitants.

In 1901 Phillip M. Jones (1956) excavated several sites on Santa Rosa Island. In his original field notes and journal of his activities he describes his finds (artifacts and skeletal material) and includes photos of the sites he explored and the artifacts recovered. Among the items he found was an inscribed sandstone slab bearing the initials J.R. It has recently been suggested that this may have been the gravestone of Juan Rodrigues Cabrillo, discoverer of California in 1542 (see Heizer 1973).

Also in 1901 Jones (1969) surveyed San Nicholas Island. The report he wrote on his activities on San Nicolas is detailed and thorough.

Shellmound archaeology requires certain techniques of excavation and analysis. Max Uhle (1907) and J.C. Merriam excavated in 1902 the shellmound located on San Francisco Bay near the city of Emeryville. Uhle's report included details on the geographical location and geology of the site, the excavation techniques used, and the analysis of the excavation and artifacts. He included discussion on the periods of occupation and problems related to dating and determining culture change. This was the first thorough shellmound excavation report in California.

A few years later N.C. Nelson (1909b) re-examined the evidence of man in the San Francisco Bay region from earlier work and reports his own survey of the shellmounds. He concentrated to a great extent on the geographical features of the sites and their location in respect to natural resources (proximity to the bay, erosion, etc.). He also considered the distribution and composition of the mounds as a means of determining the cultural history of the people occupying them.

Ancient Man: Cave Exploration: Cave archaeology in California really began in the early 1900's (see Heizer 1948 and 1952). E.L. Furlong (1904) made a preliminary report on Samwel Cave describing the cave deposits and faunal remains (including extinct species) and the possibly associated human skeleton. He offers an explanation for the recent human remains associated with the extinct fauna.

In 1901 Lorenzo G. Yates (un-pub. ms.d) wrote a critical review of an article by William H. Holmes discussing the theory of the existence of prehistoric man in the auriferous gravels of California. Yates takes exception to Holmes' statement that all implements found were accidental intrusions in the gravels. He also discusses the politics at play in the scientific discussion on the theory of prehistoric man in California.

William J. Sinclair (1904) wrote a report of the Potter Creek cave (perhaps the first of the California caves in which excavation had been systematically conducted). This is a very detailed report of the actual excavation, the geology and stratigraphy of the cave, and the remains recovered. Some bone implements recovered in an earlier excavation suggested human activity from traces of wear found on them. However, after detailed examination Sinclair (1904:13) refuted any human activity: "some of the fragments bear no relation to any known form of implement" and he determined that they show polishing all over indicating natural wear. He included a discussion on the fauna of the cave and a comparison to the contemporary fauna in the area. Sinclair reported the information on the Potter Creek Cave in such detail as to make it clear that he did not believe there was any evidence of human antiquity present.

E.L. Furlong (1906) made a second report of his explorations of Samwel Cave in 1905. He reports on the geology, fauna, and known history of Samwel cave including his exploration activities.

In 1905 F.W. Putnam (1906) discussed the bone fragments (possibly man-altered) found at the Potter Creek Cave. He included in his essay the statements of people who examined the fragments and stone work that were found in apparent association with extinct fauna (cf. Sinclair 1904).

J.C. Merriam (1906) reviewed the "evidence" from several caves in California of ancient man remains (human made tools in possible association with extinct fauna). He discussed Mercer's Cave (Calaveras County), Potter Creek Cave (Shasta County), Samwel Cave (Shasta County), and Stone Man Cave (Shasta County).

W.J. Sinclair (1908) made a good critical attempt at reviewing the previous work concerning possible evidence of ancient man in California caves. He analyzed the evidence from earlier surveys (particularly J.D. Whitney's [1867] of the problem of Neocene man) presenting his observations from direct investigation of the areas involved. He considered first the favorable evidence and then the negative evidence concluding that the evidence was too flimsy to support Neocene man's existence in California.

A different kind of approach was taken by C.H. Merriam (1909a) to prove that the human remains in some caves were not recent. Merriam referred to the mortuary customs of Indians living in the area (probably Miwok) and their lack of migration myths. This suggested to him an earlier practice of cave burial that had been forgotten by the present Indians.

C.H. Merriam (1909b) makes this argument more clearly in another article. In this article he argued for the antiquity of human remains in north central California caves and cited what he felt to be supporting ethnographic evidence of the Miwok Indians.

Rock Art: Sometime around 1900 Ethel Woods published a short report on a painted rock in the southern part of San Luis Obispo County, near Cuyama. This is probably the same painted rock which Lorenzo Yates (un-pub. ms.) described. Woods briefly discusses the legend and history surrounding this rock and its painting.

Lorenzo Yates (un-pub.ms.-e) also describes a "painted rock" which he locates on the southern slope of the Santa Ynez Mountains, east and north of Santa Barbara. Yates provides more information than Woods on the painted figures. He discusses the cave formation and provides his interpretation of the meaning of the figures painted in the cave.

In 1901 M.C. Frederick (1901) studied the Santa Barbara "Painted Cave" and nearby pictographs. He briefly described the cave and the major paintings, and offered his interpretations of the meaning and social value of the paintings.

Another rock art publication in the 1900 to 1909 period was a short report by E.W. Harnden (1908) of some pictographs in Pate Valley. He describes very briefly the location, the type, and the condition of the figures.

Arthur W. North (1908) discussed the petroglyphs he discovered in southern California and Baja California. He mentions the Diegueño Indians and the petroglyphs in their area.

Ethnology

Complete Ethnographies: In the 1900's the first really full ethnologies appeared. By "full" ethnology is meant here a report which describes in detail both the material and non-material aspects of a culture. A full ethnology therefore would touch on such basic cultural features as: geographical and environmental location of the social units; physical characteristics and appearance of the people; dwellings and technology (usually including details on use, kinds, and manufacture); subsistence (including the range of food resources, methods and cultural adaptation in procurement and preparation of food); social features of the culture (social stratification, relationships within the social units, and between the people and their neighbors); and religious beliefs, practices and ceremonies (including descriptions of related social institutions and folklore). The success to which these cultural features were recorded by California ethnologists varied according to the training, experience, and intent of the ethnologist.

The first full-dress ethnology of a California Indian tribe was Pliny Earle Goddard's (1903) monograph on the Hupa Indians of northern California. At the time it was the best written general monograph on any tribe in the northwestern culture area. Later Goddard did more work among the Hupa, Pomo, Walaki, Kato and Chilula

tribes. His early work was in ethnology; but he also was interested in the antiquity of man in California and North America, and in the use of linguistics to establish the origins of the North American tribes. He had little early training as an ethnologist when he did his Hupa observations. He worked as a curator for the American Museum of Natural History before coming to the University of California at Berkeley where he received his training and did his early research. Goddard's monograph was a significant influence among later ethnologists who patterned their work after his. The report is complete and concise, arranged under the following topics and titles: environment, history, villages, houses, dress, food, occupations of men, occupations of women, measures, social customs, social organization, amusements, war, diseases and their cures, burial customs, and religion. The information was obtained by his direct observation, and from informants on the Hupa reservation from 1897 to 1900.

A.L. Kroeber (1902) made a preliminary report on the Mohave Indians of southern California covering briefly the following topics: subsistence, dwellings and settlements, tools, material culture (including pottery), social organization, war, chiefs, intertribal relationships, dreaming, sickness and curing, treatment of the dead, ceremonies, symbolism and mythology, art, and cultural affinities to the Southwestern tribes of North America. Where possible he made comparisons to other California tribes or related tribes with similar cultural features. Kroeber's work on the Mohave was brief and not intended to cover their culture thoroughly.

R.B. Dixon (1905b) accomplished one of the most comprehensive ethnologies done in California on the Northern Maidu. He cited earlier research to bring all that was known about these people into one work (except for the physical and linguistic anthropological data). Most of his information was obtained during the Huntington Expedition in the years 1899, 1900, 1902, and 1903. Roland B. Dixon was a trained anthropologist, one of the first to work on California Indians. He also contributed a great deal to the field of linguistics both in California and North America.

In 1906 R.B. Dixon (1910a) collected information on the Chimariko Indians of northwestern California. His data mostly concerns Chimariko linguistics, however he also discusses their territory and history, material culture (including bows and arrows, canoes, basketry and dwellings) social organization, subsistence, religion, and oral tradition.

Dixon's (1907) ethnological monograph on the Shasta tribe was second only to his earlier Maidu report. He collected his data while on the Huntington Expedition of 1900, 1902, 1903, 1904, and covers their geography and history, material culture, art, social organization and law, customs concerning birth, puberty, marriage and death, their religion, and their mythology. Where it is possible Dixon draws comparisons to tribes in the culture areas of Oregon, Central and Northeastern California.

Dixon (1908b) surveyed the Northwestern California culture area again to study the Achomawi and Atsugewi tribes. He wrote a brief but thorough monograph on these people discussing their dress, dwellings, subsistence, technology, basketry, canoes, games, social organization, ceremonies, and religion.

Notes: In the 1900 to 1909 period several ethnological reports less encompassing in their coverage of a particular culture were published.

In 1900 Stewart Culin (1901) traveled among the Hupa Indians. He reports his observations of Hupa industry and manufactured articles: discussing basketry, dwellings, monetary systems, bows and arrows, and pipes. He also briefly describes the White-deerskin dance which he observed.

J.W. Hudson (1900) wrote a brief article on Pomo acorn meal preparation. He describes the processes of the preparation of acorn meal, cake bread, and seed flour. He also provides the Indian names and terms for each preparation stage he describes.

In the early 1900's Lorenzo G. Yates (n.d. un-pub. ms.a) wrote a short essay on Indian food preparation from his observations among California Indians. He discussed California Indian cooking in general, paying special attention to the acorn leaching process. He also mentioned the use and manufacture in Southern California of the stone olla.

R.B. Dixon (1901) explained the construction and method of playing a Modoc musical bow. He briefly discussed its use, social value, and origin.

In 1901 Theodore Gontz published a report on the Indians on the Hupa reservation. He covered the Hupa monetary system, games, basketry, and subsistence.

Alfred V. LaMotte (1901) described briefly in a report on the Indians of Mendocino County (Yuki?) the material culture of these people, including their basketry, subsistence procurement and preparation, appearance and dress, mortuary customs, ceremonies, and shell money construction.

In 1902 C.F. Lummis published a report on the Cupeño Indians of southern California. He was primarily concerned with describing their situation and the events leading to their eviction from their land by Warner, but he also includes some information on Cupeño life-style, art, and subsistence.

A.M. Benham (1903) wrote a short report on the Hupa Indians. He briefly mentions some Hupa customs, structures, bows, canoes, dress, basketry, and subsistence techniques.

W.S. Fry (1904) published his miscellaneous ethnological notes on the Hupa and Klamath Indians. His observations were mostly concerned with their special dances and ceremonies, law, mortuary customs, and basketry production.

In a brief article published in 1904 M.B. Williamson (1904b) related historical information on the original inhabitants of Santa Catalina Island in southern California.

Alfred L. Kroeber (1905b) corrected in a brief article earlier researchers' claims that some territory in lower California was Shoshonean. He proposes this area was Yuman.

Horatio N. Rust (1905) made some brief observations on a trip in the Klamath and Trinity River areas in 1898. He was interested in the large ceremonial obsidian blades and the related social ceremonies and value attached to them. A.L. Kroeber added a comment concerning these blades to Rust's report.

In 1907 George Friederici published an article dealing with aboriginal forms of watercraft. He briefly mentions the Chumash plank canoe.

William A. Tenny (1907) wrote another of the many secondary accounts on the San Nicolas Island woman.

Flint chipping in the Clear Lake area was the subject of a report published in 1907 (Anonymous 1907).

Edward Sapir (1908) was a trained linguistic anthropologist who contributed to California linguistic studies and ethnology. He made some notes on the use and value of "luck stones" (quartz crystals and others) among the Yana Indians of northern California.

D.L. Spencer (1908) published some miscellaneous ethnological notes on the Maidu Indians, mostly concerned with the animals and mythological beings in the oral tradition of the culture, and Maidu flint working, arrow manufacture and shooting.

P.S. Sparkman (1908a) compiled ethnological information on the Luiseño Indians of southern California. His compact report deals thoroughly with the material side of the culture discussing such topics as: subsistence implements, clothing, pottery, basketry, bows and arrows, stone implements and houses.

An anonymous article (Anonymous 1909b) recorded some reminiscences of early California life including sketches of Indian culture of the Napa Indians (Wappo?) and Tehama County Indians (Central Wintun). The article also covers watercraft used by the Indians of Tulare Valley (Yokut).

In 1909 F.B. Washington (1909) published some notes on the northern Wintun Indians. He briefly covered topics that few people had reported on earlier (such as sweathouse and dance house construction, and political authority and organization).

In 1909 and 1910 C.H. Merriam (1917) surveyed the Yosemite Valley region locating and determining types of occupation sites of the Miwok Indians. This is perhaps one of the first settlement pattern studies of a California tribe. Merriam located so-called summer, permanent, and seasonal village site, for some of which he provides Indian names and histories.

Ethnography: In the early 1900's a new kind of ethnological report began to appear. This was the ethnogeographic report concerned with tribal distributions and dealing with questions of culture contact, influence, and diffusion.

From 1902 to 1906 S.A. Barrett (1908a) collected ethnographic information on the Pomo and neighboring tribes of northwestern California. His environmental approach to studying Pomo culture and determining their geographical boundaries reflects the growing interest and recognition by California anthropologists in the significance of the environment on culture. Barrett was concerned primarily with determining geographical boundaries and village locations obtained through a dialectic study of the Pomo language.

S.A. Barrett concentrated much of his research on the ethnography of the Miwok and Pomo of Northern California. In 1903 he published a correction of Stephen Powers assignment of the Miwok Moquelumnan to the Wintun tribal group.

Kroeber (1903) published a correction of the previous location of certain Pomo, Wappo, and Yuki villages around the Russian River and Healdsburg, California.

Barrett (1904) also corrected earlier reports on the location of the Pomo in relation to the Wintun and Yuki.

In 1904 C.H. Merriam published a report on the distribution of tribes in the southern Sierra Nevada and San Joaquin Valley. He reviewed the earlier work in the area by Powers, Powell, Henshaw, Kroeber, and Dixon; and he corrects the errors of these researchers made through lack of sufficient data. The tribes he covers belong to the Penutian (Yokut) and Shoshonean (Paiute) linguistic families. He based his distinctions of tribal distribution and location on linguistic affinities--arguing a correlation of language groups and physiographically distinct areas (life zones).

Merriam (1907) also considered the distribution and linguistic classification of the Miwok Indians and related Central Valley tribes. His report contains much useful ethnographic information on these people.

S.A. Barrett (1908b) published a report on the ethnogeography of the Miwok Indians. The report is concerned mainly with the linguistic evidence reflecting tribal distribution, although he also discusses the environment and resources available to these people.

A.L. Kroeber (1908c) reviewed all the linguistic evidence to determine the dialectic and geographical boundaries of the Miwok Indians.

Kroeber's ethnological report on the Cahuilla Indians (Kroeber 1908b) emphasized geography and Cahuilla relations with the neighboring Luiseño, Diegueño and Yuma Indians.

Ethnobotany: Continuing in line with his earlier ethnobotanical research F.V. Coville (1904) studied in 1902 the plants used by the Klamath Indians. He describes in detail the harvesting and various methods of processing the waterlily seed ("wokas") noting the Indian terms for the different products and stages of preparation. Several photographs are included to illustrate the stages in the process of "wokas" preparation.

Religion: A few ethnological reports dealing with the religion of a particular tribal group were published in the 1900 to 1909 period.

R.B. Dixon (1904) collected some information on shamanism among the Shasta, Atsugewi, Achomawi, and Maidu Indians. He compared and discussed the issues of shaman qualification and obtaining a "pain" in these four tribes.

One of the few reports dealing with the Ghost Dance in California was Kroeber's (1904a) article on the Yurok and Karok of the lower Klamath River. He discusses the approximate distribution of the cult among these people and the activities they were involved in.

S.A. Barrett (1908d) published a brief discussion of the form and extent of totemism among the Miwok Indians of the Sierra Nevada region.

C.H. Merriam (1908) discussed the occurrence of totemism among the Mewan, Miwok, Maidu, and Yokut tribes.

Ceremonies: A number of anthropologists recorded the special ceremonies of certain tribes in California.

Pliny E. Goddard (1901) recorded the White-deerskin dance of the Hupa Indians. He describes in a brief article the preparations and activities of the dance and he relates a myth concerning the origin of the dance.

Constance Goddard DuBois was one California ethnologist who concentrated research on certain aspects of the social customs and beliefs of a particular tribe (mostly Diegueño, Luiseño, and other "Mission Indians" of southern California). In 1905 she published a brief report dealing with religious ceremonies and myths of the Diegueño and Luiseño tribes.

H.N. Rust (1906b) briefly described a girls' puberty ceremony that he observed among the Yuma Indians. He discussed the special stones associated with the ceremony found in southern California sites and in an Oakland, California shellmound.

In 1906 and 1907 S.A. Barrett (1919) studied the "Hesi" ceremony of the Wintun Indians. He details the sequence of activities prior to and during the ceremony he witnessed in 1906. He observed this ceremony after the San Francisco earthquake had occurred to study the Indian reaction to this natural disaster. The purpose of the Hesi ceremony is to provide and assure a plentiful wild harvest and the good health of the people. Barrett notes the Ghost Dance influence in this Kuksu ritual.

Constance DuBois (1907c) again published on the Diegueño Indians, describing two different types of dancing of these people.

In 1908 Constance G. DuBois published another article on the Diegueño Indians. She relates in detail the religious beliefs and practices of these people, making comparisons to Luiseño beliefs and traditions. She includes several Diegueño myths which she analyzes in terms of their social function.

Nels C. Nelson (1909a) described the ceremonies and dances of Maidu Indians. Most of his information was obtained from a Maidu informant, Jack Frango. Nelson attempted to harmonize the differences between the ceremonies mentioned in papers by Dixon (1905b) and Barrett, but there appeared to be an area of disagreement between his informant and Dixon's.

Ceremonies: Mortuary: Sometime in the early 1900's Lorenzo Yates collected information on the Napa Indians (Wappo) in his travels through Northern California. He wrote a brief report of his observations (n.d., unpub. ms.c) of these people describing their mortuary customs and relating some of their oral tradition. He also collected some vocabulary words, which he lists.

S.H. Hall (1903) reported his observation (much of it romanticized) of a cremation ceremony of a Mohave chief which he witnessed.

F.B. Washington (1906) made some brief notes in 1906 of the customs of the Indians in western Tehama County concerning death and the cardinal directions.

Constance Goddard DuBois (1907a) studied Diegueño beliefs concerning cremation and death. Included are some references to the Luiseño. She describes a Diegueño mortuary olla and its contents.

A description of the cremation of a "digger" Indian (probably Wintun) appeared in 1909 in an anonymous report (Anonymous 1909a).

Oral Tradition: With the beginning of the 1900's a flood of ethnological reports dealing specifically with some aspect of the oral tradition of a particular tribe or group were published. Certain people stand out as the significant researchers in this respect--R.B. Dixon (on the Maidu, Shasta, Achomawi, and Atsugewi), C.G. DuBois (on the Diegueño, Luiseño, and other "Mission Indians", and the Cahuilla), P.E. Goddard (on the Kato, Hupa, and Lassik), S.A. Barrett (Pomo), and A.L. Kroeber (on the Wiyot, and Southern and Central California Indians).

Roland Dixon (1900b) published four Coyote stories collected during the Huntington Expedition in 1899.

In 1900 Livingston Farrand (1915) collected 15 Shasta myths which he presents in a brief report. He offers some interpretation and comment on most of these.

In 1901 L.M. Burns related several legends of the so-called Digger Indians of Scott Valley (probably Shasta).

Constance DuBois (1901) published four myths of the Diegueños and discussed the possible "Aztec" influences in these.

In 1902 DuBois related a version of the Diegueño Chaup story, discussing the structure and meaning of their mythology.

R.B. Dixon (1902b) published a compilation of data from previous collections by Boas, Curtin, Teit, Gatschet, Powers, Powell, Kroeber, Farrand, and Burns of Maidu myths. This is one of the more extensive mythology studies prepared for any California tribe.

In 1902 R.B. Dixon (1908a) while on the Huntington Expedition of the Museum of Natural History collected Achomawi (Pit River tribe) and Atsugewi (Hat Creek Indians) myths and tales. He publishes several myths with no discussion or interpretation.

In 1902 and 1903 Roland Dixon (1912) collected 19 Maidu myths

during the Huntington California expedition for the American Museum of Natural History. He gives each myth in Northeastern Maidu dialect with the English version (direct translation) underneath it, and a summary version after each original. He also discusses the main features of Maidu mythology and comparative features in the mythology of surrounding tribes.

In 1902 J.W. Hudson discussed a myth of Indians in the San Joaquin Basin in terms of its geographical aspects.

G.W. James (1902b) related a myth of the Saboba Indians of Southern Tehachapi. The Saboba people are from Saboba, a Luiseño village on the San Jacinto reservation.

James (1903b) also contributed various Saboba stories and legends told by Indians in the region of Mt. San Jacinto.

Dixon (1903) attempted to reconstruct the cultural history of the Maidu through the interpretation of Coyote and Earthmaker myths.

In 1903 P. Goddard (1906) collected myths of the Lassik tribe (Wailaki) on the east side of the Eel River in Humboldt County. He provides nine tales translated in summary form without interpretation.

In 1903 George W. Stewart (1906) collected a short creation myth from the Wiktsunne Yokuts tribe. He briefly relates this myth without interpretation.

Constance DuBois (1904a) related two versions of the creation myth of the Luiseño tribe. Where possible in interpretation of these myths, she compared Luiseño mythology to Diegueño mythology.

The same year DuBois (1904b) published several myths concerned with Chaup--a Diegueño culture hero.

In 1904 P.E. Goddard published his Hupa texts. These are primarily of linguistic value, various social customs, dances and feasts, and they actually illustrate medicine formulae. Goddard presents the tales and myths in a form (English version translated from the phonetic Hupa version above it) which facilitates linguistic comparison.

Dixon (1905a) studied Shasta and Achomawi myths. He discussed the relationship of these tribes to neighboring tribes from features in the myths.

Kroeber (1905c) added his contribution to California folklore research with his article on myths of the Wiyot Indians of Humboldt Bay. He discussed the myths in terms of their form, content and social

function. By comparing these to other tribal myths he determined the placement of this tribe within the California culture area.

S.A. Barrett (1906a) related a composite myth of the Pomo and interpreted the features of the myth in relation to the Pomo environment.

In 1906 Barrett (1906b) recorded opinions of the Wintun shamans and people concerning the 1906 earthquake. He discussed the reaction of these people to natural disasters.

G.A. Chambers (1906) recorded one tale of the Chico Creek Indians (Maidu) which concerns an incident connected with the Ghost Dance among the Klamath River Indians during the Modoc War of 1872-1873.

Melcena B. Denny (1906,1907) recorded and published several legends of the "Orleans" (Koruk) Indians of California.

Roland B. Dixon (1906) related two instances of water monster myths and tales among three northern California tribes, the Wintun, Chimariko and Shasta.

In 1906 Constance DuBois published her notes on the mythology of the "Mission Indians". She relates two versions of the story of Chaup (one a Diegueño version).

In 1906 A.L. Kroeber (1906a) wrote a short article discussing various California Indian beliefs concerning mythological earthquake beings. He mentions three groups in particular: the Kenek Indians (Yurok) of the Klamath River, the Yokuts of the Tule River, and the Yurok.

Kroeber (1906a) discussed California oral tradition in terms of form and content making comparisons within and between California tribes and related tribes of the Southwest. He specifically discussed related myths of the "Mission Indians" drawing comparisons with the Pueblo tribes of the Southwest.

Constance G. DuBois (1907b) collected a series of creation myths from the Diegueño, Luiseno, and Mohave Indians. She discussed the various geographical features of each myth indicating the myth origin and transference through contact between cultures. From elements in the myths she traced migration waves from the Mohave to the Diegueño Indians.

DuBois (1907c) also collected tales of the Mission Indians. She relates one concerning the Capistrano (Juaneño) Indians.

In 1907 A.L. Kroeber (1907a) organized and published the data he had collected from 1901 to 1906 relating to the mythology of the

Central California tribes. He compared the myths of the northern central region (which he summarized) to myths of the south central region (discussing these in more detail). He covered Costanoan, Miwok, Yokut, and Shoshonean tribes.

Constance G. DuBois (1908) discussed the religion of the Diegueño and Luiseño people (mainly the Chungishnish religion and Tolache cult) and the religious rites. In this important work on these people, DuBois related in detail the myths and ceremonies which are involved in Diegueño religion.

In 1908 J.P. Harrington published a significant report on the classification of the Yuma Indians of southern California. He classified the Yuma into three groups: Eastern, Central, and Lower, based on language dialects and origin myth differences.

A.L. Kroeber (1908e) discussed Chemehuevi history and culture from his interpretation of an origin myth of these people. He compared Chemehuevi culture to Mohave culture through features in their myths.

Kroeber (1908f) also examined Wiyot folklore. He discussed how oral tradition reflects cultural mores and social behavior; pointing to the various features in myths and tales which direct shaman activities, determine costumes and dances, and reflect the Wiyot world view.

Henriette R. Kroeber (1908a) related two legends of the Yokuts Indians of central California. She offers no interpretation of these.

Henriette R. Kroeber (1908b) related briefly two Wappo myths ("Two Brothers" and "Coyote and the Frog") without further discussion or interpretation.

P.S. Sparkman (1908b) briefly related a Luiseño tale. He did not offer any interpretation of the features of the tale.

G.W. Stewart (1908) related two tales of the Yokut Indians: the "Origin of Fire" and the "Turtle" tales.

T.T. Waterman (1908a) collected various Diegueño songs and myths alluding to colors identified with the cardinal directions. His discussion of these is brief.

D.J. Woosley (1908) presented Cahuilla myths and tales, briefly outlining significant features in each.

In 1909 Adelia B. Adams published a story (related to her by a Yuma Indian) of the feuds and encounters between various tribes in southern California, particularly one incident between the Yumas and the Maricopas.

In 1909 Jeremiah Curtin published five Achomawi myths.

In line with his interest in ethno-geography P.E. Goddard (1909) examined Kato myths and Kato culture. He discussed the effects of geographical location and environment on a culture as seen in their myths using Kato culture and folklore as an example. He also makes comparisons with Wailaki and Pomo folklore and culture.

In 1909 C.H. Merriam (1909c) published his brief notes concerning California Indian transmigration myths (the transference of humans into animals after death).

In 1909 T.T. Waterman presented his analysis of creation stories of the Luiseño, Cahuilla, and Diegueño Indians. This well organized comparative study was based upon previous work done by DuBois, Kroeber, Boscana, and Waterman. He compared a number of features contained in the myths of each tribe. The main value of this work is in the organization and presentation of the printed accounts of myths in a manner which facilitates comparative studies.

Oral Tradition: Names: Very little research was done in California on Indian personal names. Kroeber (1906b) was one of the few anthropologists who published his information on Indian (Yokuts) personal names.

Basketry: Basketry--its manufacture, decoration, value and use--was a popular research subject in California.

In the 1900 to 1909 period reviewed here, papers on California Indian basketry are well represented in ethnological reports beginning with Roland B. Dixon's (1900a) monograph on the basketry designs of the Maidu Indians. He details the design elements and compares these with neighboring tribes.

In 1901 O.M. Dalton published a brief description of some California basketry and stone objects obtained by the British Museum from a private collector.

George W. James was a well known basketry collector of California and the Southwestern United States. In 1901 James (1901a) visited the Mono Indians of southeastern California. He reported on the subsistence methods and social customs of these people as well as on their basketry production.

G.W. James (1901b) published a report on basket makers of California. He describes the processes of basketry manufacture which he observed.

James (1901c) published a brief account of California Indian basketry.

During the Huntington California Expedition of 1899 and 1900, Roland D. Dixon (1902a) collected basketry designs of the Northeastern and Southeastern Pomo Indians of Northern California. He described and discussed each design in terms of characteristic features and distribution of the design in each of these areas.

In 1902 C. Purdy described the Pomo Indians, the materials they used for basketry, the types of weaves, designs, and uses of various baskets.

James (1902a) later wrote a more extensive monograph on Indian basketry chiefly on the Southwest and southern California Indians. He illustrates numerous and varied examples of basketry.

George A. Dorsey (1903) wrote a brief overview of the Southwestern United States Indian tribes. The California Indians he covers are: the Mono, Tule-Kaweah, Kings River Yokut, Northern Yokut, Central Sierra Miwok, Yahi and Northern Hill Yokuts. He only briefly describes the basketry made by these people.

In 1903 Purdy discussed in more detail the Pomo myth that relates the idea of the "dau" or the break in the continuity of the design in the basket, a deliberate imperfection which permits the escape of the spirit of the design.

B.W. James (1903a) published an article dealing with the material, preparation and production, and use of baskets of the Southwestern Indians. California tribes are included.

C.H. Merriam (1903) published an article listing and describing previously unidentified materials used in basketry of Indians inhabiting the lower slopes of the Sierra from the Fresno River south to the Kern (covering Cahuilla, "Tejon", and Miwok Indians).

An unusual basketry object was described by C.C. Curtis (1904)--a Pomo cradle made in spiral form.

In 1905 A.L. Kroeber (1905a) published an important contribution to the study of California Indian basketry with an extensive report on the Yurok, Karok and Hupa basketry. The work is a comparative one in which he describes kinds of baskets, materials, technique, ornamental designs, and names of designs (pointing out the difference in the designs between these three tribes). He also compared designs to those of the Wishosk (Wiyot), Northwestern Wintun, and Sinkyone tribes of northern California. This work is an important contribution to the classification of California Indian basket styles and symbolism.

S.A. Barrett (1905) wrote a preliminary report from observations of the Pomo Indians of Mendocino and Lake Counties on the names and design elements on the basketry.

Barrett (1908c) later published his complete report on Pomo basketry. This thorough work covers basketry materials, technique, forms, ornamentation, patterns, elemental names, and pattern names.

Barrett's monograph was followed by Kroeber's (1909b) monograph on Pomo basketry in the larger perspective of California basketry. Using Barrett's work on Pomo Kroeber attempted to interpret the data to show evidence of cultural contact. From this he drew conclusions about Pomo culture and California Indian culture in general.

Monetary Systems: Sometime around 1900 Lorenzo Yates (un-pub. ms.b) wrote up his notes on aboriginal shell money in California. He discussed the manufacturing tools and pointed out errors of previous researchers on the use and forms of these.

In 1904-1905 Yates published an article on California monetary systems. This report is detailed and thoroughly covers names, values, and standards of measurement of the different shell and mineral money of Northern and Central California Indians.

1910 - 1917

In the 1910 to 1917 period discussed in this section, few new types of research were initiated. However, several important works contributing to the knowledge of native culture were published--the most significant being Kroeber's Handbook of the Indians of California (1925). Ethnologists were becoming more concerned at this time with the problem of culture classification and distinguishing culture areas. Linguistic and ethnographic research became important in delineating culture area boundaries. The archaeologists in this period continued to direct their attention to problems of identifying cultural change within the occupation period of a site. Archaeologists and ethnologists together worked to establish a cultural sequence for native culture in the California area. A number of large scale compilations and comparative studies were produced in this period. Most notable contributors of this type of research were R.B. Dixon (1913), E.W. Gifford (1916), W.H. Holmes (1915), A.L. Kroeber (1915, 1917, 1925), and W.K. Moorehead (1910, 1917). However, there was also a recognized urgency to collect more data: native peoples and their cultures were vanishing under the impact of white contact.

General Surveys

North America: As pointed out above general compilations and broad comparative studies began to be published after the 1900's, made possible, of course, by the background work in preceding decades.

Most of the extensive monographs of this type on California were published after 1910.

In 1910 W.K. Moorehead published a monumental work (in two volumes) on the prehistory of North American Indians. This work covers lithic technology; shell, bone and copper technology; and textile and pottery artifacts. California Indians are well covered (see also Yates ms. ca 1900).

In 1913 Roland B. Dixon published a critique of the status of the field of archaeology in North America and he proposed the necessary developments and aims of the field in the future. Summarizing what was known in 1913 about California native culture from the archaeological survey work, he concluded that there was a need for problem-oriented studies using the symbiosis of archaeology and ethnology to full advantage. The sections of his essay that deal with California archaeology are concise and informative on prehistoric and historic native culture.

Clark Wissler (1915) published a general survey on culture areas of North American Indians. This work is essentially a series of material culture trait lists. California culture areas are briefly discussed.

In 1915 Franz Boas compiled a comparative study of North American Indian mythology and folktales. California Indians are mentioned where applicable to his discussion.

Another of these broad comparative studies was A.A. Goldenweiser's (1915) work on the different forms of social organization in North American Indian tribes. He considered California tribes briefly.

William H. Holmes' 1915 monograph on North American Indian antiquities covers California very briefly and generally and in addition includes a thorough discussion on the "early man" finds in the Auriferous gravels. Holmes examined the evidence from California for the theory of environmental determination of culture (e.g., relating the technological developments of the mortar and pestle to an acorn subsistence base).

A.L. Kroeber (1915) summarized what was known about the Pacific Coast tribes. From similarities and differences in their material culture he distinguished specific cultural areas.

W.K. Moorehead (1917) published a monumental work on stone ornaments of the North American Indians. California forms are covered where applicable especially in the chapter on stone "plummets". He discusses the distribution of each form.

California: During the 1910 to 1917 period general surveys

of California Indians also were published. Kroeber and Gifford were the two anthropologists most involved in these California-wide comparative studies.

In 1911 A.L. Kroeber (1911a) wrote a short article discussing California Indian culture areas and differences in religion. He made some comparisons to other North American Indians where possible in consideration of traditions and beliefs.

In 1915 Winona McConnell published a bibliography of books and articles relating to California Indians. The bibliography is quite thorough. It is organized by tribe and area and by subject. Most of the works listed are briefly annotated.

In 1916 G.W. Gifford (1916a) published an analysis of constituents of shellmound sites in the San Francisco Bay Area. The significance of this work is Gifford's initiation of new techniques to analyze the raw data from the sites. He took 84 midden samples from various sites which were separated into seven categories: fish remains, vertebrate remains, shell, charcoal, ash, rock and residue. His purpose for analyzing the samples was to determine the constituents of the mound so that he could speculate on the life of the people and the environmental resources they exploited.

Gifford (1916b) also studied the social organization of California tribes. He made a comparative study of tribes in south central California, briefly but succinctly discussing the forms of social organization in several geographical areas.

A.L. Kroeber (1917) published an extensive monograph on California Indian kinship systems. In this work, which is also an overview of California Indian culture types, he refers to twenty ethnic groups: the Mohave, Luiseño, Southern Yokuts, Tule-Kaweah Yokuts, Kawaiisu, Tubatulabal, Central Miwok, Northern Paiute, Washo, Southeastern Wintun, Eastern Pomo, Yuki, Yurok, Karok, Hupa, Wiyot, Chimariko (Yana), Costanoan, Salinan, and Chumash. His purpose was to provide information that would fill in the gaps in the knowledge of these cultures so that comparative research could be made. His conclusion includes a classification of kinship systems and a discussion on how kinship, social organization, and culture are interrelated.

The most important work to be published (and the most extensive single volume to this day) on California Indians is Alfred L. Kroeber's Handbook of the Indians of California (1925). This extensive monograph was the outcome of Kroeber's seventeen years of work and familiarity with California Indian research. Basically it is ethnological, organized by tribe--religion, art, customs, social systems, and organization are covered for each tribe he considered. He also discussed native California culture, in general examining: society, religion, knowledge, population, place names, culture areas, and prehistory. He covers the following tribes: Yurok, Karok,

Chimariko, Wiyot, Tolowa, Hupa, Chilula, Whilkut, Yuki, Huchnom, Coast Yuki, Wappo, Pomo, Coast and Lake Miwok, Shasta, Achomawi, Atsugewi, Modoc, Yana, Yahí, Wintun, Maidu, Miwok, Costanoan, Yokut, Esselen, Salinan, Chumash, Washo, Paiute, Mono, Koso, Chemehuevi, Kawaiisu, Tubatulabal, Serrano, Gabrielino, Juaneño, Luiseño, Cupeño, Cahuilla, Diegueño, Kamia, Mohave, and Yuma. This major work summarizes and compiles all the information, ethnological and archaeological, known about California native culture up to 1917.

Archaeology

Site Reports: Collections: Three miscellaneous archaeological reports were published in this period. C.F. Holder (1910) described his archaeological collecting activities in the Santa Barbara area.

Burle J. Jones (1910) wrote a short report of his exploration of a grave site (Yana?) along the Sacramento River between Shasta and Tehama Counties. He described the remains he dug up including obsidian arrowpoints, knives, handaxes, and bone needles.

H. Newell Wardle (1913) published a description of some so-called surgical implements he found on San Miguel Island. He cites little evidence to back up his conclusions on the function of these crescentic flaked implements.

Site Reports: Shellmounds: Three shellmound excavation reports (besides Gifford's (1916) analysis of California shellmounds) were published in the 1910 to 1917 period. N.C. Nelson (1910) wrote a thorough site report of the Ellis Landing Shellmound which he salvage-excavated in 1907.

In 1911 A.L. Kroeber made a very general report on the progress of Nelson's excavation at two shellmound sites (on the west shore of the San Francisco Bay) in the cities of San Francisco and San Mateo.

In 1913 Llewellyn L. Loud, an assistant preparator at the University of California Anthropology museum (at San Francisco) excavated a Wiyot village site near Eureka, California (the Gunther Island site, Hum-67). He also collected ethnographical and ethnobotanical data from the Wiyot Indians. Loud (1918) wrote a detailed report on the archaeological exploration of site Hum-67 explaining his excavation techniques and describing the site environment, composition, stratification, faunal, floral and human remains recovered, and the stone tools collected. He also discusses present Wiyot culture, particularly the ethnogeography of the tribe. This monograph on the archaeology of Wiyot territory was the first detailed report of systematic archaeological research in northern California.

R.E. Dodge (1914) published a short report on California shellmounds. He described briefly some shellmounds near Santa Cruz, California and discussed the chipped stones, skull fragments, bones and shell that he found.

Ancient Man: In this time period the familiar question of the antiquity of California Indian culture was studied. New finds prompted new discussion and reconsideration of the evidence.

In 1910 A.L. Kroeber published a report on the remains found around Kern County Buena Vista reservoir. The good preservation of the remains makes this collection rather unique among other California early man finds. Kroeber's date for the deposition of the remains is figured to be at least 300 years prior to 1910.

In 1914 J.C. Merriam (1914b) published a preliminary report on a significant discovery in the Rancho La Brea tar pits of southern California. The probable association of human skeletal remains with extinct faunal remains prompted a great deal of interest and speculation concerning the antiquity of man in North America. Merriam discussed thoroughly the entire question of the possible association describing the problems encountered in determining the contemporaneity of the human remains with the extinct fauna. (A description of the skeletal remains was made by Kroeber [Merriam 1914b] and by Hrdlicka [1918:17-22].)

J.C. Merriam (1914a) wrote another article about the La Brea skeletal material and faunal remains. In this article he briefly described the location, condition and situation of the human remains, made an age estimate of the La Brea fauna associated with it, and acknowledged the inconclusiveness of the attempt to date the human remains.

Rock Art: Myron Angel (1910) made a report of another "painted rock" of southern California. This rock he located in the Carrisa plains of San Luis Obispo County. He describes the paintings on the rock and speculates, citing historical information, on the meaning and origin of the paintings. He relates a legend which connects the rock with religious ceremonies originating from the Aztec and Toltec cultures of Mexico.

Ethnology

Full: A few full ethnologies were published in the 1910 to 1917 period. S.A. Barrett's (1910) research on the Klamath Lake and Modoc Indians is a detailed study of the environmental adaptation of these cultures. It briefly covers their social organization and non-material culture.

J.A. Mason's (1912) monograph on the Salinan Indians is based upon the observations of Henshaw and Taylor and upon information

from two of the few remaining Salinan Indians. Because of the scarcity of information and virtual extinction of this tribe, the ethnological coverage is scant in certain aspects of their culture.

S.A. Barrett (1917c) studied the Washo Indians. His ethnological report on these people is short but exhaustive, covering environment, subsistence, social organization and customs, technology, basketry, and dwellings.

Notes: In 1910 Charles M. Goethe (un-pub. ms.) wrote up his notes on the Indians and tribes of Sacramento County. He provides some miscellaneous ethnologic information on these people (Miwok?, Maidu?).

A.L. Kroeber (1912a) briefly described ethnological aspects of Diegueño culture.

Kroeber (1913) also briefly discussed Mohave culture. He covers Mohave social attitudes, dress and appearance, mortuary customs, and religious beliefs.

P.E. Goddard (1914b) collected information on the Chilula Indians of northwestern California in 1914. His notes discuss the Chilula names of villages and settlements and draws comparisons to Hupa culture.

Frank T. Lea (1914) wrote a brief article describing the process of making bread by the Indians of Yosemite Valley (Southern Sierran Miwok).

In 1916 S.A. Barrett described in detail the types of structures built by the Pomo Indians. This very thorough study of Pomo buildings includes the names and parts of the structures, and the method of their construction.

E.W. Gifford (1916c) published a detailed analysis of the organization of Miwok moieties.

In 1916 and 1917 Edward W. Gifford studied the kinship system of the Southern California Indians of Yuman and Shoshonean dialects. He covered the Mohave, Yuma, Chemehuevi, Kamia, and Diegueño; the Serrano, Cahuilla, Cupeño, and Luiseño; and the Miwok, Yokut, and Mono Indians. He discusses in detail the social organization of these tribes, specifically naming clans, moieties, and totems (if any) and presenting the related myths of each tribe.

In 1917 J.P. Harrington (1918) collected information on the peoples in the Santa Barbara region, particularly on their dress, basketry, monetary systems, boats, subsistence and dwellings. However, his report is very general, he gives few details of these cultural features.

Religion and Ceremonies: California Indian religion and ceremonies were the subject of several studies in the 1910-1917 period.

T.T. Waterman (1910) devoted some of his research to the religious practices of the Diegueño Indians. This quite detailed discussion of a people's social practices included some comparative data and interpretation by Waterman.

In 1914 Hector Alliot (1916) reported on an expedition on Santa Catalina and San Nicolas Islands which revealed certain burial practices of the aboriginal inhabitants of these islands. He discusses burial practices of the Diegueño and Luiseño Indians in comparison with these island Indians, drawing similarities to Yurok traditions.

P.E. Goddard (1915) discussed the "sacred spots" and the related social customs associated with them of the Northwestern California Indians. His data are based on interviews of informants in the area in 1913.

An unusual publication at this time was Lucy Thompson's (1916) work on the Yurok Indians. Thompson, a Yurok Indian woman, discusses Yurok ritual and beliefs. This valuable report is one of the very few ethnological reports written on California Indians by a California Indian.

In 1917 S.A. Barrett (1917b) did research on Pomo "Bear Doctors". His notes from Pomo informants detail various features of Bear Doctors: their origin, acquisition of power, assistants, hiding places, "magic suits", weapons, and communication with other doctors. He also discusses Panther doctors and he compares Pomo beliefs about Bear Doctors with those of the Yurok and Miwok.

Barrett (1917a) also made some notes on the Pomo ceremonial organization. He discussed the "Ghost or devil ceremony"; the "fire eating" ceremony; purification rites' the "Guksu" ceremony; and a number of other religious activities and dances.

Oral Tradition: California Indians oral tradition was the subject of a number of ethnological studies in the 1910-1917 period.

E. Sapir, a linguistic anthropologist, (1910) recorded a number of myths of the Yana Indians.

In 1910 R.B. Dixon recorded thirty-four myths of the Shasta Indians. He offered no interpretation of these.

In 1910 and 1916 James A. Mason (1918) collected linguistic and ethnological material from the Salinan Indians. His monograph on the Salinan language includes mythological texts which he presents

with English translation below. His interpretation and ethnological explanations of these texts are in his earlier paper on the ethnology of the Salinan Indians (see Mason 1912).

C. Hart Merriam (1910) collected several myths and tales of Mewan Indians. He presents these in an interesting manner, discussing Mewan mythology in terms of the religious historical traditions of the tribe. This work contains a good bibliography of California folklore.

P.E. Goddard (1914a) published the texts of the Chilula Indian mythology data he had collected in 1914. These were presented in the same format as his Hupa texts (1904) with the phonetic version written over the translated English version.

E.W. Gifford (1917) published sentence-by-sentence English translations of fourteen Miwok myths as told to him by two informants. No analysis or interpretation was made, but abstracts of the myths were provided.

In 1917, Regina Rios related a legend of the Saboba people of the San Jacinto reservation (Luiseño).

Oral Tradition: Place Names: One of the new specialized topics of this period was the Indian place name research.

John P. Harrington (1911) published a tentative list of some hispanicized Chumash place names of San Luis Obispo, Santa Barbara, and Ventura Counties.

In 1914 Nellie Van de Grift Sanchez wrote a comprehensive report of Spanish and Indian place names in California. Probably this was the best general work on the subject at this time.

In 1916 A.L. Kroeber published his critical analysis of previous literature which alluded to Indian place names in California and he presented his own data on the subject. He provided an alphabetical list of Indian names with original meanings (if known) and Spanish and American distortions.

The only other such report at this time was C.H. Merriam's (1916) study of the Indian names of the Tamalpais region in northern California.

Basketry: George W. James (1913-1914) wrote an article dealing with Indian expression of poetry and symbolism in basketry. He includes some discussion of California Indian basketry and symbolism.

C. Henry Dickerman (1915) wrote on some of his observations of the manufacture of baskets by California (northern) Indians.

Ishi: From the time Ishi appeared in the corral of a

slaughterhouse near Oroville, California in August, 1911, until the day he died in 1916, he was the subject of public and scientific interest as the last member of his tribe. To T.T. Waterman and A.L. Kroeber he was both a good friend and a unique informant. Almost every one of the anthropologists at the University of California Anthropology Museum in San Francisco had the opportunity to work with and become good friends with Ishi while he lived there--A.L. Kroeber, E.W. Gifford, E. Sapir, S.T. Pope, L.L. Loud, and T.T. Waterman all became involved in the study of Ishi's life and culture.

In 1912 Kroeber (1912b) reported the events of Ishi's appearance and his transference from an Oroville jail cell (where he was first put for protection from the curious) into the care of the University of California anthropologists, Kroeber and Waterman. He came to live at the University Anthropology Museum in San Francisco--which became for Ishi "wo-wi"--his home. (See T. Kroeber (1961) for a detailed biography of Ishi.)

While at the museum in 1912 Ishi demonstrated his technological skills in flint working for N.C. Nelson (1916). Nelson described the processes and tools Ishi used in manufacturing projectile points.

Saxton T. Pope became one of Ishi's closest friends and the two shared a mutual interest in archery. Pope was also Ishi's physician treating him when he contracted tuberculosis in 1915. Pope soon learned all about Yana bows and arrows from Ishi. He wrote several articles dealing with this subject (see Kroeber 1961 bibliography). In one report Pope (1918) described in detail Ishi's manufacture of bows, arrows, and arrowheads and explained the Yana method of shooting. He included discussion of plant resources used in bow and arrow preparation, and ritual beliefs and practices concerning bows and arrows.

S.T. Pope (1913) also published a report specifically on Ishi's method of manufacturing arrowheads.

T.T. Waterman was also one of Ishi's close friends at the Museum. In 1915 Waterman published an article relating the situation of the Yana tribe in White/Indian conflicts in the late 19th century. He related the history of the last members of Ishi's tribe and the events leading to the massacre of most of the Southern Yana in 1865.

Waterman later (1918) wrote a more thorough monograph on this subject and on Yana culture in general. In this, he discusses mainly the history of the tribe after White contact in the 1850's, piecing together the miscellaneous and scattered references by early settlers, miners, and government officers about the Yana Indians. He also used informant reports on the events in recent years (particularly Ishi). This monograph provides ethnographic information on the Yana Indians--detailing the locations of villages and camps in proximity to necessary resources, but invisible from White civilization. Waterman's monograph is probably the best compilation of these early

reports on Yana history to be published. It was the basis for Theodora Kroeber's extensive biography of Ishi published four and a half decades later in 1961.

SUMMARY AND CONCLUSIONS

In the sixty-seven years considered in this paper--from 1850 to 1917--California ethnologists and archaeologists developed from non-professionals (travelers, settlers, government agents, journalists, etc.) who observed interesting aspects of native culture and collected unusual Indian artifacts, to trained professional anthropologists who spent years studying one culture or excavating and analyzing thoroughly one prehistoric site.

The reports from the 1850's and 1860's are concerned with the living native cultures. Most of the information of California native culture was recorded in the brief ethnological reports of the government agents and surveyors or the incidental observation of travelers and settlers.

With the coming of statehood in 1850 the United States Government sent out a number of surveying and exploring expeditions to determine the Indian/White relationship in certain areas of California. Some of these 'Indian officials' and government agents kept personal journals or notes concerning native life and culture that they encountered and observed. Most notable were the reports by Adam Johnston (1850, 1854, 1857) as the first Indian agent in California, E.M. Kern (1853), G. Derby (1850), and J.R. Browne (1861). An interesting aspect of most of these reports is the ethnocentrism which they illustrate in the attitudes on the part of the investigators and the government toward native culture. This ethnocentrism has not only an effect on the agent's recommendations of government Indian policy but affects the objectivity of the observation, consequently the reporting of native culture in some of these is suspect in showing bias and distortion.

Of the latter type of report in this early period, Alexander Taylor's Indianology of California (1860-1863) stands out as the most impressive. Most of Taylor's information was copied from earlier historical accounts, missionary reports, and miscellaneous newspaper articles of travelers accounts. Actually there is not much that is really original in Taylor's Indianology. What there is is important, but 95 percent of it is copied (often badly and with many errors) from works that are still available. The reader interested in California Indians in the 1860's may have found Taylor informative; today we could only call it amateurish. Hugo Reid (1852) was one important contributor (on the ethnology of the Gabrieliño) to Taylor's Indianology.

In the early period (1850's and 1860's) very little archaeological work was carried out. Some investigation of the shellmounds of the northern and southern coasts and in the inland bay regions took place at this time. The interest in shellmounds was probably partly stimulated by the unusual nature of the mounds (some researchers, e.g., Ransom 1853, compared them to the Mississippi moundbuilders and tried to figure out why the California Indians built them), and partly due to the availability of mound sites for exploration.

In the 1850's rock art studies consisted of occasional recordings by surveyors and travelers of the rock art they encountered. Not until the 1880's were pictographs and petroglyphs sought out and examined by professionals.

In terms of the ancient man research J.D. Whitney (1867) had addressed himself to the question of man's antiquity in the California auriferous gravels in the 1860's, but the problem was not settled until the work of W.H. Holmes in 1899.

It was not until the 1870's that professional archaeological investigation began with Stephen Bowers (1877), F.W. Putnam (1879) and Paul Schumacher (1874-1878). The archaeological research in southern California began under the work of Paul Schumacher. Schumacher's investigation of the Chumash area shellmounds in the Santa Barbara area for the Smithsonian Institution was for a long time the most extensive archaeological work on California Indians by one person. Other individuals, however, contributed a great deal to the prehistory of this area--for example Stephen Bowers (from 1877 to 1887) and Leon de Cessac (from 1877 to 1879).

In 1875 the George Wheeler, U.S. Geographical Survey (1879) aided by Putnam, carried out archaeology in the Santa Barbara area. This was the first real archaeology done in California.

The aims of archaeological research changed very little over the sixty-seven years considered here. The earliest work was concerned with two major subjects: the age, composition and formation of the shellmounds; and the problem of establishing man's antiquity, origin and migration to California. A.L. Kroeber (1909:1) wrote of these two main objectives of California archaeological research:

The archaeology of California, as of many other regions, is concerned primarily with two questions. The one deals with time and origins, the other with prehistory and culture. One problem is to determine the first existence of man in a given region, and to fix the time of this appearance absolutely, so far as such a term may be used in a geological sense. The other problem is to determine the various forms taken by civilization and their succession. It is therefore historical, and is concerned with the factors of time principally in its relative aspect.

The Wheeler Survey (1879) research and Schumacher's work in the 1870's was of the latter type--determining the character of aboriginal culture through collection and analysis of the archaeological remains. These efforts generally consisted of collecting expeditions. As scientific techniques were developed later in the field of archaeology, the excavation and analysis of the material became more thorough and informative. The observation of site stratigraphy took on importance, the ecological aspects of the site were recorded, associations were recorded in detail and analysis of artifacts was more thorough permitting chronological dating and leading to the determination of culture sequences. However, most of the early reports (like the Wheeler Survey) contained only brief descriptions of sites with some attempt to analyze and determine the method of manufacture and function of the objects collected as well as speculate on the culture and life style of the prehistoric inhabitants of these sites.

Large collections were built up through the archaeological work of the 1870's and 1880's. Many researchers addressed their attention to analyzing and comparing these collections to determine the manufacture, function and value of the collected antiquities. of this type of report those by Holmes (1883), Mason (1885, 1889), Putnam (1879), Yarrow (1879, 1880), and Yates (1896) are typical.

The beginning of professional ethnological research in California should be placed in the 1870's with the appearance of Stephen Powers' Tribes of California (1877). As the Wheeler Survey work of 1875 established the beginning of professional archaeological research in the southern California area, Powers' investigations mark the beginning of professional ethnological reporting in Northern California.

The ethnological research of the 1870's, 1880's, and 1890's was generally of one type--the brief ethnological report concerned with one or only a few aspects of native culture usually ceremonies and dances, monetary systems, oral tradition, basketry, tool manufacture, or ethnobotany. Among significant contributions of this type are those by Mason (1889) on the Hupa; B.B. Redding (1881a, 1881b, 1880) on Wintun food procurement and preparation, and tool manufacture; Ray (1886) on the Klamath and Hupa bow and arrow manufacture; Ingersoll (1883), Stearns (1889), and Hudson (1897) on monetary systems of the California Indian; Nelson (1891) and Dutcher (1893) on the Panamint Indians; Hudson (1893) on Pomo basketry; and Powers (1874c), Coville (1892), Chesnut (1902), and Barrows (1900) on ethnobotany. The San Nicolas woman was the subject of a number of articles, many of them not wholly accurate (such as E. Hardacre's, 1880). These are collected and reprinted in Heizer and Elsasser 1973. In the 1870's Powers (1874, 1875a) and Putnam (1879) dealt with the theories of the origin of the California Indian, his antiquity and migration in California. A few workers reported on conditions among the so-called "Mission Indians" of southern California (Ames 1873, and Loew 1876). No effort is made

here to cite the numerous reports by government agents and Indian welfare organizations on conditions among the Mission Indians of Southern California in this period. A fairly complete list of these reports can be found in Heizer, Nissen and Castillo (1975). And in line with the archaeological interest in determining the manufacture and function of prehistoric implements some researchers studied the techniques of stone tool manufacture still in use among living California Indians. Avery (1873), Waite (1874) and B.B. Redding (1879) provided ethnological evidence to support the theoretical evidence of the archaeologists for the soft hammer percussion, punch, and pressure techniques used by California Indians. However, probably the most significant work produced in the last half of the 19th Century was the systematic ethnological work in northern California by Stephen Powers (1877) and the ethnobotanical studies by Coville, Chesnut, and Barrows in the 1890's.

At the beginning of the 20th Century the University of California, Berkeley, initiated large-scale systematic anthropological research of the California Indians. A Department of Anthropology was established in 1901 at Berkeley to coordinate the archaeological and ethnological research carried out by University personnel. Under University direction shellmounds and cave sites were investigated by trained anthropologists using excavation techniques in part adapted from those used by paleontologists.

The early work in shellmounds had been concerned mainly with placing an age on the base occupation of these sites (one aspect of the preoccupation of the archaeologists at the time to establish the antiquity of man in California). But in the 1900's the archaeologists turned their attention from the attempt to determine the antiquity of shellmounds to establishing the sequence of cultural occupation and change through more careful and systematic shellmound excavation and analysis. Merriam and Uhle (Uhle 1907) and Nelson (1909, 1910) explored the shellmounds of the San Francisco Bay Area. Later Gifford (1916) and Loud (1918) initiated scientific methodology in shellmound excavation and midden analysis providing data that could determine cultural change in these sites. Yet, as the ethnologists had realized 20 years earlier, there was a lack of evidence to establish culture sequences in California prehistory and efforts were begun at collecting these data. Many sites were being destroyed through urban development and agriculture, a process which today has erased nearly all of the San Francisco Bay sites.

The antiquity of man in California was still a lively problem in the early 1900's, but the search for early man was abandoned in the gravels and shellmounds and taken up in the caves of California. Kroeber (1909:2-3) expressed his belief that the antiquity of man in California would probably be solved in the California caves:

Results of the investigations of gravels have so far been negative. The explorations of caves have yielded a rich Quaternary fauna and certain objects which have

the appearance of being of human manufacture... Altogether it may be said that the problem of the antiquity of man in California still awaits its answer. The work is incomplete, the results inconclusive but promising.

Sinclair (1904, 1908), Furlong (1904, 1906, 1907) and several U.C. Berkeley expeditions under J.C. Merriam (1906) and F.W. Putnam (1906) carried out research in northern California caves in the early 1900's.

The 1900's was the beginning of a florescence in California ethnological research. The first really full ethnological reports (extensive surveys of all major aspects of a native culture) appeared in the 1900's initiated by Goddard's (1903) monograph on the Hupa Indians, and soon followed by Dixon (1905, 1907) on the Maidu and Shasta, Kroeber (1902) on the Mohave, Barrett (1908) on the Pomo, Loud (1918) on the Wiyot, and Waterman (1918) on the Yurok.

Additional ethnological researches of this period were by Barrett (1908b) on the Miwok, C.G. DuBois (1901, 1902, 1904a, 1907, 1908) on mythology, O.T. Mason (1904), R.B. Dixon (1900a, 1902a), C.H. Merriam (1903), A.L. Kroeber (1905a, 1909a), and S.A. Barrett (1905, 1908c) on basketry, and A.L. Kroeber (1904b, 1908a) on culture classification.

By the 1910's a great deal of ethnological and archaeological data had been collected. Trained anthropologists (largely from the University of California, Berkeley) were directing their research to more complex problems dealing with culture classification and sequence while continuing to study the old problem of the antiquity of man in California and developing techniques for collecting with greater thoroughness the basic data. In 1913 Roland B. Dixon analyzed the state and aims of the archaeological research in the early 1900's and he proposed the future direction of California archaeological research. He pointed out the need and urgency to collect more data before the destruction of sites by White civilization, and he emphasized the need for problem-oriented research. Dixon called for more archaeological and ethnological cooperation in research: to use present ethnologies to both direct and aid archaeological research through analogy. A.L. Kroeber (1909:3-4) also expressed the possibility and need for cultural archaeological work:

That phase of archaeology which aims to unfold culture, and is therefore essentially historical, shows in California one fundamental feature which is usual in the archaeology of North America. The civilization revealed by it is in essentials the same as that found in the same region by the more recent explorer and settler. The material dealt with by archaeology and

ethnology is therefore the same, and the two branches of investigation move closely linked toward the same goal, differing only in their methods. The archaeologist's record being always imperfect, particularly in the case of unlettered peoples, his findings will be incomplete if not supplemented by ethnology. The ethnologist can obtain a more complete picture; but it is only momentary, a cross-section as it were; and if he wishes to give to his results historical reality, introduce the element of time, and consider the factor of development, he in turn is dependent upon the archaeologist.

The most significant work to be published in the 1900's which presented the results of both archaeological and ethnological research in determining California native cultural types, was Alfred L. Kroeber's Handbook of the Indians of California (1925). Kroeber's Handbook marks the climax of a period in which most of the major ethnological research contributing to the delineation of culture areas and culture "hearths" had been collected. Since then there have been no really major changes in linguistic or ethnological culture classifications, although gaps in the basic data have continued to be filled and some redefinition of concepts has contributed to the fuller record of the ethnological and archaeological research and knowledge of native culture in California.

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List of Abbreviations

AA	American Anthropologist
AJA	American Journal of Archaeology
AMNH	American Museum of Natural History
-B	Bulletin
AN	American Naturalist
ICA	Internaional Congress of Americanists
JAFL	Journal of American Folklore
JRAI	Journal Royal Anthropological Institute
SI	Smithsonian Institution
-AR	Annual Report
-BAE	Bureau of American Ethnology
-AR	Annual Report
-B	Bulletin
-R	Report
-CNAE	Contributions to North American Ethnology
-CK	Contributions to Knowledge
UC	University of California
-ARF	Archaeological Research Facility
-AS	Archaeological Survey
-R	Report
-PAAE	Publications in American Archaeology and Ethnology
US	United States
-GGS	Geological and Geographic Survey
-B	Bulletin
-GS	Geographical Survey
-WCM	West of the 100th Meridian

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