

**ASINAN: DOCUMENTING BOHOL'S TRADITIONAL METHOD
OF SALT PRODUCTION AND THE IMPORTANCE OF SALT
IN THE REGION'S EARLY ECONOMY**

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PHILIPPINE QUARTERLY OF CULTURE & SOCIETY
Vol. 35(2007): 24-47

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Early Salt Production in East and Southeast Asia

Salt was an important commodity in many of the world's early economies. It was widely produced, traded, used and consumed. Traditionally, salt was procured from a variety of sources including salt rock, brine springs and seawater. In areas rich in these resources, people developed ways to exploit them, and those without the natural resources found ways to obtain salt through trade.

In Asia, recent archaeological and historical research has shed some light on the social and economic role of salt over the past four thousand years. Archaeological evidence of salt production dates back to the third millennium BC in the Eastern Sichuan Basin, China where numerous archaeological sites have been identified with dense accumulations of potsherds believed to be linked to early salt production (von Falkenhausen 1999, Chen 2004, Flad 2004). In Japan, evidence of salt-production dates back to the Late Jomon Period (first millennium BC) from numerous coastal sites in Honshu (Imamura 1996, Kondo 1975). By the fourth century BC, Chinese historical records provide textual evidence of the importance of salt as a royal resource as well as a ritual good, and by the Han Dynasty (206 BC – AD 220) salt was a state controlled monopoly, and as such, was considered an important source of revenue for the Chinese im-

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perial government (Chen 2004: 25-93).

Much less is known about early salt production and trade in the Southeast Asian region. Research indicates that salt was an important commodity in many of the early political economies of the region, including the Philippines, Indonesia, Thailand and Vietnam (Steinberg 1985, Postma 1977, Reid 1988, Junker 2000, Hall 1999). The earliest archaeological evidence of salt-production in Southeast Asia is from northeastern Thailand (Higham 1989, 1996; Nitta 1986). Several prehistoric salt production sites have been identified in the Khorat Plateau, where unique geological conditions render the subsurface rich in salt. During the dry season, the salt rises to the surface, causing the soil to be highly saline. Radiocarbon dates obtained from charcoal excavated at the salt-making mounds of Non Tung Pie Pong and Bo Phan Kan yielded dates from the second century AD and fifth century BC respectively, demonstrating the antiquity of this commodity in northeast Thailand (Nitta 1986). Higham (1989, 1996) also identified what he believes is an early salt-production site at Non Dua, an early trade center in northeast Thailand. He noted the presence of a thick, coarse pottery in areas that contained pits, plaster surfaces, and rich charcoal deposits, all believed to be the by-products of a local salt-making industry. This settlement was built alongside a large rock-salt deposit, which is still used as a local source of salt, strongly suggesting that salt was one of the natural resources being processed, utilized, and integrated into the region's trade system at this settlement as early as 2,000 years ago.

Another early salt production site has recently been identified in Long An province in southern Vietnam. The site of Gò Ô Chùa is the first recorded prehistoric salt-making site in Vietnam and dates to the first millennium BC (Reinecke 2006). Recent excavations have recovered thousands of pedestals, which resemble pedestal types found at European salt-making sites of the same time period, as well as pottery. Salt is no longer produced in this region, but continues to be produced along the neighboring seacoast (Reinecke 2006, personal comm.). Continuing excavations should help clarify the relationships between the technological, cultural and economic significances of these salt-producing sites in Vietnam and the region over time.

Chinese administrative records make some of the earliest written references to salt for Southeast Asia. Li Cho, a ninth century Tang protector-general in Vietnam documented the importance of the lowland-highland trade in salt for the Red River Delta, and suggested that the po-

litical elite used their control of salt production and trade as a means to maintain political control in the region (Hall 1999:266). Likewise, Vietnamese tax records kept under the rule of Ly Cong Uan (1009-1028) in the Hong River plain noted the continual importance of this commerce into the eleventh century (Hall 1999: 140). And in Thailand, Chronicler Nagara Sri attributed the rise of the first coastal state on the Gulf of Thailand to the establishment of salt trade into the interior Thai kingdoms as early as the twelfth century AD (Reid 1988: 28-29).

By the eighteenth and nineteenth centuries, historical references to salt become more numerous. Historian David Joel Steinberg (1985) describes salt as one of the most important trade commodities among coastal and inland villages in Southeast Asia during this period. He describes how Javanese and Chinese merchants were known to distribute salt, Chinese tradewares, textiles and opium into the river valleys and highlands of Java. These goods would be bartered from one town to the next through a series of small town traders forming a far-reaching trade network. Salt was also exported to other islands; for example, from eastern Java salt was one of the major export items to Sulawesi, the Moluccas and Sumatra; and the Gulf of Siam was known to supply salt throughout areas of Thailand and the Malay Peninsula (Steinberg 1985, Reid 1988: 28-29).

The journals of Spanish explorers and friars make some of the earliest written references to salt in the Philippines. In 1582, Miguel Loarca documented the importance of the lowland-highland trade in the islands and noted that in the Visayas (Central Philippines), "the inhabitants of the mountains cannot live without the fish, salt and other articles of food, and the jars and dishes, of other districts; nor, on the other hand, can those of the coast live without the rice and cotton of the mountaineers" (Loarca 1979: 121). This is further confirmed in Father Alcina's 1668 *Historia de las islas e indios de Bisayas*, where he describes the various salt-making methods in the region and the importance of this commodity throughout the Visayan Islands during that time (Alcina 2004). In fact, historical research has shown that salt derived from seawater was "such an essential item of trade it served as a medium of exchange," with a 5- to 6- cm² piece of salt being equivalent to three liters of rice (Scott 1994: 72).

Likewise, Schlegel's ethnohistorical research (Schlegel 1979) on the upland-lowland economies of the Tiruray and Magindanao in Mindanao revealed the intricacies and extent of trade networks for goods such as salt. He notes that the Tiruray were dependent on the lowland Magindanao polity for critical household goods such as salt, earthenware pots,

metal tools and textiles. In exchange, the Magindanao would barter these coastal goods for forest products such as beeswax, rattan and sap, which would be further traded down the coast to the maritime port of Cotabato for foreign goods such as Chinese porcelains and silks. An extensive trade network was established among these communities for the acquisition of needed goods.

Today, salt is still an important commodity, but it is primarily purchased commercially rather than traditionally made. However, in Bohol Province, a handful of families continue a local tradition of making salt from seawater, providing us with a valuable ethnoarcheological source of information on this traditional technology and its role in the local economy in the recent past.

Salt-Making in Bohol Prehistory and History

Bohol (**Figure 1**) is the tenth largest island in the Philippines with a landmass of 4,117 square kilometers. It is located in the southern part of the central group of islands collectively known as the Visayas, with the island of Cebu to the northwest, Leyte to the northeast, and Mindanao to the south.

Today, the economy of Bohol is primarily dependent on agriculture and some light industry. Agricultural production is concentrated in northern and central parts of the island where there are rich rice farming plateaus. Much of the rest of the island is unsuitable for agriculture due in part to deforestation and erosion. As a result, the communities in these areas rely on fishing, a number of small cottage industries, and tourism.

Very little is known about the early economy of Bohol. The earliest historical references to the Philippines are Chinese trade and tributary records, but they are silent on the politics and economies of the Visayas. The journals and missionary records of sixteenth century Spanish explorers and friars are the earliest documents with descriptions of the people and products of the Visayan Islands. Of these, the earliest known reference to Bohol was Miguel Lopez de Legazpi's account of his stop-over on the island in 1565. He documented in his journals that his crew anchored a boat in a shallow bay near a fresh-water river and a small port and village that is believed to be the present day town of Loay (Filipiniana Book Guild Editorial Board 1965: 61-62, Scott 1994). At this port, Legazpi noted numerous boats arriving from other islands with barter goods such as fish, wax, goat meat, rice, yams and bananas. Bornean traders were also

mentioned in his journals. He documented that his men overtook a Bornean vessel that contained an abundance of blankets and cloths of cotton and silk, as well as iron, tin, sulfur, porcelain and some gold (Legazpi 1565: 97-99). Other early Spanish accounts are less specific but discuss a lively trade in basic foodstuffs and import goods such as iron and porcelains throughout Visayan coastal ports, and mention that Bohol was rich in gold, game, fish, rice, sugar-cane, palms and other food products (Chirino 1604: 300-301).

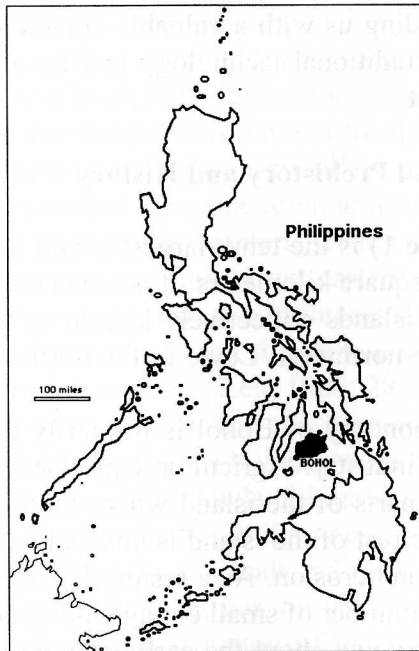


Figure 1. The location of Bohol.

Archaeological sites along the southern coastal areas from Tagbilaran City to Loay provide evidence that these early communities were involved in long-distance trade during the Metal Age (500 BC-960 AD). A recently discovered Metal Age burial site in District Ubujan, Tagbilaran City contained many foreign and local trade goods such as earthenwares, glass beads and iron tools (Yankowski 2005). To date, there is no evidence of iron smelting or glass bead production in the Philippines during this time period, indicating that these items were imported from other areas of Southeast Asia or beyond. Furthermore, analysis of the earthenware ves-

sels has indicated that there was a well-developed and widespread pottery industry and/or pottery distribution network in Bohol during the Metal Age. An extensive variety of forms, decorative styles and raw materials suggests that the pots were being manufactured in various locations and obtained through trade. Similar vessel forms, decorative techniques and design elements are found in other Metal Age burial sites throughout the Visayan Islands as well, supporting the theory that an inter-island trade network was well established by this time.

During the Protohistoric Period (960 AD-1521 AD) international trade increased significantly throughout the Philippine Islands. Large quantities of Thai Sawankhalok wares and Chinese tradewares dating to the Sung, Yuan and Ming periods (960 AD – 1644 AD) have been recovered in Bohol. In the 1920s, anthropologist Carl E. Guthe excavated a burial cave in Barangay Sukgang, Loay, Bohol and noted the presence of a wide variety of trade goods including fragments of glazed and unglazed stonewares, celadons, blue and white wares, black and white wares, iron tools and glass beads (Beyer 1947: 278). Likewise, in the 1940s, H. Otis Beyer reported a number of Protohistoric sites (middens, land-burials and cave-burials) on the southern coast of Bohol, in the salt-producing region extending from the modern-day city of Tagbilaran to the town of Dimiao (Beyer 1947: 276-280).

Ethnographic research has also documented a lively inter-island trade in earthenwares and food products in the early to mid-twentieth century in the region. Recent interviews with some of the elder members of the southern communities in Bohol have revealed many facets of this trade. Mrs. Salome Ramos, a native of Alburquerque, Bohol recalled that when she was a child, her grandfather would make yearly trips to Surigao, Mindanao to trade goods from Bohol, including salt. Members of her family subsequently settled in Surigao, further strengthening the trade ties. And Mr. Idak Jipos, a resident salt-maker from the town of Alburquerque, remarked that he still makes regular trips to Mindanao to sell native products such as brooms and mats, and occasionally takes salt to trade for *kanamay* (unmilled rice).

Research on neighboring islands has also contributed to our knowledge about Bohol's early economy. A recent ethnographic study among pottery traders from Maripipi, Leyte documented that in the mid-twentieth century, Boholanos were trading earthenware pots, wood chairs and shrimp paste along the northern coastal ports of Mindanao (Ushijima and de la Peña 1996). In this same study, a Maripipi pottery

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trader indicated that some of his regular buyers in the cities of Dapitan and Butuan were recent settlers and traders from Bohol. Other research has revealed that in the 1960s, Boholanos were selling food products including salt, dried and salted fish and fish paste with communities in northern and eastern Mindanao (Cembrano 1998: 35).

Lastly, municipal town records from the American colonial period (1898-1946) have provided some interesting information on the history of *asinan* (salt-making) in the southern coastal towns of Bohol. Town records from Loay report that during the American occupation of the Philippines, the Americans changed the name of one of the coastal barangays from Lahug to Las Salinas due to the prevalence of salt production in the town (Municipality of Loay 1990). Similarly, in the town of Valencia it is reported that a barangay was formerly named Asinan because many of the people living there were engaged in making salt (Municipality of Valencia 1990).

Seawater into Salt

In general, seawater contains only about 3.7 percent minerals of which 2.9 percent is sodium chloride (Hopkinson 1995: 4). Percentage-wise, this is much less concentrated than other sources (i.e., brine springs and rock salt), and therefore requires more processing to evaporate the water and obtain the salt. However, it is an abundant natural resource that is available to all coastal populations. Interestingly, various methods have developed in different regions for processing seawater into a consumable and saleable product. These differences can be attributed to environmental factors such as weather, resources, and landscapes, as well as distinct cultural traditions.

The simplest method of extracting salt from seawater is through natural evaporation by the sun. This process is most successfully carried out in climates that have extended dry periods. For example, along the northeastern coast of Java and around the Gulf of Siam large quantities of salt were traditionally made in this way. Historical records describe salt-pans as being overtly visible along these coastal areas during the dry season (Reid 1988: 28-29).

Other areas are known to use a more labor-intensive method for processing seawater into salt, preferring to concentrate it before allowing

it to naturally evaporate in the sun. A 1993 ethnographic study in Iloilo, Panay, Central Philippines, documented this method (Yano 1994). During the warm dry season, from January to May, the region's fishermen traditionally utilize their fishponds as salt beds. The process is referred to locally as *budbud* ("to sprinkle") because a plot of fine sand is sprinkled with seawater for seven days until it becomes concentrated with salt. The sand is then filtered and the resulting concentrated water is placed inside long bamboo poles that are cut in half vertically and laid out so that the water is exposed to the sun. Within two days, the water evaporates producing salt in a crystalline form. It is reported that twenty years ago, the shores of Iloilo were lined with salt makers during the fishermen's off-season, but as of 1993, only a few families were still producing salt using this traditional method.

In other areas, a multi-step process is used which requires an initial soaking, firing and filtering process to produce a concentrated brine, which is then reduced to crystalline salt by heat-induced evaporation. Amongst the Mangyan of Mindoro, Philippines, salt is produced several times a year along the coast using this method (Postma 1977). Although the Mangyan are now mountain dwellers, they learned this process from their ancestors who lived along the seashore before other migrants settled there and forced them inland. With this method, seawater is collected in bamboo water containers and slowly poured over a large fire until all that is left are the ashes and coals of the wood. These ashes and coals contain concentrated salt, which is pulverized and filtered in a basket that acts as a sieve. Additional seawater is poured into the basket to help produce the brine, and then the brine is poured into a tree-bark container and slowly boiled over a fire. All in all, this brine is washed and boiled five times to assure that all the salt-concentrate is fully extracted (Postma 1977).

Along the southern coast of Bohol the process is similar, but a little more complex. Once again the process involves soaking, firing, filtering and boiling, but the methods and traditions are again unique to the region and local environment. There are two distinct methods of *asinan* (salt-making), each of which is described below.

The largest community of current salt makers in Bohol resides in the barangay of Santa Filomena, Alburquerque town. Ethnographic and archaeological evidence suggests that this was the most active area of salt production in the past as well.

The process of making salt, as studied in Santa Filomena, involves many steps and includes all able-bodied members of a nuclear family. The

first step involves constructing a *paril* (salt-bed) for soaking coconut husks. *Paril* (Figure 2) are small coral-lined pits that are constructed among the coastal mangroves, where the seawater is able to reach them during high tide, but which are also protected from the strong coastal tides. Today, the average-sized *paril* measures approximately 7.2 x 6.7 meters wide, and .5 to 1 meter deep. *Paril* are family-owned, and once built, require only minimal cleaning and maintenance each season.



Figure 2. Salt beds and huts in barrio Santa Filomena, Alburquerque, Bohol.

Once the *paril* are prepared, coconut husks and wood are collected as absorbing agents for the salt, and fuel for the fire. Today, the residents of Santa Filomena generally gather the wood and coconut husks from along the Tagbuane River where the trees are more plentiful. Bamboo rafts are used as the primary means of transporting the wood and husks. The rafts are navigated along the coast from Santa Filomena and up the mouth of the river (approximately 2 km) and back through the mangroves to the *paril*.

The coconut husks are brought back to the family's *paril* and allowed to soak for up to 6 months to absorb the sea's minerals. During the soaking process, the rest of the necessary equipment is prepared, or repaired if used during the previous season. First a *kamalig* (hut) is built (see

Figure 2). A *kamalig* is a simple, rectangular, open-air structure that shields the equipment and salt-makers from the rain and sun during the cooking process. Other equipment that needs to be prepared ahead of time includes: *sagsag* (funnels) which are made of nipa, buri palm and vine (**Figure 3**); *pasong* (containers for the brine), which are carved from coconut wood; and a *laga-an* (stove) which is constructed from hardened ashes. The salt-makers must also purchase *kon* (earthenware pots) for cooking the salt (**Figure 4**) and a *buwayanan* (pan) to hold the brine. *Buwayanan* were formerly made of baked clay, but today they use pans made of galvanized iron.



Figure 3. Funnels used to make the salt brine.



Figure 4. Earthenware pots used to cook the salt.

Coconut and bamboo are essential for constructing the various materials used in all phases of *laga-an* (the complete process of making salt). For example, the base of the coconut palm is used to make the *pasong* (container to hold the brine); the wood from the trunk of the tree is used for the fire; the *lukay* (leaves) and *butay* (hard part of the coconut that covers the flower) are used to ignite the fire; and the *bunot* (husks) are used to absorb the salt from the seawater (**Figure 5**). Likewise, bamboo is used to construct the *gakit* (raft used to transport the materials) and the *kamalig* (hut).

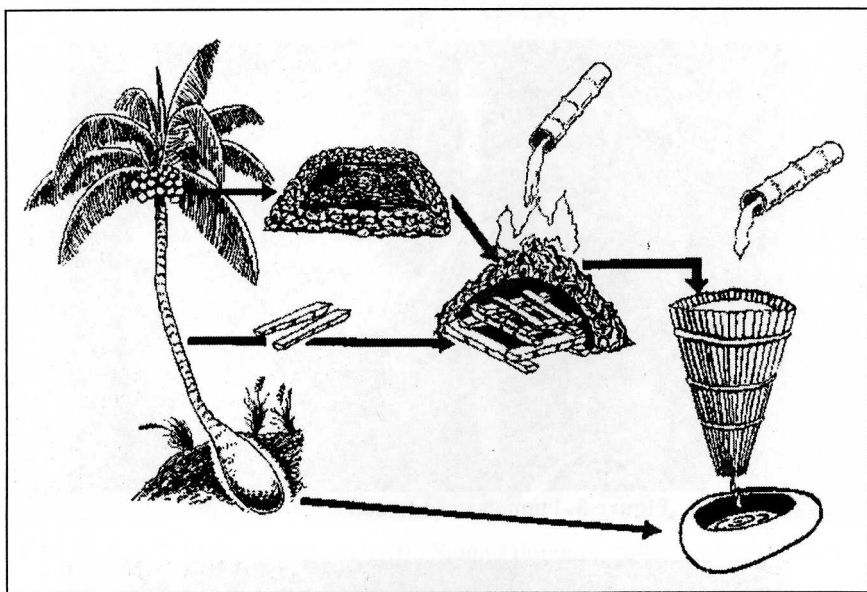


Figure 5. The coconut palm and its uses in salt production (by J. Alipala).

The husks are left to soak in the *paril* for 2-6 months. They are then gathered and chopped into small pieces and allowed to dry in the sun. This takes one to four days, depending on the weather. While the husks are drying, an area in the center of the hut is flattened and smoothed in preparation for the fire, and a small *kamada* (wooden structure) is built for the base of the fire.

The fire is usually started early in the morning and lasts throughout the next night and into the next day. At least two people are needed to stay up throughout the night to watch the fire. The following day, when all of

the coconut husks have been reduced to ashes, the ashes are collected and slowly poured through a filter with additional saltwater, and the *tinulo* (brine) is collected in the wooden containers.

The final step is to cook the brine until it boils down to a solid form. Earthenware pots are arranged on a stove supported with small stones. The fire is started and the brine is slowly poured into the individual pots. Once again, at least two people are needed to attend to the cooking and refilling of the pots as the brine boils down to *ingle* (solid salt). This process usually starts early in the morning and lasts throughout the afternoon. The pots are then left overnight to cool. On the following day the pots are tied together in bunches of four with buri palm leaves and are ready to be bartered or sold. An average-sized batch will yield approximately 100-124 pots. This process is repeated up to three times a year to coincide with the rice-harvesting seasons.

A similar process is used throughout most of the southern salt producing towns of Bohol (see **Figure 6**), but there are some slight regional differences between the western and eastern towns. These differences can be attributed to a combination of environmental factors, and either divergent or locally developed traditions. For example, the towns located along

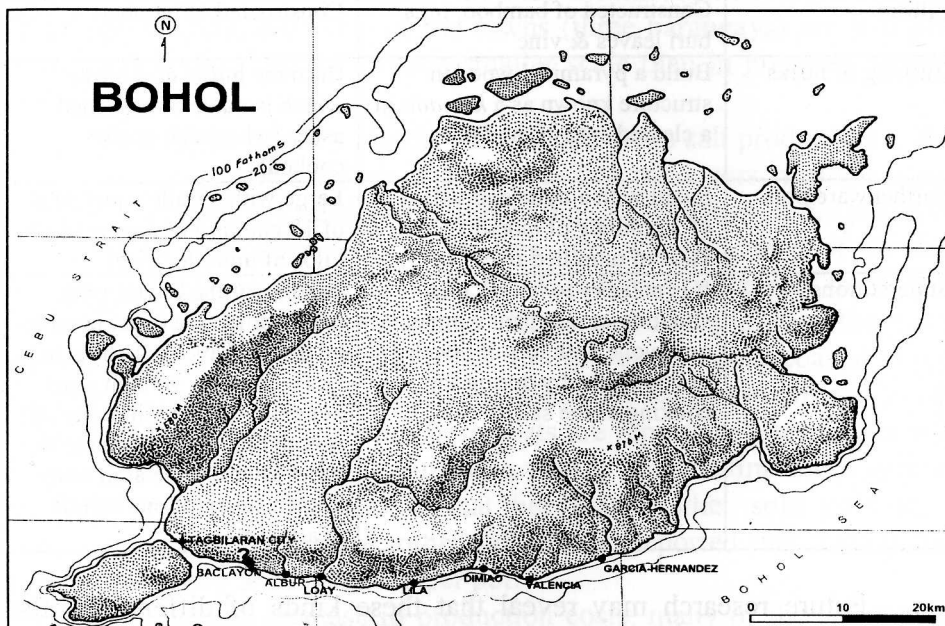


Figure 6. Towns with evidence of salt-production situated east of Tagbilaran City (modified after Santiago n.d.).

mangrove coastal areas use *paril* (salt-beds), while the towns located along the open coast soak the husks in the open, shallow coastal waters, covering them with large coral stones so that the husks are not washed away. In some of the eastern towns, the salt-makers also use *samo* (sea-weed) and *pagong* (the stalks of nipa palm), instead of coconut husks, to soak up seawater because they are readily and cheaply available in the area. This is more economical but is said to produce a slightly more bitter-tasting salt.

Other distinct differences are noted between these two regions, suggesting that the methods developed side-by-side, but independently, over an extended period of time. For example, the filters are constructed of different materials, the earthenware cooking pots are of different sizes, there are different methods of burning the coconut husks, and different superstitions regarding the cooking process. A few examples are found in **Table 1**.

Table 1. Some differences in salt-making between the eastern and western salt-producing coastal towns of southern Bohol.

	Western towns	Eastern towns
Filters	Constructed of bamboo, nipa buri leaves & vine	Constructed of bamboo
Burning of husks	Build a pyramidal wooden structure known as a <i>kamada</i> in a cleared area of the hut.	Burn the husks on a stove which is made of hardened ashes (where salt is also cooked).
Earthenware pots	Small with a trade equivalent of 3 <i>gantang</i> of <i>humay</i> (7.8 kilos of unmilled rice)	Large with a trade equivalent of 18 <i>gantang</i> of <i>humay</i> (46.8 kilos of unmilled rice)
Superstitions	It is unlucky to have a menstruating or pregnant woman, or anyone with lots of jewelry or coins, nearby during the cooking of the salt.	In some of the towns, pregnant women are considered to be lucky (Tayong, Loay); In G. Hernandez, women must not enter the hut while the salt is cooking; and in some of the other towns, there aren't any known superstitious beliefs (Taug, Lila).

Future research may reveal that these kinds of differences also carry over into other traditional forms of technology and material culture in the region.

The Economics of Salt Production in Bohol Today

Local salt production in Bohol is likely to soon be extinct. It is a tradition that has been passed on from generation to generation, but due to the intensive amount of labor and small economic return, the children of today's salt-makers are no longer interested in carrying on this specialized economic activity. Many of the older salt-makers express the same sentiments, and most have taken an early retirement from the trade.

Recent ethnographic interviews and coastal surveys have revealed that salt production was flourishing along the southern coast of Bohol into the early to mid twentieth century (see **Table 2**). The mangrove-lined coast of Alburquerque is covered with clusters of both active and abandoned salt-beds and huts. These areas contain as few as three to as many as over forty salt-beds each. Within the vicinity of the abandoned huts it is also common to find numerous potsherds, and the remains of stoves and filters, further confirming the prevalence of this activity in the past.

Research has revealed that in the recent past, production covered approximately 40 coastal kilometers from as far west as Bahi, Alburquerque to as far east as the town of Garcia-Hernandez. Today, of the six southern towns (fifteen barangays) that are identified as having a tradition of salt production, only two of the towns (three barangays) are still producing salt today, and on a much smaller scale than in previous generations.

One of the primary reasons for the decline in salt production is that it is now less profitable than in the past. The producers must purchase many of the materials needed to produce the salt, whereas in the past they could get them inexpensively or for free. For example, most of the salt-makers must buy wood and coconut husks, whereas in the past their families owned land with coconut palms. They must also purchase the earthenware pots used for cooking the salt. In the western south-coastal towns, the pots currently cost 3 pesos each, while in the eastern towns the larger-sized pots cost 10 pesos each. These costs are reported to have risen substantially. A potter from Alburquerque who is still making these specialized salt-cooking pots recalled that her grandmother sold pots for 4 centavos each; and likewise, other salt-makers reported that their grandparents paid only 5-10 centavos per pot.

Due to this increase in production costs, many of the salt-makers now must barter their products or labor to obtain the items they need to produce the salt. It is common for them to receive the wood, husks and

Table 2. Towns and barangays currently and/or formerly producing salt in Bohol. Data was collected in 2000 and are estimates based on ethnographic interviews (lists of names of present/past salt-makers) as well as ethnoarchaeological surveys of the number of *paril* (salt-beds)/huts along the coast.

Town	Barangay	Sitio	Total # of paril/families	Total # of currently active paril/families
Date of last Production: 1980s				
Baclayon*	Laya		2 parils/1 family	
Alburquerque	Bahi		3 parils/1 family	
Alburquerque	San Agustin		10 parils/7 families	
Alburquerque	Western Poblacion		6 parils	
Alburquerque	Eastern Poblacion		17 parils	
Alburquerque	Santa Filomena	Kaintsikan	7 parils	
	Santa Filomena	Lublub	15 parils	6 parils/5 families
	Santa Filomena	Puntod	40 parils	2 parils
	Santa Filomena	W. Puntod	3 parils	
	Santa Filomena	Kanipaan	8 parils	
Alburquerque	Tagbuane		3 parils	
Loay	Alegria		Active/#?	
Loay	Tayong		15 families	5 huts/5 families
Loay	Las Salinas Sur		9 families	
Date of last Production: 1970s				
Loay	Sagnap		2 parils/1 family	
Lila	Taug		1 family	
Dimiao	Tangohay		1 family	
Date of last production: 1930s				
Valencia	Candua		3 families	
Valencia	Canmanico		1 family	
Garcia-Hernandez	Balitbiton		1 family	
Garcia-Hernandez	-unknown-		1 family	

*There was a salt maker from Alburquerque who moved to Baclayon and constructed what may have been two salt-beds on his property; however, the current owners of the property cannot confirm the purpose of the stone enclosures or if the former owner produced salt at this location.

pots in advance in exchange for salt after it is produced. Some of the salt-makers also have an arrangement with the copra producers to unhusk their coconuts in exchange for keeping the husks. This allows them to obtain the needed husks for free, but adds significantly to their total labor expenditure.

A further expense is incurred for transporting the salt to the markets that are located in the interior parts of the island. The transportation fees are currently about 15 pesos per sack of salt. Some producers use middlemen to distribute their products, but this can cost them up to ½ of their traded goods. When possible, they prefer to arrange for the rice-

producers to come directly to them, thus eliminating the extra transportation expenses.

More importantly, the presence of relatively inexpensive commercial salt has diminished the demand for the local salt. In the 1960s one pot of native salt was equivalent to 4 *gantang* (1 *gantang* = 2.6 kilos) of *humay* (unmilled rice), but today the saltmakers are receiving only 3 *gantang* per pot. The declining economies of production have quickly reduced the number of salt-producers.

Although production is now on a much more limited scale, salt continues to function as a form of economic specialization and a trade good between coastal and interior populations. All the salt makers interviewed stated that traditionally, as well as today, their salt is primarily bartered inland for *humay* (unmilled rice). Their production occurs two to three times a year to coincide with the rice-harvesting seasons, and during the rest of the year these families engage in other forms of economic livelihood, mostly fishing. Some indicate that their salt was formerly traded for other food products such as corn, yams, and bananas.

The coastal salt-producing areas are and have been known throughout the island for the superior quality of taste of their salted fish. It is not uncommon for those from the interior to inquire of a visitor from the southern coast about obtaining salted fish. Today, however, commercial salt is generally preferred because it is less expensive. Local salt is used only for special purposes, such as the seasoning of *lugaw* (rice porridge), or it is fed to cattle and carabao to prevent *hila-hila* (lice) as well as to encourage them to drink water after plowing the fields.

Salt production and trade in the past spurred the development of a specialized pottery industry to supply the salt-makers with pots. Only a handful of potters specialize today in making *kon* (salt pots), and do so only during the salt-making season. The pots are generally formed by coiling and then shaped with a paddle and anvil and wet cloth to be uniform in shape and size, allowing the pot to act as a standardized trade equivalent. Women are typically the potters, and the skill is passed along from mother to daughter.

There are currently only four potters who specialize in making the pots used in the western towns, and only three of them are actively making them. They are all over 65 years old and reside in the villages of Sante Fe and Eastern Poblacion, Albuquerque, where clay deposits are readily available. One of the potters owns her own clay deposit, but the others buy their clay from her for 10 pesos per sack. During the off-season, they typi-

cally engage in making other earthenware products, such as flower pots, jars and stoves. Fortuna "Totang" Saluague, one of the few remaining potters in Albuquerque, claims that when she was a child the saltmakers used to each purchase up to 600 pots per season, but today they typically purchase only 100-200 pots. The decline of this pottery industry clearly reflects the corresponding decline in salt production in the region.

The potters for the eastern towns all currently reside in Valencia. There are only six of them, and they are all elderly. Three of them stopped making pots prior to 1998, two of them stopped in 1999, and only one (Uring Lagrada) is still active. Lagrada says that she will probably also quit soon, as the money that she makes from her pots is "not enough." She says she may choose to go to Manila with her daughter instead. The potters in Valencia use a mixture of two types of clay, 1 sack of *bonbonon* (sandy clay) and one sack of *hawot* (pure clay). The potting technique is similar to the western towns except that they form the clay into a solid round or cylindrical shape and then bore a hole in the middle, rather than coiling and gradually shaping the pots with a paddle and anvil and wet cloth. One of the primary reasons that the potters have stopped their trade in Valencia is that the number of orders has dwindled. According to Lagrada, her last order was for only twenty pots.

Salt production and its related industries are quickly diminishing. Both the demand and supply of these products are dependent on the current producers, who are now age 60 or older. The younger generation is not interested in pursuing this economic livelihood; in fact, most of them are not even familiar with this product or tradition. Traditional salt is no longer sold in the city markets, and is rarely even sold in the local markets in the towns where it is made. As a result, knowledge about this industry is slowly disappearing.

Discussion and Conclusions

Archaeologists have only recently begun to recognize the economic and cultural significance of salt in the early political economy of Southeast Asia. This is likely due to the fact that salt is a highly perishable good, leaving little or no direct evidence in the archaeological record. However, by using a holistic approach that combines ethnographic, archaeological and historic research, we can learn more about salt, and other traditional commodities, crafts, and technologies within a cultural-historical context, as well as test some important methodological and theo-

retical questions, which are of significance to archaeological research cross-culturally.

One of the primary goals of this study has been to document Bohol's salt production industry, including the specific technologies and traditions surrounding it, while it still exists. By studying the specific technologies involved in salt production, and by surveying recently abandoned salt-production sites, it was possible to identify some material correlates of salt-production and evidence of site formation processes. Material remains surveyed at recently abandoned production sites included dense accumulations of ash and pottery sherds, and coral stone enclosures. This suggests that we may be able to identify similar material remains in the archaeological record, as well. Furthermore, by combining ethnoarchaeological surveys with ethnographic interviews, it was possible to determine the extent of salt production in Bohol in the recent past, as well as learn about the specific technologies and family histories of salt-making in the region; and the historic research provided time-depth on this tradition, as well as a broader perspective on the importance of salt in the Southeast Asian region as a whole.

More broadly, archaeological and historic research shows that salt was a kind of "economic specialization" in various communities of Southeast Asia since as early as the first millennium BC. Much has been written in the archaeological literature about the relationship of economic specialization and trade to the development of complex societies in Southeast Asia (Bronson 1977, Junker 1990, Junker 2000, Morrison 2002). These studies have emphasized the fact that trade centers often developed in relation to key cultural and ecological zones, for example the highland and lowland areas, where local resources could be easily exploited and traded for other goods as needed. This symbiotic trade relationship and settlement pattern is particularly noted along the major rivers of the region, and has significant time-depth.

This highland-lowland trade pattern is seen in Bohol where salt and salted products are regularly traded inland for rice. This is important because it provides a model for archaeologists working in the region. It is often difficult for archaeologists to physically locate early political and economic centers due to the lack of hierarchy and permanence of settlements (Bronson 1977, O'Reilly 2001, Crumley 1995). Therefore, by gaining a better understanding of local resources and technologies, we may be able to better interpret the early geocultural and sociopolitical landscape.

Anthropological research has also suggested that as political economies become more complex, there is a trend towards more product specialization and technological homogenization. This has been supported by a number of ethnoarchaeological research projects, many of which have focused on pottery (Rice 1981, 1987; Longacre *et al.* 1988; Longacre and Stark 1992; Longacre 1999; London 1991, 1999; Costin 1991). In Bohol, both the production of salt and the salt pots are specialized industries. Standard production methods are used to maintain product consistency, which in turn facilitates trade. Yet, at the same time, there are some regional differences in the production methods, suggesting either divergent or possibly independent traditions. These differences may also reflect the desire of individual communities to maintain social boundaries and/or their own cultural traditions, as has been noted in other ethnoarchaeological research projects that have studied the relationship between technical choices and social behavior (Longacre 1999; Stark 1991, 1999; Stark *et al.* 2000).

There is still much to be learned about salt and other specialized commodities in the early economies of Southeast Asia. This paper has provided a basic framework for research by examining salt production and distribution on both a local and regional level. However, more archaeological research is needed to establish the time-depth of particular technologies and traditions by region, and more comparative studies are needed in order to explore the range and diversity of traditions. Lastly, it is hoped that future studies will also embrace more ethnoarchaeological methods for their value as analytical tools to learn about the past.

Acknowledgements

This research was made possible with financial and institutional support from the U.S. Fulbright program, San Francisco State University and the Bohol Provincial Library/Museum. A few individuals to whom I owe special gratitude are: Mrs. Salome Ramos, former Provincial Librarian/Museum Curator, Bohol, for her support of my research; Mr. Joselito Alipala, Researcher, Bohol Museum for his invaluable assistance with the interviews and surveys; and the salt-makers in Bohol for sharing with me their stories and information about *asinan*. Daghan salamat!

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