12. APPENDICES

APPENDIX 1 -- PROJECT SUMMARY [published separately as a small booklet "Archaeological Discovery on Chek Lap Kok"]

INTRODUCTION

In September 1989, the then Governor of Hong Kong, Sir David Wilson, announced that the site chosen for Hong Kong's new airport was the island of Chek Lap Kok. Construction work would require the complete levelling of the island.

Local archaeologists had known for many years of sites on Chek Lap Kok. When the possibility of building a new airport there was first discussed in 1979, the Hong Kong Archaeological Society began a series of excavations on the sand bar site at Sham Wan Tsuen. This work yielded evidence of occupation during the late Tang dynasty (8th to 10th centuries A.D.) and also during the Neolithic period (approximately 4000-1500 B.C.).

After the final decision was made to proceed with the new airport,the Hong Kong Archaeological Society was commissioned to organize a major archaeological "salvage" project, with funds provided by the Royal Hong Kong Jockey Club. A 16-month study of the history and archaeology of the island was carried out, including 10 months of field survey and excavation. After the fieldwork phase, analysis of the excavated materials was conducted, and research was carried out on the island's history and on previous archaeological discoveries there.

The first archaeologist to visit the island was Mr. Walter Schofield, a civil servant, who in 1931 made the first discovery of a prehistoric artifact on the island -- a polished stone adze belonging to the Neolithic period. Additional Neolithic stone and pottery artifacts were found during the 1950's by members of the University Archaeological Team, the predecessor of the Hong Kong Archaeological Society.

It was only in 1979-80, however, that the archaeological richness of the island began to be seen. The first season of excavation at Sham Wan Tsuen revealed a Tang dynasty site of major importance, with a large quantity and variety of ceramics, and numerous coins. Another Tang site was discovered at Fu Tei Wan, and what seemed to be a rich Neolithic site was discovered at Kwo Lo Wan.

When the major salvage project started in 1990, the first task was to conduct a survey of the entire island, searching for new sites and recording graves, old buildings and abandoned field systems. This survey identified six sites requiring major excavation, and several minor sites where some test excavation would be needed. Interviews with villagers were also conducted, and information on the recent history of the island was gathered.

THE ISLAND AND ITS HISTORY

Chek Lap Kok is a small, rather hilly island off the north coast of Lantau. There is one major geological feature -- a north-south fault that has created valleys at Fu Tei Wan and Sham Wan Tsuen. In the 1905 New Territories Survey of Land Use, both valleys had extensive rice fields, and the cultivation of rice continued, as in the rest of Hong Kong, until the 1970's. Smaller areas of cultivation were noted in 1905 at Cheung Sha Lan, Kwo Lo Wan, and near the Tin Hau Temple at A Ma Wan. It is not known when the first cultivation of rice occurred, but the extensive irrigated field systems are probably not earlier than the 18th and 19th centuries.

The first mention of the island is from the 16th century, when it was known as "Chek Lap Chau". This name apparently comes from the red tripletail ("chek lap") fish. It is not clear whether it is the shape of the island or the abundance of the red tripletail in the nearby waters that inspired the name. Another explanation of the name comes from the profile of the island, said to resemble the female form; the relevant Cantonese expression is "da chek lak" (to be naked).

The next historical mention of the island occurs in an 1809 account of a battle between the Ching dynasty navy and pirates led by Cheung Po Tsai. The battle was a defeat for the pirates, and the infamous Cheung surrendered the following year.

A few years later, in 1823, a temple dedicated to the goddess Tin Hau was built; it was made entirely of quarried granite slabs. The inscription over the entrance records the names of two quarry companies as the donors. In 1990, the temple was dismantled; there are plans to reconstruct it in Tung Chung.

Quarrying granite probably began on Chek Lap Kok around 1800, and continued into the 1950's, mainly at the northern end of the island. Much of the northern coastline was disfigured by large quarrying scars where the coastal rock had been cut back. At the beginning of the 20th century the granite quarrying was a major industry at Sham Wan Tsuen, employing Hakka workers living in temporary huts.

The greatest resident population on the island was probably reached in the 1960's, when refugees from China were settled there by a church organization. With the demise of rice cultivation in the early 1970's, a decline in population set in, and by 1990 only 20-30 families remained.

SHAM WAN TSUEN

This site is on a low sand mound now standing in the middle of the valley. In former times it was probably a sand bar behind the beach. During the 8th-10th centuries A.D., at least 12 large kilns were built there for the manufacture of lime (by burning shells and coral).

There are many similar sites of this Tang dynasty lime industry in Hong Kong, but Sham Wan Tsuen was especially rich in pottery and coins. A cache of around 300 coins was discovered, most of them being "kai yuan tung pao" -- the most common coin of the Tang period. Several other coins were datable to 846 A.D., indicating that the cache was probably buried shortly after that date.

The pottery includes many types of bowls and vessels in use during the late Tang era. A study of the material indicated that most of the pottery came from Tang kilns in the Guangdong area, but some of the finer ware was made at Changsha, in Hunan province. From this data, together with the coins and a single carbon-14 date of around 800 A.D., the lime industry can be accurately dated to the Tang dynasty.

The kilns at Sham Wan Tsuen also provided valuable information about how the shells and coral were fired, and how the lime was processed. It now seems likely that the kilns did not have domes, as once believed, but were simply open-toped receptacles for the lime produced by a large open firing of the shell and coral. Two large structures believed to be slaking pits were also revealed during the excavation.

The kiln industry was probably abandoned around 900-950 A.D. About two centuries later, the site was used as a burial ground. Several fine examples of Sung dynasty pottery were discovered, along with a small cache of 14 coins belonging to the Northern Sung period (the latest coin in the cache dating to 1101 A.D.). One large jar

contained cremated human remains from one individual of unknown sex aged about 17 years.

Another archaeological site was found across the stream from the sand bar. Here again, evidence of the Tang lime industry was found, including another kiln. However, no evidence of a village area or living quarters for the kiln-workers was found.

This second site was much richer than the sand bar in artifacts from earlier periods. The Late Neolithic (3000-1500 B.C.) was represented by fine paste pottery decorated with geometric patterns. A small amount of Middle Neolithic (4000-3000 B.C.) pottery was also found. These pieces were decorated with simple incised or painted patterns. A significant discovery was that the painted pottery came from the lowest levels. In addition, a number of roughly chipped or finely polished stone tools were discovered.

FU TEI WAN

Two archaeological sites were also discovered in this valley. The first was reported in 1960, when a church worker found a complete Six Dynasties (420-589 A.D.) or Tang glazed jar in a low sand bank behind the beach. Some 20 years later, when contacted by members of the Hong Kong Archaeological Society, he mentioned having also seen a large, near-complete kiln or furnace near the beach.

This kiln was located under heavy vegetation; it proved to be another Tang lime kiln, but was more complete than most of the others discovered in the territory. A carbon-14 date from a charcoal layer lying on the floor of the structure gave an age of around 750 A.D. In 1992, the kiln was lifted by Gurkha engineers, and is now on display in Tung Chung.

Excavations on the sand bank provided a large quantity of Neolithic, Tang and Sung pottery, but yielded little information, since the material had been re-deposited (i.e. mixed together by water movements). One interesting artifact recovered was a bark beater, used by the Neolithic people to make cloth from tree bark. A finely polished stone projectile point was also found.

The other site was located on a 15-m plateau over-looking the beach. This site proved to be very important, as it had a well-preserved Middle Neolithic occupation area (a seasonal camp or village). Many postholes from habitation structures were found, along with large quantities of pottery and stone tools. Areas of cooking hearths and stone working were identified.

The most important discovery at the site was the burial or ritual area, which contained complete pots and stone tools placed in small pits. Although no human remains were found, it is believed that the complete artifacts were placed as offerings with human remains in secondary burials (re-burial of the bones a few years after death). At the end of the excavation, a bulldozer was engaged to knock down the small buildings on the site and remove the topsoil. Several more burial/ritual objects were found, including a very well made high-pedestalled cup with a complex incised pattern. This piece is one of the finest examples of Middle Neolithic ceramics from the South China coastal region.

Carbon dating of several charcoal samples from the hearths gave a general dating of around 3700-3400 B.C. for this site. It has provided important data on the life of Hong Kong's earliest inhabitants, although we still do not have a clear picture of their economy. Finally, one charcoal sample from a deep excavation, well below the Middle Neolithic layer, gave a result of nearly 11,000 years. Although no artifacts were discovered, it is possible that there were people in the vicinity, and this charcoal comes from a forest fire

resulting from their activities.

HA LAW WAN

The next bay and small beach south of Fu Tei Wan is Ha Law Wan. Behind the beach is a relatively flat isthmus, at an elevation of nearly 15-m. During the initial survey of the island, it was believed that a Neolithic site should also be found here, although no artifacts were recovered during surface inspection. However, three weeks of test excavation in 1991 did not yield any Neolithic material, except a single polished stone axe.

On a terrace above the beach, part of a kiln wall was discovered, and the structure was then fully excavated. It was unlike the Tang lime kilns so common on Hong Kong sites; a charcoal sample gave a date of around 1200 A.D. -- several centuries later than the Tang dynasty. Intensive searching of the immediate area revealed part of a second kiln further back from the beach, and excavation trenches in that area eventually brought to light a total of 10 more kilns.

Even after several weeks of excavation, it was unclear what these kilns were used for. Unlike the Tang lime kilns, these structures were dug into the hillside, they were completely domed and had a very small mouth. It was suggested that they might be a continuation and evolution of the lime industry, but other possibilities such as charcoal, brick or pottery production were considered.

Finally, near the end of the excavation, a few deposits of what seemed to be small pieces of slag were found. From chemical analysis it was learned that this material was composed almost entirely of iron. It is now believed that the Ha Law Wan kilns served some function in the smelting of iron, but exactly how they operated remains a mystery. And it is still not proven that they were used for smelting at all. Whatever their function, the kilns at Ha Law Wan are unique in Hong Kong archaeology.

After the archaeological work at Chek Lap Kok was completed, the airport planners decided to retain the small hill at the southern end of the island. Since the Ha Law Wan kiln complex was only 20 metres beyond the boundary of the land to be preserved, it was suggested and the authorities agreed that the kiln site not be destroyed. Later, it will be made into an open air display as part of the new airport.

KWO LO WAN

Across the isthmus from Ha Law Wan, this site was discovered in the 1980's. Neolithic pottery and stone tools were observed in cultivated fields on the lower hillslope near the beach. Excavations revealed a similar cultural deposit to that of the plateau site at Fu Tei Wan. The pottery was clearly of the same period, namely Middle Neolithic, and postholes, hearths and stone working areas were also found.

Once again, a burial/ritual area was also discovered, and the same type of burial seems to have been practiced. Complete pots and bowls were placed in small, shallow pits, probably as offerings to accompany secondary burials. The recent cultivation of the hillside had disturbed some of these burials, but several fine examples of Middle Neolithic pottery could still be reconstructed from the fragments.

Carbon-14 dating of two charcoal samples gave an age of around 3400-3000 B.C., slightly later than Fu Tei Wan. But the pottery is virtually identical to that of Fu Tei Wan, so the two sites must have been inhabited at almost the same time.

Another site was found at Kwo Lo Wan just behind the beach, in a low sand

terrace, and it proved to be of great importance. Surface inspection of the area had revealed nothing except a small patch of red fired clay. It was thought that this might be part of a Tang lime kiln, but excavation and carbon-14 dating showed that it belonged to the 20th century.

Fortunately, the excavation around the red fired clay patch brought to light a few pieces of Bronze Age pottery, the first to be found on Chek Lap Kok. A large-scale excavation of the immediate area revealed several Bronze Age burials accompanied by complete pots, bronze artifacts, sets of finely polished stone rings, and other stone tools.

The most important and exciting discovery was of three pairs of bivalve moulds for casting bronze axes. Each pair of moulds was bound together, as they would have been for the actual casting process, and placed in the burials as offerings.

Another important discovery was made when the excavated materials were being studied later in the laboratory. Stuck to one side of a bronze projectile point, a small piece of cloth was noticed. The cloth was later identified by the Government Chemist as hemp. According to textile experts at the Hong Kong Polytechnic, the fibre and the weave both required considerable skill to produce.

The discovery of the bronze axe moulds and the cloth fragment is an important contribution to our knowledge of the Bronze Age in South China. Equally important was the dating of the site: three charcoal samples gave ages in the range of 1200-1000 B.C., or the late Shang to early Western Chou, period in North China.

OTHER SITES

Several abandoned graves were found on the hillsides, amidst thick vegetation. Most had inscriptions dating them to the 18th or 19th centuries, but two graves had no dates, only the phrase "previous dynasty" (or "previous times") ancestor. Thus, a Ming dating was possible. However, when these graves were opened by the land clearance teams, the burial urn in each case was similar in style to those in the later graves.

It was learned from villagers that on a high ridge top nearby there was a large rock shelter "with a lot of room inside and a dry floor, well protected from rain." After considerable search, this rock shelter was located, and it did have an earth floor seemingly protected from erosion. An excavation inside showed that the soil deposit was very thin, but a few Neolithic potsherds were found. This is the first instance in Hong Kong of a cave or rock shelter archaeological site. Unfortunately, the potsherds are not of any distinctive type, and no charcoal was found, so the date of the early use of this shelter cannot be established.

Place names often provide evidence of past activity. One bay on the eastern coast is called "Lime Kiln Bay," but none of the villagers had any knowledge of where the lime kiln was or when it had been in use. The name "Kwo Lo Wan" refers to the narrow strait between Chek Lap Kok and Lantau island at that point. A cannonball found at Kwo Lo Wan may attest to the strategic value of this strait in recent centuries.

Minor sites located during the survey include Cheung Sha Lan and Shu Leung Wan; in each area a small quantity of Late Neolithic pottery was discovered. The adjacent island of Lam Chau was also investigated, and a few potsherds of Tang, Sung and Late Neolithic were found. All of these sites seem attractive today, but for some reason they were little used by the early people.

APPENDIX 2 -- "Chek Lap Kok: project synopsis as of 20 May, 1991," by Robert Esser, Chek Lap Kok Site Assistant. [published originally in *East Asia Archaeology Newsletter*, June, 1991.]

Prior to its destruction as part of the mammoth port and airport development scheme in Hong Kong, the island of Chek Lap Kok has been the subject of a salvage archaeology project since 15 October 1990. The project was commissioned by the Antiquities and Monuments Office of the Hong Kong government, and received funding of HK$1.5 million from the Royal Hong Kong Jockey Club.

Chek Lap Kok had previously been identified as having archaeological value. A complete Six Dynasties vessel was found at Fu Tei Wan in the southern part of the island; and a Tang Dynasty lime kiln had been partially excavated there, together with the Tang site of Sham Wan Tsuen in the northern part of the island by the Hong Kong Archaeological Society (HKAS) in 1982 (Cameron 1984). Survey of the island was begun in September 1990 and the excavation started in October under the direction of William Meacham, Chairman of the HKAS. Joining the project as assistant director was Richard Thomas, who had previously excavated in the United Kingdom, and a full-time crew of 12 workers. Richard Shutler, Professor Emeritus of Simon Fraser University, signed on for two months as advisor.

Five major localities have been excavated to date. Fu Tei (FT) and Fu Tei Wan (FTW), dating from the middle Neolithic to the Tang Dynasty; Ha Lo Wan (HLW), a Yuan Dynasty site; Kwo Lo Wan (KLW), predominately Bronze Age; and Sham Wan Tsuen (SWT), predominantly Tang Dynasty.

The first sites excavated were at FT and FTW, reopening the lime kiln there and testing the area where the vessel had been found for evidence of further activity. Extensive jungle clearing and excavation of test pits situated to sample the area generally yielded a great deal of material over a long occupation period. The Middle Neolithic (ca. 4000-3000 BC) was well represented with coarse corded-ware pottery, and the Late Neolithic (ca. 3000-1500 BC) with chalky and soft geometric wares. Bronze Age (ca. 1500-400 BC) hard geometric ware of identifiable pattern (studs-in-trellis, lozenge) and a nearly complete Sung Dynasty bowl and complete Tang vessel evinced occupation during those periods. At FT, an interesting regularity was the occurrence of pairs of complete neolithic vessels, sometimes in conjunction with stone tools. These were invariably found on the boundary of the cultural deposit and the sterile decomposed granite, inside holes in the decomposed granite. Pottery in general collectively indicates that these sites were inhabited during all periods of known occupation in Hong Kong, with the predictable hiatus during the Han Dynasty. The dates are corroborated by radio-carbon analysis from corresponding levels.

The most significant feature of FT and FTW are their stone industries. Stone flakes of fairly uniform raw materials were found in abundance. These flakes range in size from chips to complete rough-outs of tools to be polished, as well as pebble tools. Polishing stones were found, crossed with deep grooves of varying width and having concave sides for large surface polishing. These polishing stones, of varying (graduated?) grit sizes, flakes, and rough-outs were the tools of a large adze-making industry. Polished stone adzes numbering in the hundreds came from FT and FTW, as well as the other sites on this part of the island. Size and raw material of these adzes varies, as does shape: length, width, curve of working edge, shouldered/semi-shouldered. A stone barkcloth

beater, one of only two found in the territory, provides a rare clue to everyday activity.

After four months the crew moved south to HLW. This site, like FT, is located in arable soil above the beach and yielded a large kiln complex of indeterminate nature. 13 kilns were excavated in the two months spent there. These kilns averaged roughly 1.5 m in the diameter and were made of fired clay, with channels running around and across the floors. Pottery and radio-carbon dates place these in the Yuan Dynasty (1271-1368). Their purpose remains a mystery, however; thin layers of slag deposits proved predominantly iron on chemical analysis, but lack of the extensive debris associated with iron making, as well as any large ore deposit in the vicinity, make this conclusion difficult. No other debris was found in association to provide additional or alternative evidence of use.

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, are currently being undertaken as well. The
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Although further excavation could be illuminating, time com
move to the nearby site of KLW, situated on arable soil on a sand
beach, similar to FT and FTW, respectively. The upper site contained
approximately 1 m in diameter, as well as pottery suggesting neoli
period occupation. Several oblong depressions dug through the shall
decomposed granite held complete vessels in conjunction with adzes,
burials; the acidic nature of HK soils makes finding bones a rarity.

The lower site proved the more interesting, with a large Br
Nearly complete vessels of the classic HK pottery were found. Thre
casting bi-valve molds for making axes in varying sizes came out of the
poorly preserved bronze pieces. These were in association with slot
found close by A cache of ten stone rings in graduated sizes were fou
the decomposed granite limit of excavation. This productive site wil
July, time permitting.

The beginning of April moved the team northward to the pr
sandbar site of SWT, Ho Chui Mei, of the Field Museum of Natural
Cameron, former Chairman of the HKAS, joined in for the work.
formerly conducted on about half of this locality, finishing in 19
resulted in the location and identification of a Tang Dynasty lime pr
with hundreds of coins to provide accurate dating in association with
lime kilns were found, in various stages of preservation. Kiln f
appropriate to a large industrial site completed the inventory.

Since the beginning of new excavations, four more kilns hav
actually in stratigraphic sequence-one below the other. The upper of
in size and design from any previously seen in HK, perhaps resultin
and reuse, although lime deposits found within seem to suggest a si

Survey and testing to find the habit
as other possible sites in the north of CLK
deadline for excavation is mid-July, as the
planned airport. CLK has provided a good
in coastal south China; analysis and subsequent publication will so
detail of these efforts.

APPENDIX 3 -- "Archaeological investigations on Chek Lap Kok," by Robert Esser [an anecdotal account of the project written for a Hong Kong magazine]

Providing a vital link to the future of Hong Kong as the site of the much-needed new airport, the island of Chek Lap Kok is equally as important as a link to the past.

Although the island is to be effectively destroyed as it gradually becomes one of the largest airports in the world, its history, and prehistory has for the last year been systematically excavated and recorded by the Hong Kong Archaeological Society.

Under the direction of Mr. William Meacham, Chairman of the Society, and funded by a $1.5 million grant from the Royal Hong Kong Jockey Club, the project took place over 13 months, comissioned by government to salvage what could be found.

The Chek Lap Kok project is the largest archaeological undertaking in Hong Kong's history, both in terms of cost and duration. More importantly, though, "the Project provides us with a great opportunity, to have unrestricted access to an entire island for investigation," according to Mr. Meacham.

Chek Lap Kok has been known as an area rich in archaeology for some time. The beach at Fu Tei Wan, in the southern part of the island, has a Tang Dynasty (618-907)lime kiln standing on it; nearby, a complete Six Dynasties (260-586) jar was found in 1960. The main village of Sham Wan Tsuen, at the north end of the island, is built around a raised sandbar that was a lime kiln industrial site during the Tang; this was partially excavated in 1982 by the Society, the last time Chek Lap Kok was to be the site of the airport.

This time, the investigations began in September of last year, with a complete survey of the island by Mr. Meacham and Richard Thomas, an archaeologist from the UK working on the project.

Embarking from the thrice-daily *kaito* then running to the island, the pair were greeted at Sham Wan by the proprietor of Chek Lap Kok's only outdoor cafe (general store and bathhouse as well), Mr Wong Man. "Please sit down", he said. Meacham explained in Cantonese to Wong Man the purpose of their visit. He remained unmoved by this, but was particularly interested in Thomas' inability to speak the local language. "Please sit down," He said, and to Thomas,"Talk Chinese, Cheng Choh." Thomas sat, and talked. This having been accomplished, they set off on a systematic survey of the island that lasted six weeks.

It was not without its moments. "Chek Lap Kok has its seasons, sort of like the biblical plagues." said Meacham. During the survey it was the wasps. The villagers told them that when they ran into a bush and upset a nest, the best policy was to freeze, and slowly crouch down. "Wasps can't see well," Thomas explained, "so if you run, they chase you only because you are moving."

The two made special beekeeper-style hats to wear, and wore long pants and sleeves in the sauna of September. "It takes real nerve to stand still, though," Thomas added. On one occasion, a swarp of black wasps roared out from behind a piece of sheet metal. At this, his nerve broke and he fled, chased by the wasps; two simultaneously stung him through the back of his thin shirt, causing him to trip and fall on the cement. He had to go to hospital that night.

The team managed to survive, though, and identified six potential sites, including those two already mentioned. Excavations began in mid-October. One of the Society's more unique finds was made during their previous work at Lung Kwu Sheung Tan, near

Tuen Mun. At that time, villagers from the nearby Lau clan Hakka village of Lung Kwu Tan were hired to do the actual excavations. "They used to be farmers," remarks Meacham "and this is about the same for them. They're great diggers."

Their farming hands turned quickly to systematic excavation, and they joined the Society again for the Chek Lap Kok project. "Excavation and farming fields are the same," confirmed Big-Eyed Chicken, nominal leader of the group; " digging is digging."

The excavational team consisted of Meacham, Thomas, Diana Chui and Anna Chi, graduates of Hong Kong University hired as site assistants, the Hakkas (10-12, depending on mood and feng shui), and the author, a graduate student from the United States.

After the appropriate offerings of bai song, to propitiate any whose burials may be disturbed, work began on the beach site of Fu Tei Wan. The month spent here confirmed suspicions that Meacham had, namely that the beach area was a confused catchment of material from the entire area. "Hillslope wash and thousands of years of occupation have provided a site rich in material, but very little information, " he said.

Men first arrived at the bay in the Middle Neolithic (ca. 4000 B.C.) period of prehistory. This presence is shown by the many sherds of Coarse Corded pottery, as well as a chalky style. Stone tools and flakes were found in large numbers, including a type of stone adze that survives into the Late Neolithic and Bronze Age periods. This is a polished stone tool with an off-center blade, probably used for woodworking. Their shapes and sized are as numerous as the artifacts themselves, found in the hundreds.

Fu Tei was further peopled in the historic periods of the Six Dynasties, Tang, Sung (960-1279), and the Ching (1644-1900), on up to its present occupation. Other beautiful finds included a complete Tang vessel, nearly complete Sung celadon bowl, polished stone projectile points from prehistoric periods, and literally hundreds of pounds of pottery sherds. The mass was so jumbled, though, as to make conclusions beyond simple presence impossible. "The stratigraphy (layers of excavation determining occupation sequence) looked like a jigsaw puzzle." Said Thomas.

The team moved above the beach to the site of Fu Tei in mid-November, being joined by Dr. Richard Shutler, an Old Asian Hand from Simon Fraser University in Canada. This also began the season of the snakes on the island. This was particularly dismaying to Dr. Shutler who remarked that upon hearing of a similar snake problem on Taiwan "wasn't particularly curious about their archaeological record anyhow." Shutler even asked some local farmers if there had been any snakes recently. "Yes," replied one lady who was doing the cooking for our lunch, "I opened a drawer in my house, only to find a cobra in it." What did she do then? "Closed the drawer, and went to put a pot of water on to boil." Shutler was curiously silent.

The site at Fu Tei proved to be one of the most productive on the Island, painting a picture of life 5,000 years ago. Certain localities were identified as stone working sites, on the basis of the thousands of stone flakes found there, some of which even fit onto larger stone cores when tested. Adzes were numerous, ranging from rough-outs to the completed model. Polishing stones were found, used for the final steps of production, as well as thousands of pottery pieces, ranging in size from minute sherds to complete vessels. Beautifully incised vessels of a chalky ware complemented complete pots, sometimes found in pairs.

One curious fired clay structure was a mystery until a chicken farmer living nearby built a nearly identical structure for making essence of chicken in a large iron pot. The continuity of activity over five millennia was striking; men had been doing the same

things in the same spot for all that time.

Although evidence proved habitation at the site, Fu Tei, like all other archaeological sites in Hong Kong, yielded no direct remains of settlement. One theory says that these were boat-dwelling people, only stopping to hunt and provision. Meacham disagrees, but admits there is not much evidence on either side. Evidence from nearby Guangdong in this period indicates large village-style living and organization, based on complex agricultural systems.

Just before the move further south, Dr. Shutler personally espied a cobra, from a distance of about a meter and proved conclusively that a 70-year old man is completely capable of a standing vault of at least six feet. "I thought I was a goner," he remarked later, safely on the *kaito* home.

By Jan 15, the hoes of the Hakkas were clearing the banana trees and cane grass at Ha Law Wan. They themselves were not without problems. One day a worker was absent, and another random Lau woman was in his place. Meacham confessed confusion about the change, saying he was given only vague explanations involving that worker and Amoy, in China, and this only after lengthy enquiry. On another occasion, work was cancelled for a day, as the whole clan had a temple dedication to perform. Later on, a worker quietly handed in a polished stone ring, usually a situation of exclamation and celebration, explaining that due to a village feud, he didn't like the person in his trench with him, and didn't want to let him know...

By early February, Ha Law Wan was looking as bare as the previous sites were rich. The party was shortly to move on, when Meacham detailed an old lady to work on some red clay patches directly on the footpath. Later, as Thomas happened by, he called out, "Bill, she's found something here!" Further excavation revealed the rounded sides and top of a kiln.

The structure was stripped of vegetation and earth, the charcoal flow leading downhill was tracked into a large main flow, which was then followed backwards to several more. Thomas, foraging in the banana grove, was heeding the call of nature when he noticed he was gently moistening yet another. The chase was on, as the entire ravine was stripped, eventually revealing 13 Yuan Dynasty (1271-1368) kilns.

The kilns, represented generally by a large "igloo" 2m in diameter, with three or more chimneys protruding, contained charcoal and ash, along with curious metal slag deposits. Analysis showed these to be nearly pure iron in content, identifying the purpose of this complex. This is the only site like this ever found in this part of coastal China, and is further interesting because the imperial government was supposed to have a monopoly on production during the period indicated.

Time limitations compelled the excavators to move to Kwo Lo Wan, nearby, where the record was equally rich. The upper terraces were dated by radiocarbon to the Middle Neolithic period, and had five intact burials, complete with pottery vessel offerings and stone tools at the head and foot. The only darkness on the horizon was provided by the proximity of the site to a large communal latrine. "If it's rich, we'll have to go in there," joked Meacham to the complaining workers.

The lower terraces yielded a productive Bronze Age Presence, with solid radiocarbon dates around 1200 B.C. This layer contained three pairs of bronze molds, a possible crucible for smelting, and actual bronze implements. This haul was complemented by burials containing caches of meticulously worked stone rings, in condescending sizes, over 15 in all.

Reluctantly, the Society moved to the far north end of the island in April, to complete the inventory of Sham Wan Tsuen. 1982 excavations had revealed eight kilns, and the number was increased to 13 by the end of the excavation. Valuable clues were found, indicating that the kilns, which held alternating layers of firewood and seashell and burned down to raw lime, were not covered structures as had been previously thought. They in fact resembled huge open firepits, with cooling fins radiating outward to direct airflow into the center of the towering pyre.

In addition, periphery excavations uncovered a rare layer of Han Dynasty (206 B.C.-220 A.D.) presence, and an even rarer layer of painted chalky style pottery, the oldest layer in Hong Kong yet found, at 4,000 B.C.!

The excavations of this unusually productive island have added much to the body of Hong Kong's archaeological record. Although it is impossible to discount the presence of further sites, Meacham feels that the team, and the many volunteers, excavated "the greater part of what's there. Anything else would be more, not necessarily better or different."

Perhaps most important, though, is the illustration it provides, especially in the face of the most modern construction imaginable, about the continuity of life between the inhabitants 6,000 years ago, and those occupying the island while the project proceeded. Simple fisherfolk and farmers, they left precious few traces of their basic lifestyle. Leaving Chek Lap Kok during the last few days, I asked a villager's son trotting by with a bamboo basket where he was going.

"Looking for something to eat," was his simple reply.

[*Editor's note -- The best anecdote to conclude this account is the following: the author, then a young graduate student fresh from the University of Arizona, and one of the site assistants, Diana Chui Yuet-ching, who did not particularly like each other during the first few months of the project, were married in June, 1991.*]

APPENDIX 4 -- Comments by Richard Shutler, Jr., Emeritus Professor of Archaeology, Simon Fraser University

It was a personal pleasure as well as professionally rewarding to take part in the archaeological research on Chek Lap Kok Island as an "Overseas Advisor." This was made possible by [the Society's] invitation, and appointment as a Visiting Scholar at the Centre of Asian Studies, University of Hong Kong. I very much appreciate Edward Chen's part in obtaining the Visiting Scholar appointment.

The new Hong Kong Airport Archaeological Project on Chek Lap Kok Island has in my opinion been very well organized and directed. This has been in the face of the very difficult logistical, transportation and language problems that require the project members to put in 12 hours a day from portal to portal. [...]

In my position as "Overseas Advisor," I have a few observations to make on the problems of directing such a project that may be of some use , and on the interpretive problems generated by the excavations.

It must be kept in mind that no two people would operate in the same way, nor that there is only one way of doing things.

A project with a time limit to complete survey and testing of a large area such as

Chek Lap Kok Island, always presents problems of where to concentrate digging, and the adequate taking of notes of the excavations. Considering the long day, five hours for transportation to and from Chek Lap Kok, added to the actual digging time, leaves everyone very tired at the end of the day. For the Director, the work day is not over when he gets home as there are always personnel, logistical and transportation problems to work out, which necessitate many phone calls. One way of taking some of the pressure off of the Director, is to, when possible, engage a foreman who has the experience and ability to oversee the daily excavation problems that he and the Director free to handle Public Relations, and the logistical/transportation problems during the day, so he doesn't have to work late into the night. This system has worked well for me.

I would suggest taking large numbers of photos of every aspect of the field work. Because no matter how many notes are taken, when it comes to writing the report, there is always some missing piece of information, and often it can be found in a photograph.

The main problem in the excavations that I noted are the features (holes of various sizes and conformations) in the DG (decomposed granite) we found in all areas above the beach area while looking for structures. Some of these are cultural, as we were able to show, some may be, and some are due to an apparent combination of ant and root activity. These holes in the DG are an interesting and puzzling problem. I am sure that in some cases ants and roots are responsible. As we discussed, when bulldozers or a backhoe is available, it would probably throw some light on this problem to study the root patterns of the different kinds of trees on the island. If possible, it would be desirable to bring in a recognized Holocene geologist who is familiar with archaeology.

The lack of structures in the area we were digging when I was there is another puzzling problem. I suspect that the presence of Boat People in the area for several thousand years has a lot to do with this lack of structures.

Because of the lack of structures, a taphonomic study of the sherds, adzes and other cultural materials would be rewarding. But considering the time constraints and the lack of a specialist in this field, it is probably impractical.

Every archaeological field project usually raises more questions than it answers. This is why any archaeological report is only a progress report. Even so, a tremendous amount of information on the prehistory and history of Chek Lap Kok will come out of this project.

APPENDIX 5 -- POLLEN ANALYSIS (identifications by Yu Kam-fung of the Dept. of Geography and Geology, University of Hong Kong; samples excavated by the Hong Kong Archaeological Society)

The data presented below is still being studied, and further samples for pollen analysis are being collected. Clearly, much more data is needed before any general statements can be made about the evolution of the palaeo-environment, and any impact that human activities might have had on it. A discussion with botanists and geographers at the University of Hong Kong suggested some possibilities: the decline and/or absence of D. linearis, Lygodium, Pteris, Syzygium Fagaceae and possibly Macranga may be related to the clearance of the original tropical forest canopy; the increase in Cyperaceae and Graminae may be related to rice cultivation.

SAMPLES :

No. 1 -- grey clay from Fu Tei Wan, Chek Lap Kok; under back-beach sand bank formation; dated by C-14 to ca. 5000 B.C.; elevation around +2 mPD

No. 2 -- grey silty sand from Penny's Bay, Lantau; under abandoned rice padi; dated by C-14 to ca. 4000 B.C.; elevation around +0.5 mPD

No. 3 -- grey sandy clay from Lung Kwu Sheung Tan, Tuen Mun; under abandoned rice padi; dated by C-14 to ca.1400 B.C.; elevation around +2.5 mPD

No. 4 -- brown peaty clay from Penny's Bay, Lantau (overlies grey silty sand of No.2); dated by C-14 to ca. 900 A.D.; elevation of +1.5 to 2 mPD

No. 5 -- grey clay from Lung Kwu Sheung Tan, Tuen Mun (overlies grey sandy clay of No.3); dated by pottery types to ca. 1000-1500 A.D.; elevation of around +3 mPD

No. 6 -- grey clay from Lung Kwu Sheung Tan, Tuen Mun; under back-beach sand bank formation; dated by pottery types to ca. 1000-1500 A.D.; elevation of around +2.5.

SAMPLE NO.	1.	2.	3.	4.	5.	6.
ALGAE (Diatom) :						
Actinella sp	0	0	17	7	1	0
Cyclotella comta	0	0	3	0	0	0
Cyclotella striata (Kutz)	0	0	13	2	0	0
Cyclotella striata var.	0	0	5	0	0	0
Eunota sp	0	0	12	27	0	0
Hyalodiscus sp	0	0	0	2	0	0
Melosira sulcata	0	0	1	1	0	0
Nitzschia cocconeiformis	0	0	2	1	0	0
Synedra sp	0	23	17	12	0	2
Tabellaria sp	0	17	23	17	3	0
ALGAE (ACRITARCH) :						
Concentricystis sp	0	0	1	2	3	51
FERN SPORES :						
Acrostichaceae						
Acrostichum aureum	2	0	1	20	0	0
Cyatheaceae						
Cyathea sp	2	3	2	2	0	0
Dennstaediaceae						
Microlepia sp	0	1	0	6	0	1
Dicksoniaceae						
Cibotium barometz	0	2	2	20	0	3
Gleicheniaceae						
Dicranopteris linearis	6	25	2	17	13	3
Diplopterygium chinensis	0	0	0	0	1	0
Diplopterygium lavissium	0	0	0	1	0	1
Diplopterygium sp	1	3	0	2	0	0

Grammitidaceae						
Grammites hirtella	0	0	2	0	2	0
Prosaptia urceolaris	0	0	1	0	3	0
Gymnogrammaceae						
Coniogramme sp	0	0	0	0	0	1
Hymenophyllaceae						
cf Mecodium sp	0	0	0	0	0	3
Lycopodiaceae						
Lycopodium cernnum	0	2	1	4	7	2
Lycopodium sp	0	0	0	0	2	1
Lygodiaceae						
Lygodium flexuosum	0	0	0	0	1	0
Lygodium microphyllum	0	1	2	14	8	2
Lygodium sp	0	2	2	1	2	12
Parkeriaceae						
Cemtopteris thalictroides	0	0	0	0	1	0
Polypodiaceae	14	0	0	21	0	14
Drymoglossum piloselloides	0	0	1	0	0	0
Lemmaphyllum cf carnosum	0	0	0	0	1	0
Polypodium niponicium	0	1	0	0	0	0
Pteridaceae						
Pteridium sp	0	2	0	0	0	1
Pteris cf dispar	2	0	0	0	0	0
Pteris cf grevilliana	1	0	0	0	0	0
Pteris cf taiwanensis	2	0	1	0	0	0
Pteris sp	12	6	1	0	1	0
Pteris dissitifolia	0	0	1	0	0	0
Selaginellaceae						
Selaginella sp	0	0	0	1	0	0
Sinopteridaceae						
Onychium sp	0	0	0	4	0	0
WOOD POLLEN :						
Actinidiaceae						
Actinidia sp	2	0	0	0	0	0
Aceraceae	1	0	0	0	0	0
Acer sp	0	1	0	0	0	0
Altingiaceae						
Altingia chinensis	5	1	6	0	2	0
Anacardiaceae	1	2	0	1	0	0
Rhus sp	4	0	0	0	0	0
Aquifoliaceae						
Ilex cf buxoides	0	0	1	0	0	0
Ilex sp	2	2	1	0	0	0
Betulaceae						
Alnus sp	0	0	0	1	0	0
Carpinus sp	0	0	1	0	0	0

Ostrya sp	0	0	0	0	1	0
Caesalpiniaceae						
Pterolobium punctatum	2	2	0	0	0	0
Caprifoliaceae						
Sambucus chinensis	0	0	1	0	0	0
Clethraceae						
Clethra canescens	0	0	1	0	0	0
Elaeocarpaceae						
Elaeocarpus cf chinensis	1	3	1	2	3	0
Elaeocarpus sp	2	1	0	0	0	0
Sloanea cf sinensis	1	0	1	0	0	0
Euphorbiaceae						
Euphorbia sp	1	0	3	0	0	0
Macranga cf denticulata	1	1	0	0	0	1
Macranga sp	2	0	0	0	0	0
Sapium sp	10	0	0	0	0	0
Sauropus sp	0	0	0	1	0	0
Fagaceae						
Castanopsis/Lithocarpus sp	11	9	1	5	2	0
Lithocarpus cf balansae	0	0	0	0	1	0
Lithocarpus cf corneus	0	0	0	0	1	0
Lithocarpus sp	0	0	1	0	1	0
Quercus sp	1	3	1	3	0	0
Flaeourtiaceae	0	0	0	1	0	0
Hamamelidaceae	0	0	0	1	0	0
Icacinaceae	0	0	0	1	0	0
Plata cf hainansis	0	0	1	0	0	0
Platea sp ?Plata	3	0	0	0	0	0
Juglandaceae						
Annamocarya sp	0	0	1	0	0	0
Engelhardtia sp	0	0	3	1	0	0
Meliaceae	2	1	0	1	0	0
Aglaia odorata	0	0	1	0	0	0
Moraceae	3	1	0	0	0	0
Myrsinaceae	0	1	0	1	0	0
Aegiceras corniculatum	0	0	4	0	0	0
Aegiceras sp	0	0	0	0	1	0
Embelia sp	1	0	0	0	0	0
Maesa cf argentea	0	0	4	0	0	0
Maesa sp	2	0	0	0	0	0
Myrtaceae						
Syzygium sp	28	19	0	1	0	0
Syzygium cumini	0	0	3	0	0	0
Syzygium cf cumini	7	0	0	0	0	0
Syzygium cf hancei	2	0	0	0	0	0

Oleaceae						
Olea sp	5	0	1	0	0	0
Palmae	0	0	0	0	0	2
Calamus sp	0	1	0	1	0	0
Pinaceae						
Pinus sp	8	0	0	0	2	1
Keteleeria sp	2	0	0	0	0	0
Pinus massoniana	25	0	0	0	1	0
Podocarpaceae						
Podocarpus sp	2	0	0	1	1	0
Proteaceae						
Helicia sp	0	1	0	0	2	0
Rubiaceae						
Nauclea sp	0	0	0	0	1	0
Randia hainanensis	0	0	1	0	0	0
Randia cf merrillii	2	0	0	1	0	0
Randia sp	4	2	1	2	0	0
Rhizophoraceae						
Bruguiera sexangula	0	0	2	1	0	0
Ceriops tagal	0	0	0	1	0	0
Kandelia candel	2	0	0	4	0	0
Rhizophora stylosa	0	0	1	0	0	0
Rutaceae	1	1	0	0	0	0
Samydaceae						
Homalium phanerophlebium	0	0	1	0	0	0
Symplocaceae						
Symplocos sp	0	1	0	0	0	0
Theaceae						
cf Schina sp	0	1	0	0	0	0
Ulmaceae						
Ulmus parvifolia	0	0	1	0	0	0
Verbenaceae						
Avicennia marina	0	0	2	0	0	0
HERB POLLEN :						
Araceae	6	0	0	2	0	0
Balsaminaceae						
Impatiens sp	0	0	0	0	2	0
Capparidaceae						
Crataeva sp	0	2	0	0	0	0
Compositae	0	1	0	0	0	0
Aretemisia sp	0	0	1	2	3	0
cf Gnaphalium sp	0	0	0	0	1	0
Convolvulaceae	2	0	0	0	0	0
Cyperaceae	0	0	0	1	18	0
Gesneriaceae						
Boea cf rufescens	0	0	1	0	0	0

Chirita sp	1	0	0	0	0	0
Gramineae	0	2	3	2	41	0
Oryza cf stativa	0	0	0	0	15	0
Leguminosae	0	1	0	3	0	0
Mimosacae	1	0	1	0	0	0
Polygonaceae						
Persicarria cf crioplitana	0	0	0	0	2	0
Ranunculaceae	1	2	1	0	0	0
Typhaceae						
Typha orientallis	0	0	0	0	1	0
Typha sp	0	0	0	0	1	0

APPENDIX 6 -- C-14 DATES FROM CHEK LAP KOK

Beta No.	*Field No.*	*Provenance*	*Lab. Result*	*Cal. Result*
SITE: FU TEI; MIDDLE NEOLITHIC PHASE:				
42857	CLK-4	Sq.DY, HB	5050+/-100	4040-3640
42858	CLK-5	Sq.FA,L2	4830+/-160	3990-3137
63461	CLK-26	clear.area 2	5200+/-60	4221-3817
SITE : FU TEI, FU TEI WAN ; PRE-NEOLITHIC :				
42854	CLK-1	FTW,Sq.G clay	6160+/-60	5240-4909
42859	CLK-6	Sq.FA,300 cm	11,280+/-80	---------
60793	CLK-21	Sq.A2,L2 hole	6840+/-70	5807-5582
63460	CLK-25	" " " "	6830+/-60	5766-5586
SITE: HA LAW WAN ; HISTORICAL PERIOD:				
42855	CLK-2	FC2 floor	620+/-50	1270-1410 A.D.
42856	CLK-3	FC1 floor	720+/-60	1220-1389 A.D.
SITE : KWO LO WAN (upper), MIDDLE NEOLITHIC PHASE:				
45150	CLK-8	Sq.J, H	4410+/-80	3350-2900
60795	CLK-24	Sq.L, H	4610+/-90	3628-3039
SITE : KWO LO WAN (upper), historical period :				
46867	CLK-9	FC3 floor	100.8%mod.	post-1944 A.D.
SITE : KWO LO WAN (lower), BRONZE AGE PHASE:				
45149	CLK-7	Sq.KB,L2	2840+/-60	1253-847
46868	CLK-10	Sq.KA,L2	3020+/-70	1430-1040
60794	CLK-22	Sq.KE,L3	3220+/-80	1677-1311

Notes: The radiocarbon dating was done by Beta Analytic Inc of Coral Gables, Florida, USA. All samples were charcoal except Beta-42854 (CLK-1) which was wood. *Cal. Result* is in years B.C. based on the calibration program published by the Quaternary Isotope Lab of the University of Washington (1987;Rev.2.0). Weighted averages were also calculated according to this program.

APPENDIX 7 -- SUMMARY OF THE 1979-84 EXCAVATIONS AT SHAM WAN TSUEN [extracted from Cameron and Williams 1984]

The Hong Kong Archaeological Society started excavation in December 1979 and continued for four seasons until January 1984. The main purpose originally was to locate the known kiln site but it was soon discovered that this was an important site with substantial finds. The area was gridded with the intention ultimately of being able to complete a section drawing of the sandbar and to locate all the kilns and associated features.

The Society has now fully excavated some two thirds of the sand bar and in the process located seven lime kilns. At least 30,000 pottery sherds and some 400 coins have been located and processed. All the material taken from the site has been deposited with the Museum of History.

In general, the whole of the area showed the same characteristics, with cultivated topsoil for 20 or 30 cm, then dark sandy soil with debris from the kilns and artifacts down to a depth of about 80-90 cm. This Tang occupation layer was thinnest in the northern slope where it was 30-50 cm, and thickest in the centre of the site around the kiln No. 3, where it extended down to about 90 cm.

Within the main occupation layer, a great many artifacts were found, indicating a considerable period of occupation. Many large fragments from the kilns together with clay bricks, broken kiln-bars, large stones, amounts of shell and lime from the kilns were distributed all over the site. All the vessels described as "Tang" are from this level.

The Neolithic finds were concentrated to the west of the site. It seemed that the further west the more concentrated was the Neolithic material and the artificial sandbar to the S-W where the ditch was cut yielded many coarse corded sherds, some soft geometric and one polished stone tool point.

The dominant archaeological features of the site relate to the lime making activities which flourished during the Tang dynasty. Seven kilns have been discovered on the site. They have similarities with the lime kilns excavated at the following locations: Foo Dei Wan on Chek Lap Kok, Lo So Shing on Lamma, Yi Long on Lantau, Chung Hom Kok on Hong Kong, Shek Pik on Lantau, Shek Kok Tsoi, near Tuen Mun on the Mainland.

Subsequent burials adjacent to the kilns and the pottery dumped in them indicate that the operation probably ended towards the end of the Tang dynasty, or in the Five Dynasties period. The burials are described below:

1. This was a group of four vessels and a long iron object probably a knife or sword found 150 cm N of Kiln 3. The knife and one bowl were at a depth of 55 cm and the other two bowls and the jug were above. The bowls are the finest quality green glazed stone-ware found on the site. They are altogether different from the main body

of Tang pottery and are most probably Sung.

2. This burial group of cremation consisted of two large jars, unbroken, and two covering bowls. One bowl was inverted over the jar as a lid when found; the other was beside the second jar. The kiln is immediately adjacent. The cremated remains of an individual aged about 17 of unknown sex were in one the jars. There was also some lime and a bead in the jar. The other jar contained only sand when found.

3. This group of two small bowls and a ewer was found at the considerable depth of 110 cm on the extreme edge of the excavation. The Tang debris went down to that level at that point and the group was inserted into the Tang levels. The group can be securely dated to the early 12th century by two groups of seven coins found in association. The two bowls were upside down with the ewer alongside. Seven coins were found just above and seven just below the bowls. No other finds were associated but it is just possible that other related finds could remain to the east in the unexcavated area.

4. A cache of about 300 coins was found 30 cm below the surface. Many were in poor condition when found. They were stacked and had been in two or three strings but nothing was found associated. The terminal date of the coins is 846 A.D. Presumably the kiln operation had ceased when the cache was buried as the location is an open space midway between Kilns 5 and 6. It was an area of much rubble and debris from the kilns and must have been much traversed when the kilns were in use.

Sham Wan Tsuen is the first of the many Tang lime kiln sites in the Hong Kong area to yield such large quantities of pottery and associated material. This is undoubtedly because the sandbar is now so far inland, whereas on other sites the kilns are still much nearer to the sea and the Tang occupation levels have frequently been eroded away by stormy seas.

The period of intense lime production activity at Sham Wan Tsuen was probably 750-850 A.D. This estimate is based on the coins found in the kiln operation and debris levels and the evidence of the burials which took place after the kilns were out of use. It is supported by the C-14 dating of carbon residue from kiln 5. Unfortunately the sample was not a good one and the C-14 date is not very precise. It is unlikely that all the kilns were in use at the same time. Quite possibly only one was in use at any one time. The life of a kiln was probably only a few years because the internal structure would have deteriorated with continual use. There is further evidence (kiln 5) that the kilns were re-limed. This has been noted before (Foo Dei Wan and Yi Long) but was very clear at Sham Wan Tsuen.

The kilns were abandoned by the end of the Tang era or soon after and subsequently burials were made on the site during the Sung and Yuan periods and recently. There is no sign of Ming occupation nor has any evidence of Bronze Age occupation been found. There is evidence of the Late Neolithic (circa 2000-1200 B.C.) immediately beneath the kilns and at much lower levels co-inciding with the water level of the sandbar there is evidence of Middle Neolithic occupation (circa 4000-2000 B.C.).

APPENDIX 7 -- HISTORY OF CHEK LAP KOK (in Chinese)
[next two pages]

赤臘角島

蕭國健

赤臘角島，為大嶼山北岸東涌谷北面之一大海島，面積二點九平方公里，該島東西狹而南北長，多山，岩石為花崗岩體，草木稀少，故風蝕嚴重，黃赤土隨處暴露，谷地為灌木叢。

該島之舊有名稱，至今已難考，惟至明代，則以赤臘洲一名，見載於志乘（註一）；清代中葉後改稱赤瀝角（註二）；近代一般俗稱赤鮭角（註三），政府地圖則稱赤鱲角（註四）。

島之名「赤臘」或「赤瀝」，文字無考，但據相傳，謂因島上黃赤土隨處暴露，並無植物蔽蓋，有如人之無衣服蔽體，廣府人稱赤露上身為「打赤肋」，「赤臘」與「赤瀝」兩詞與「赤肋」於粵音頗近，因名。致其俗稱赤鮭角之由，有謂因該島形如赤鮭魚，亦有謂因其附近水域，盛產赤鮭魚，尤以北面突出之海角附近為多，故名。惜上述各說皆為口耳傳聞，並無文獻可供查究（註五）。

該島於上古時代，已有先民居定，島上已發現多處遺址，出土之石器用具頗多（註六）。李唐時島上濱海地域，有人生產蠣灰，用以修補船隻，或製造煮鹽用具，西元一九八四年，香港考古學會人員在北部之深灣地域，發現唐代灰窯多座（註七）。該處且有宋代銅錢出土（註八）；南宋間，該島因位東莞鹽場轄下之海南柵境內（註九），故疑亦為產鹽地域；慶元三年（西元一一九七年），大奚山上島民反抗政府，但為官軍所敗，官軍入大奚山，盡殺島民，且墟其地（註十）；赤臘角島距大嶼山（宋時稱大奚山）甚近（註十一），居民是否盡被殺戮，則無文獻可考。近年，島上亦有元代灰窯發現（註十二），可証其時仍有人居住。

明代，該處已為一大聚落，明代志乘之輿圖中，已有「赤臘洲」一名（註十三）。清初，該島仍稱赤臘洲（註十四）；至嘉慶年間，該島被改稱赤瀝角（註十五），且為一著名之官軍與海盜交戰場所。

清嘉慶十四年（西元一八〇九年），紅旗盜幫頭目張保（註十六），於虎門口龍穴島地域與葡萄牙戰艦及清水師戰爭後（註十七），率所部屯駐大嶼山赤瀝角海面，修補船隻，及重加食水及粮食之補答，時葡船與清廷水師追踪而至。是年十二月十三日，兩方交戰，不分勝負；至十五日，官軍敗退；十六日，官軍再攻海盜，再敗，失一舟；十七日，提督孫金謀令集合各舟師，齊赴赤瀝角，困張保等盜船於東涌灣，香山知縣彭恕亦調陸軍，布列大嶼山岸上，以防海盜上岸逃逸，遊擊劉良材備辦火攻器物，以備進攻；二十日，當一切準備就緒，官軍放火船二十艘入東涌灣，欲焚燒灣中之盜船，惜風向不順，其計不得逞。二十一日，張保等以數十爛船作掩護，乘南風起，浪捲濤奔，遂揚帆破圍而去，直出仰船洲外洋（註十八）。

盜患平後，漁民得往該島沿岸捕魚，因有天后神壇之安置（註十九）。其後，以該島盛產花崗岩之故，遂有多間石廠開設，採石以供虎門各砲台之修建，及市區建築之發展（註二十）。島北亞媽灣畔之天后宮，建於道光三年（西元一八二三年），其門扇、牆壁、香案、爐鼎等皆為石製，全港境內只此一所，別處皆無；觀門額上所刻，可知其為當時島上石廠所出資修建（註二十一）。

本世紀初，該處仍為一採石場所，五十年代時，島上人口約二百餘，至九十年代初，因水源不足之故，人口只餘數十。西元一九九〇年初，香港政府公佈於

島上建築機場，該島沿岸將會填平，與大嶼山北岸連接，島上山地亦將被夷平，居民皆被遷送他處，該島將無復原貌（註二十二）。

註釋

註一：赤臘洲一名，首見載於明萬曆郭棐粵大記卷三十二之廣東沿海圖。清雍正郝玉麟廣東通志卷三輿圖之廣東海防圖亦稱該島為赤臘洲。

註二：清嘉慶舒懋官新安縣志卷十三寇盜嘉慶十四年條中稱該島為赤瀝角。

註三：近人郭嵩、魯丁編繪之離島導遊一書，稱該島為赤鮫角。一九八〇年出版。

註四：香港工務司署地政測量處繪製之香港街道與地區：香港導遊指南上冊，其大嶼山北面之海島，稱作赤鱲角。

註五：除上述各名稱外，該島亦稱小長洲，惟其得名之由則難考。

註六：近年，香港考古學會人員在島上之深灣及虎地灣等處，進行發掘，頗有收獲。

註七：香港考古學會學報第十冊：頁十至四十二。一九八四年香港考古學會出版。

註八：前書頁四十三至四十九。

註九：詳拙著清初遷海前後香港之社會變遷，頁二十七，及五十七、八。一九八六年台灣商務印書館出版。

註十：明天順盧祥東莞縣志卷一山條。

註十一：大嶼山即古之大奚山，詳拙著離島史蹟志，頁四十一及二。一九八五年顯朝書室出版。

註十二：西元一九九一年夏天，香港考古學會人員於島上虎地灣海濱，發現元代灰窯，據云，其中一座較完整者，今已移置大嶼山東涌碼頭旁之小山丘上，供人遊賞。

註十三：同註一。

註十四：同註一。

註十五：同註二。

註十六：詳拙作粵東名盜張保研究一文，原載中國歷史學會史學集刊第二十二期。一九九〇年台灣中國歷史學會出版。

註十七：澳門海事博物館藏有當時葡國畫家所繪之海戰油畫一幅，可供參考。

註十八：有關是役之記載，清道光袁永綸之靖海氛記紀載甚詳。袁氏家居順德海濱，對其時盜患擾掠，或目睹，或耳聞；其文不尚繁詞，務求簡括。以後之方志：如廣東通志，廣州府志，及番禺縣志等，多採其所記為依歸。

註十九：此據許舒博士DR. JAMES W HAYES所告。許氏曾任新界南約理民府，其於空暇時，常與區內長者閒談，此或為該地居民所告，惜乏文字記錄可考。

註二十：據虎門砲台工程（抄本），原本藏廣州市中山圖書館善本書庫。

註二十一：該廟門額下款為「此扁興合廠張九元，九省敬送」，觀其名號，可証為石廠店東所捐送，而非為漁民或艇戶所捐送者。

註二十二：島上之天后宮，據云將會移置東涌東部黃龍坑地區。

APPENDIX 8 -- PROJECT SUMMARY (in Chinese)

導言

一九八九年九月當時港督衞奕信爵士宣佈香港新機場將在離島赤鱲角興建，建築工程在夷平全島後隨即進行。

本地考古學者對赤鱲角遺址極為熟識，在一九七九年初次討論可能在該處興建新機場時，香港考古學會開始在深灣村沙丘遺址進行有系統的發掘。發掘結果顯示，遠至新石器時代（約公元前一千五百年至前四千年）至晚唐及宋代（公元八至十三世紀）時期，該地已有人聚居。

在決定赤鱲角興建新機場後，英皇御准香港賽馬會資助香港考古學會在該島進行為期十個月的調查及搶救發掘，並在隨後的六個月內分析所出土的文物、研究該島的歷史和以前的考古發現，編寫研究報告。

第一位考古學者踏足該島是公務員和路達．史戈菲先生，一九三一年他在島上首先發現一件史前文物——一具新石器時代的磨製石磔，跟着在一九五〇年，香港大學考古隊——香港考古學會的前身，亦發現有新石器時代的石器和陶器。直至在一九七九至八〇年內的考古發掘，顯示島內多個遺址所藏文物極為豐富，該年初在深灣村發掘時發現該處為重要的唐宋時代遺址，出土大量不同種類的陶瓷和數量頗多的錢幣，另外在虎地灣也發現第二個唐代遺址，而過路灣的新石器時代遺址出土文物亦極多。

當考古搶救行動在一九九〇年開展時，首要任務是在該島進行全面調查，如找尋新遺址，紀錄舊墳墓和舊建築物，及在棄置耕地上找出原耕種模式：此項調查確定六個主要遺址要作全面的發掘，其他幾個次要遺址祇需試探發掘：同時拜會島上村民，收集近代史料。

島上歷史源流

赤鱲角是一個多山的小島，位於大嶼山的北岸，該島的一大地理特點是有一個南北走向的斷層，構成虎地灣與深灣村之間的多個山谷。在一九〇五年政府查勘新界土地使用情形時，這些谷地上已滿佈稻田，居民務農為生，直至一九七〇年代方停止種稻。另外，在一九〇五年的調查中，亦記錄了長沙瀾，過路灣及亞媽灣天后廟附近，也有小面積的耕地，島上最初種植稻米何時開始，史無記載，現難於稽考，相信這片農耕灌溉系統，不可能早於十八或十九世紀。

十六世紀時該島初次被提及並命名為赤鱲洲，此名顯然是由「紅鱲魚」而來，但不知此島地形是否像赤鱲魚或附近海域蘊藏大量赤鱲因而得名？除此亦有其他解釋，由於此島輪廓酷似人形，當島上植物稀疏時，黃土顯現，類似人體赤露上身，廣州話俗稱「打赤肋」。

除早期地圖印有該島外，史載一八〇九年中的一場海戰，就在赤鱾角附近海面發生，清朝海軍大敗由張保仔所領導的海盜。翌年，聲名狼藉的張保仔，終於歸降清朝。

十數年後，約一八三三年，為供奉天后而建的小廟，亦告完成；該廟建築材料全部採用花崗岩，頗具特色，廟門門楣上刻有兩名捐助興建的石商。此廟已在一九九〇年間拆卸，全部材料運往東涌黃龍洞擇地重建。

赤鱾角的石礦事業，約在一八〇〇年開始，延續至一九五〇年為止，集中島上北端，由於海岸岩石大量被開採，北邊海岸線多已改變。在二十世紀初期，深灣村主要工業是石礦業，僱用的客家工人，居住在臨時的房屋。

到一九六〇年代，中國難民受教會援助，遷移島上，致人口劇增。十餘年後，由於耕種稻米式微，人口減退，到一九九〇年代，只剩餘二、三十戶。

深灣村

此遺址位於小沙丘之上，現處於山谷的中央；從前可能是沙灘背後的一個沙丘。在公元八至十世紀時，此處最少築有十二座殼灰窯，生產石灰（以貝殼及珊瑚為原料）。

香港其他地區，也有屬於唐代石灰工業的同類遺址，但深灣村出土豐富的陶器及錢幣，一個貯藏處內發現三百多個銅錢，大部份是唐代最通行的錢幣——開元通寶，亦有數枚會昌開元銅錢，顯示這批錢幣入土稍遲於公元八百四十六年。

陶器日用品，包括不同種類的碗具和其他器皿，屬晚唐時期。據出土陶器型製顯示大部份屬廣東地區燒製，但有些精品顯然出自湖南之長沙窯。經碳十四測試，出土銅幣及出土陶器佐証，斷代約為公元八百年左右，因此唐代石灰工業年代得以確定。

深灣村殼灰窯羣亦提供寶貴資料，有關貝殼和珊瑚燒製方法，及石灰生產過程。這些殼灰窯似乎是無圓頂的，相信只是簡單露天式的灰窯，用猛烈的火力將貝殼和珊瑚燒成石灰。窯羣中有兩個頗大的建築物體，看來是製造熟石灰的地方。

石灰工業可能在公元九百至九百五十年間被廢棄，約兩世紀後，遺址被用作墓地。幾個宋代典型的陶瓷和十四個北宋錢幣同被發現，（最晚的錢幣是公元一千一百〇一年的聖宋元寶）另一大陶罐內藏有一火葬人骨殘骸，性別不詳，年約十七歲。

沙丘對面隔着溪流的地區，發現第二個考古遺址，找到另一座殼灰窯，再一次顯示唐代石灰工業的例証，惜無村落或殼灰業工人住所的遺蹟。

此個遺址史前文物豐富，比沙丘遺址上發現的器物年代更為久遠，出土文物年代可劃分為新石器時代晚期（公元前一千五百年至前三千年）以幾何印紋軟陶為代表，新石器時代中期（公元前三千年至前四千年）有小量陶器被發現，這些陶器飾以簡單花紋或帶彩色圖案，而彩陶均出土於坑內最低層；除此之外，一些粗製或磨製石器亦有發現。

虎地灣

在虎地灣山谷內有兩個考古遺址，據知在一九六〇年間，一名教會職員在沙灘後的小沙丘發現一個完整的六朝（公元四百二十年至五百八十九年）或唐代青釉罐半埋在沙中。約二十年後，香港考古學會與這位教會職員接觸時，得悉一座近乎完整的大殼灰窯或爐灶，就在海灘附近。

此窯位於叢林內，經証實是另一唐代殼灰窯，是區內已發現的窯羣中較為完整的一個；由結構地基內獲得的木炭用碳十四測試年代，約為公元七百五十年間；此窯於一九九二年由喀嘓工程人員運往東涌重建，現已公開展覽。

在沙丘發掘時，出土大量新石器時代、唐朝及宋朝陶器，但能提供的資料甚少，緣於這些文物被水沖離原位至該處再度被埋藏（各時代的文物混在一起）。最有趣的出土文物中有一個石製樹皮拍，這是新石器時代先民利用植物樹皮纖維製造衣料的工具，同時亦出土一件精細磨製的石箭頭。

第二個遺址位於海拔約十五米的一塊高地上，俯視海灣，此遺址極為重要，它是一個保存得很好的新石器時代中期的居住地點（可能是季節性的營地或村落）；並發現多個建築物的柱洞，也有大量的陶器和石器，煮食篝火堆及石器工場也能確認。

在這遺址中，最重大的發現是墓葬或祭祀坑，在一些小坑內可發現完整的陶罐和石器，雖然同坑並未發現人骨，相信這些物品是用作陪葬，隨人骨在第二次葬時一起入土（死後數年起骨遷地再葬）。在發掘的後期，為節省時間和人力，採用鏟坭車將遺址上的小型建築物推倒和移去表土，再發現幾件墓葬或供奉物品，內有一件精製帶複雜圖案的高足豆，是華南沿岸地區出土新石器時代中期陶器中極具特式的一個。

經碳十四測試數塊由篝火堆取出的木炭樣本，距今約為公元前三千四百至前三千七百年，這些資料，對研究香港先民早期生活狀況，極為重要，雖然至今我們對先民的經濟情形，所知不多。最後，從新石器時代中期文化層下的地層找到的木炭樣本送往測試，其年代接近一萬一千前，雖然這地層並無發現文物，很可能這木炭來自森林山火，由此顯示此地區某處可能已有先民的活動。

蝦螺灣

虎地灣南方的第二個海灣就是蝦螺灣，沙灘後有相當坦平的地峽，海拔約十五米；當最初在這海島進行普查時，已認定這處是一個新石器時代的遺址，雖然在地面視察時並無文物發現。但在一九九一年的三個星期試掘裏，除出土一具磨製石斧外，再無新石器時代文物。

在海灘對上一台地中，發現一部份窯壁，隨後這窯亦全部出土；發覺與香港其他遺址的普通唐代灰窯明顯不同，經碳十四測試，得出年代約為公元一千二百年，比唐代稍遲幾個世紀。在附近

區域進行廣泛搜索後，發現第二座窰的部份，在該範圍的發掘坑內最終發現有十多座窰。

經過幾個星期的發掘，對這種窰的用途仍然不知道，任何方面都不像唐代灰窰，它依山邊向內挖掘而建成，有完整的圓頂和於窰壁留有通風口，最初推測可能是石灰工業的延續和經過改良的灰窰，亦有可能為製造木炭，磚或陶器為主的其他窰。

最後，在發掘完結前，發現一些物體類似礦渣，據化學分析，這些礦渣幾乎全是鐵質，因此相信蝦螺灣的窰是用來提煉鐵礦的；但如何的運作，仍是一個未解開的謎，冶煉鐵礦的理論，尚無法証明，但無論這些窰作何用途，以它的獨特性在香港考古學上是前所未見的發現。

當赤鮀角考古工作完成後，機場規劃師決定保留島上南端的小丘，而蝦螺灣窰羣距離保留地段外只有二十多米，故香港考古學會建議擴大保留界限，免致這遺址遭受破壞，有關當局亦同意這項請求，機場建成後這帶窰羣會作為戶外原地展覽，並成為新機場的一部份。

過路灣

由蝦螺灣向東橫過山峽便是過路灣，這遺址在一九八〇年間被發現，近海灘較低山坡的耕地上發現有新石器時代的陶器和石器，發掘顯示和虎地灣的高地遺址有相同文化層，尤以陶器顯示相同的時期，即新石器時代；而柱洞，篝火堆和石器工場亦有發現。

再者，也發現墓葬或祭祀坑，均採取同樣的葬禮，完整的陶器放在一個淺的小坑內，相信都是第二次重葬的明器。近代的耕作令一些墓葬受到破壞，但出土的新石器時代陶器，經修補後，有些已恢復本來的面貌。

兩件木炭樣本用碳十四測驗來鑑定年份，約在公元前三千年至三千四百年，較虎地灣遺址稍晚，但兩地的陶器極為相似，因此兩個遺址的先民差不多同時定居該兩地。

靠在沙灘後的一個小沙台上，發現另一個重要的遺址，這地區經地面視察後，除一小塊紅燒土外，並無其他發現；這塊紅燒土令人聯想可能是唐代殼灰窰的一部份，但發掘和碳十四測試，証明是近代的遺物。

幸而在紅燒土周圍發掘，出土幾件青銅時代的陶器，為赤鮀角首次的發現，隨在現場作大規模發掘，有青銅時代的墓葬伴以完整的陶罐、銅器、石器及一組精緻磨製的石玦。

最重大和興奮的發現，便是三對鑄造銅斧用的對合式石範，每對石範連接一起，極有可能曾用於鑄造銅工具，最後放進墓中作為隨葬品。

第二項重大的發現，稍後在該區出土的文物送往實驗室進行研究時，一小塊布片被發現附在一支銅茅頭的一邊，布片後來經政府化驗師証實是大麻纖維，據香港理工學院的紡織學專家認為，布料的製造和編織的技巧都相當高。

由發現的幾件銅斧石範和殘碎布片，對華南青銅時代的知識，有莫大的幫助。同樣有重大意義是遺址斷代，三件炭樣本確定年代是介乎公元前一千年至前一千二百年，亦相等於北方的商至西周早期之間。

其他遺址

島內很多墳墓都隱藏在滿佈植物的山邊，被後人遺忘，大部份都有墓碑，碑文顯示多是在十八或十九世紀之間，但其中兩個卻無年月日，只刻有「前朝老人」字樣，因此可能是明墓，但當墓葬被土地清拆組掘開時，兩墓的金塔在形制上和較晚的墳墓極為相似。

由村民處得悉在山脊處有一天然岩石所形成的庇護所，石下空間很大，地面乾爽，能遮風擋雨，經搜索後，終找到該岩蔭的所在地，地面泥層似乎未受侵蝕，發掘顯示只有極薄的文化堆積層，出土小量新石器時代的陶片。這是香港第一次發現的洞穴或岩蔭的考古遺址，但這些陶片並無特殊形制，以及未有發現木炭，因此這處使用的時間，未能確定。

地名通常可提供以往活動的証明，在東岸有一海灣名灰窯灣，但無人知道灰窯究竟在何處和曾否使用過，過路灣意指處於赤鱗角和大嶼山之間狹窄的海峽，在過路灣發現的一枚十九世紀的炮彈，足以証明近世紀這海峽的戰略價值。

在調查期間，赤鱗角較次要的遺址，有長沙灣和樹糧灣，這兩地區，都發現有小量新石器晚期的陶器；隣近島嶼如欖洲，亦在調查之列：在該處發現有唐、宋和新石器時代晚期陶器碎片，這幾個遺址，似乎有發掘的價值，由於某種原因，先民很少在這裏活動。

赤鱲角與香港考古

赤鱲角的的歷史，是包括了人類在香港地區生活的整個時代，由公元前四千年的彩陶時期，直到近代中國大陸的移民潮。有趣的是，赤鱲角如此細小，竟有如此豐富的考古遺物，構成一個過去香港的縮影。

從這個地區的考古工作亦可反影香港考古上的共同性，深灣村只發現四塊漢代陶片，而卻完全找不到可代表明代的東西，在香港整體而言，也幾乎有同樣情形出現，漢朝文物稀少，明朝瓷器甚難找到（竹篙灣遺址除外）。

赤鱲角的搶救發掘工作是出乎意外的成功，深灣村遺址不但使我們瞭解殼灰窯的運作，而且亦証明新石器時代存在的彩陶文化，虎地灣出土豐富的文物，包括新石器時代中期的刻劃印紋陶器到唐代殼灰窯為主。蝦螺灣更提供一個全新及獨特的煉鑛工業。最後，過路灣有意外的收獲，計有新石器中期及青銅時代的墓葬品。

此項搶救發掘工作是如何挽救文化遺產及資料得以保存的一好例子，這些在自然保護下已有幾千年的文物，是我們文化遺產的一部份；在這二十世紀九十年代，因為社會急劇的發展和進步，如任由各種文物被受摧殘，是人類極大的耻辱。

赤鱲角發現的寶貴文物，不單顯示有關先民早期生活狀況，亦提醒我們有責任保存過往的生活自然証據，免遭破壞。

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