

CHAMPA CERAMICS

Production and Trade

— Excavation Report of the Go Sanh Kiln Sites in Central Vietnam —

Edited by Yoji Aoyagi and Gakuji Hasebe



The Study Group of the Go Sanh Kiln Sites in Central Vietnam
JAPAN / VIETNAM

2002

The study group of the Go Sanh Kiln Sites in Central Vietnam was organized in 1990 by AOYAGI Yoji and HASEBE Gakuji with the collaboration of the Ho Noi Institute of Archaeology, National Center for Social Science of Vietnam (Director Ha Van Tai).

This study group continued and expanded during the period from 1991 to 1994, and following works are carried out.

1. Spring 1991: Preliminary survey in North and Central Vietnam. The members of the Japanese team are HASEBE Gakuji, AOYAGI Yoji, MOMOKI Shiro, OGAWA Hidefumi, and MORIMOTO Asako. Financial support by The Nishida Foundation. The Vietnamese participants are Trinh Anh Dung, Tran Anh Dung, Nguyen Manh Giang, Le Dinh Phung, Tran Anh Dung, Nguyen Manh Giang.

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Foreword

The study group of the Go Sanh Kiln Sites in Central Vietnam was organized in 1990 by AOYAGI Yoji and HASEBE Gakuji with the collaboration of the Ha Noi Institute of Archaeology , National Center for Social Science of Vietnam (Director Ha Van Tan).

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This publication comprises papers of the study group. We are all grateful to the Nishida, Mitsubishi and Takanashi Foundations for the financial supports.

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Excavation of the Go Sanh Kiln Complex

- *Champa ceramics in the history of the maritime route of silk road* -

Yoji Aoyagi

Introduction

Various artifacts excavated in archaeological sites are valuable materials which convey at first hand daily lives of the people at that time to us. Among them, recently noted artifacts are a large amount of various ceramics excavated in archaeological sites in coastal areas of Southeast Asia. Although most of them have been found as grave furniture in graves dated before the 16th century when the Europeans came, cases that ceramics were found in shipwrecks under the sea and in sites of port cities have increased recently. Most of these ceramics are Chinese, but there are also Thai ceramics and Vietnamese ceramics. Aside from them, Islamic ceramics have been also excavated, although they are a few.

Ceramics unlike silk cloths survive and remain in sites without decaying and disappearing, even if they break into small fragments. As areas (kilns) and dates of producing of some of these excavated ceramics have been already identified, they serve as useful materials to clarify dates and characteristics of sites themselves.

Chinese ceramics were exported to Japan, all over areas in Southeast Asia and Africa as a farthest place. Celadon wares of the late Tang to the Five Dynasties, white wares of the Sung Dynasty, blue-and-white wares of the Yuan Dynasty and wares with over-glazed red enamel design of the Ming Dynasty have been excavated with native earthenwares in various archaeological sites in the Philippines. Many of these ceramics are common in their dates and kinds to ceramics excavated in al-Fustāt Site in Egypt and other various sites in Japan. Actually these trade ceramics were also found in archaeological sites along coasts of the Indian Ocean, the Red Sea and the Persian Gulf.

I would like to locate the Champa ceramics, which are ceramics of the Go Sanh kiln complex, in the history of the "maritime route of silk road".

1. The Champa Kingdom, the Strategic Point in the Maritime Route of Silk Road

1-1. What is the Champa Kingdom ?

The Kingdom known as Champa flourished along the coast of the Indochina Peninsula in the area that now comprises central and southern Vietnam. Many aspects are unknown about the history of this kingdom, which was recorded in Chinese and Vietnamese historical records by various names, including Linyi(林邑), Huan Wang, (環王) and Champa(占城). This kingdom, whose history spans a period of 1600 years between its founding in 192 C.E. and its loss of sovereignty in 1835, endured for a great length of time unequalled elsewhere in Southeast Asia. During this span of time, while it battled severely against various ethnic groups and dynasties in neighboring China, Vietnam, Cambodia, nearby Thailand and Indonesia, it formed trade connections with India, Arabia, China, Japan and the Philippines and created an astounding prosperity. Marco Polo, who set foot here in 1285, described it as the "kingdom of wealth." The sacred or political sites such as My Son, Dong Duong, Po Nagar, and Ca Ban, or the carved stone sculpture, testify to the past glory.

The territory of the kingdom of Champa is said to have extended from Gan Pass in Quang Binh Province in the north to Dong Nai Province in the south. In the past, this region was

inhabited by the Austronesian (Malayo-Polynesian) speaking Cham people. From the fourth century at the latest, Indian civilization exerted a strong influence on this region. Inscriptions relate that the kingdom of Champa was divided into four areas, each asserting its regional power- Amaravati (present-day Quang Binh Province to Quang Ngai Province), Vijaya (from Binh Dinh Province to Phu Yen Province), Kauthara (Khanh Hoa Province) and Panduranga (Don Nai Province). According to recent scholarship, the Champa "kingdom" was a loose confederation of these regional polities of varying sizes, and the "king" of Champa was whichever leader of the moment held the greatest power (a king among kings) (Momoki 1996).

1-2. The Champa Kingdom and the maritime route of silk road

One of the Champa capitals, Tra Kieu, is located about thirty kilometers south of Da Nang, the largest modern city in central Vietnam. Located atop a low hill, it is the site of a former royal palace. Today a modern Christian church stands on the site. The view is magnificent.

The Tra Kieu site is located along a branch of the largest river in central Vietnam, the Thu Bon. It lies eighteen kilometers inland from the port city of Hoi An at the mouth of the river. The site is on a plateau, and traces of earthen ramparts survive on all four sides; the best-preserved western wall is at present about three meters high and thirty-three meters wide at its base, and it runs for a length of 1.5 kilometers.

Sites of Champa and earlier Sa Huynh cultures are numerous along the Thu Bon River. Fifty-two sites of Sa Huynh culture cemeteries of jar burials are known, beginning with the jar burial cemetery at Hau Xa village on the Hoi An Sand Dunes. The site of My Son, the sacred precinct of the Champa Kingdom, lies in the mountain west of the Tra Kieu. This mountain area constitutes a part of the forested Truong Son Range, famous as the source of aloes-wood, cinnamon, black pepper, and ebony. These are typical trade goods of the "maritime route of silk road" and were main commercial goods of the Champa Kingdom. Among them, aloes-wood was particularly precious. It is well-known that the royalty and the nobility in all parts of Asia treasured it.

Among the excavated artifacts of the Tra Kieu, there are goods of Chinese, Indian, Arabic, and Japan origin, and some can be clearly dated. The Chinese-related pieces include the stamp-decorated pottery of the Han Dynasty (2nd-3rd centuries), tiles (3rd-4th centuries), Yue wares from the late Tang to Five Dynasties(9th-10th centuries), underglaze-iron decorated wares of the Guangzhou Xicun kiln of the Northern Sung Dynasty(11th-12th centuries), celadon wares of the Longquan kiln of the Southern Sung to the Yuan Dynasties(13th to 14th centuries), blue-and-white wares of the Zhangzhou kiln type of the Ming Dynasty(17th century).

Among Indian goods are found sherds of Indo-Roman rouletted ware of the same type that has also been excavated from Arikamedu in southern India and in Indonesia, the Sembiran site in Bali and graveyard site on the outskirts of Jakarta in Java; a date of third century B. C. to first century A. D. has been proposed. Other Indian goods include glass beads and a type of vessel with pouring spout (kendi) also found in the Oc Eo culture sites of the early kingdom of "Funan"(扶南) in the Mekong Delta.

Among Arabic remains are fragments of storage jars bearing blue-green glaze thought to have been made at Basra in Iraq. This type of early Islamic blue-green glazed ceramic is excavated from the ninth and tenth century sites in the Malay Peninsula (eight sites), the Philippines (three sites), China (four sites) and Japan (four sites). Within the Champa Kingdom, aside from the Tra Kieu site, such wares have been excavated from the sacred precinct of My Son, the port city of Hoi An, Cham

Island offshore at the mouth of the Thu Bon River, and Con Dau Island in the south.

Cham Island in the South China Sea, is thought to be the place recorded as Sundurfulat in the Akabar al-Sin wa I-Hindu recorded in the 9th or 10th century by Arabic seamen and merchants. The text by the Tang Dynasty(617-907) Chinese writer Jia Dan, Huang Hua Si Da Ji(written around the 8th century), names it Cham pu lau shan(占不劳山). Within close reach of Cham Island are the port city of Hoi An, the royal capital of Tra Kieu, and the sacred precinct of My Son. The writer and his colleagues, during our 1993 exploration of Cham Island, found a blue-green glazed Islamic ceramics sherd with sherds of the Chinese ceramics known as the early trade wares - - Changsha ware, celadon from the Yue kilns, and white ware from the Ding kilns, scattered in a settlement near the boat landing place(Aoyagi 1995). The Islamic blue green-glazed wares and the three kinds of early Chinese trade ceramics were excavated in set at the Chaiya site in the Malay Peninsula, the Laurel site in the Philippines, and in Kōrokan site in Hakata in Japan. At that time(9th-10th centuries), Hakata was the most active international maritime port in Japan, serving as an entry point for peoples and goods from East and Southeast Asia. It is probable that the maritime trade route of Arab traders, who crossed the Malay Peninsula and transshipped their goods on Con Dau Island and Cham Island, in the ninth century reached China, Japan far to the north, and the Philippines far to the east.

The Japanese goods excavated from the Tra Kieu site are porcelains (Imari wares) from Hizen Province in Kyusyu. They include bowls bearing the underglaze cobalt motif of the "roughsea," manufactured during the 1660s.

Archaeological materials excavated from the Tra Kieu site, spanning the period from the beginning of the first millennium A.D. to the seventeenth and eighteenth centuries, richly demonstrate the power of the seafaring kingdom of Champa.

2. Producing Area and Trade Network of Champa Ceramics

2-1. Champa ceramics and the structure of the Go Sanh kilns

Here the term Champa ceramics will serve as the general designation for the ceramics from the kilns whose existence in central Vietnam's Binh Dinh Province, to date, number five: the Go Sanh kilns in An Nhon Country; the Cay Me, Go Ke, and Go Toi kilns at Go Hoi in Tay Son Country; and the Truong Cuu kilns in the immediate vicinity of Tra Ban Castle, the former Champa capital. All of these kiln complexes lie along the banks of the Con River, which empties into the old Thi Nai Bay (modern Qui Nhon Harbor), a location that gave them an advantage for transportation by water.

This entire area was known in the past as Vijaya and, centering around Tra Ban Castle erected circa 1000 C.E., was one of the capital cities of the Champa Kingdom. Tra Ban Castle, which lies 27 kilometers northwest of the present provincial capital of Qui Nhon, was destroyed in 1471 by the forces of the Le Dynasty. The surviving city walls are made of clay and laterite and are said to have been constructed in the eighteenth century. Archaeological researches of Champa ceramics have been carried out in 1991 by the Binh Dinh Provincial Museum, in 1992-1993 by the Binh Dinh Provincial Museum and the Institute of Archaeology in Hanoi, and by the joint Vietnamese-Japanese international research team of old kiln sites in 1993-1994 (Yamamoto et al 1993, Morimoto et al 1996-97). Kilns sites have been identified at five places within the former Vijaya region of the Champa Kingdom, and to date excavations have been carried out on Kilns No. 1, No. 2, and No.3 at Go Sanh (Sanh Village).

Kiln No. 1 measures a total length of fourteen meters, including the fuel combustion chamber, ware chamber, and chimney. The walls are constructed of stacks of saggars secured

with clay. Square bricks were used to construct six flame-dividing pillars on the floor of the fuel combustion chamber. The six pillars are laid out in a triangular arrangement pointing toward the opening of the fuel combustion chamber: in other words, one pillar is in the first row immediately in front of the opening, two pillars are in the second row, and three pillars are in the third and last row. The remaining portions of the pillars, five bricks high, measure roughly 0.4 meters. The ware chamber is rectangular in plan, broadening toward the rear wall. It measures 1.6 meters wide at the front, 2.8 meters wide at the back, 10 meters in length. In one place an opening was cut into the side wall of the ware chamber to provide access for loading and unloading, and the wall was built of saggars. A vertical wall 0.5 meters high separates the ware chamber from the fuel combustion chamber. In the rear wall, constructed of saggars stacked on their sides, vents for heat and smoke are constructed by punching out the base of every other sagger in one row to create six openings. Two floors of different periods were discerned in the ware chamber, with the new floor increasing the thickness by 0.3 meters.

Kilns No. 2 resembles No. 1 in its walls built from stacked saggars and the placement of the flame-dividing pillars in the fuel combustion chamber.

Kilns No. 3 lies beneath No. 2 and was razed at the time of construction of Kiln No. 2. Difference between Kiln No. 3 and Nos. 1 and 2 can be seen in the structure of the fuel combustion chamber and the construction of the kiln walls. The walls of Kilns No. 3 were built from clay alone, without the use of saggars. The ware chamber of Kiln No. 3 measures 1.2 meters wide by the fuel combustion chamber, 1.7 meters wide at the back, and 5.3 meters long. At the back of Kiln No. 3, the wall measures 0.6 meters thick, and stones are applied to the outer surface. On the interior of the wall, near its lower edge, four vents were opened. The chimney bends at right angle to turn upward. A side entrance is opened in the right-hand wall of the ware chamber. Shelves were built in the ware chamber using pillars and trenches. On the same level as the ware chamber floor, passageways for flame are provided, allowing the flame to move upward from the fuel combustion chamber. The investigation of Kiln Nos. 2 and 3 was carried out in 1993-1994 by the Vietnamese and Japanese research team.

Grouping the wares of the Go Sanh kilns together with those of the Go Toi and Chuong Ku kilns for the purposes of discussing ware types and shapes, the major products can be said to be celadon-glazed bowls, dishes, large bowls, iron-glazed jars and vats, and underglaze-iron decorated bowls, dishes, large bowls and platters. Also present are glazed roof tiles, unglazed roof tiles, and architectural ornaments. The iron-decorated wares of the Cay Me and Go Ke kilns also feature carved or combed decoration or the decoration of the lotus. On the iron-decorated jars and vats appear underglaze incised designs or incised floral designs executed with resist techniques or applique floral designs or stamping floral designs. The celadon-glazed bowls and dishes and the brown glazed jars and vats show a marked resemblance to similar wares from kilns in Fujian Province in China, and up to this point have been identified as Chinese ceramics in reports.

2-2. Date and trade networks of Champa ceramics

The starting point for the manufacture of Champa ceramics is not yet clear, but the dates for Champa ceramics excavated from overseas sites suggest that production was flourishing from the fifteenth through the sixteenth century.

With a wide distribution through sea-borne trades across the Indian Ocean, Champa ceramics have been excavated from the al-Tūr site on the Sinai Peninsula in Egypt, from the medieval port city of Julfar within Ras al-Khaimah in the United Arab Emirate, from the site of Juara on Tioman

Island in insular Malaysia, and from the cemetery site of Santa Ana and the cemetery sites in the Calatagan Peninsula and the shipwreck off the shore of Pandanan Island, all in the Philippines. When Champa ceramics found at these sites are compared to the Chinese and other ceramics associated in the same sites, it is clear that Champa ceramics were excavated in association with ceramics made from the fourteenth to sixteenth centuries. For example, the several hundred Go Sanh celadons excavated from the shipwreck off the shore of Pandanan Island, near the southern tip of Palawan Island, Philippines were reported to have been found associated with a Chinese blue-and-white saucer with a design of a phoenix and a qilin of the Yuan Dynasty, a Chinese guard shaped pouring vessel with iron-brown spots of the Yuan Dynasty and a Chinese blue-and-white dish with a design of a qilin which is thought to be dated to around the latter half of the fifteenth century to the first half of the 16th century. The investigator, Dr. Dizon of the National Museum of the Philippines, believes the ship to date from the fifteenth century. If that date is accepted, it is thought that Champa ceramics were exported to foreign countries during that period at the latest and that the ceramic production in Go Sanh were greatly flourished during that period. In any case, it is clear that the Champa Kingdom commanded a trade network around the fifteenth century that embraced Egypt, the United Arab Emirates, Malaysia, and the Philippines. This fact testifies the broadness of the trade network of the seafaring kingdom of Champa.

3. Champa Ceramics in the History of Ceramic Trades

Numerous port cities, whose roles were intermediating areas, accumulating areas and consuming areas of trade goods, emerged and developed, then disappeared in the world around the South China Sea which have been the maritime road between China, and India and the Western Asia. Most popular ceramics, which were excavated in sites of port cities around the South China Sea dated from the 9th to 16th centuries are Chinese ceramics. Aside from Chinese ceramics, Islamic ceramics, Vietnamese ceramics, Thai ceramics and Champa ceramics, which is recently recognized, have been excavated in sites of specific periods.

3-1. The 9th to 10th centuries sites

The type sites of this period are the Laem Po site in Chaiya, Sulatani Province and the Kho kao Island facing Takuapa which are located in the east and the west of Isthmus of Kra respectively. Three kinds of Chinese ceramics (the Yueh type celadons, the white wares of the Ding and/or the Xin kilns and the painted policolored underglazed wares of the Changsha Tongguan kiln, which are called the early trade ceramics in Japan, and the Islamic ceramics represented by the turquoise blue-green glazed wares are found in these sites. The Islamic blue-green glazed wares were found also in the following sites; Pengkalan Bujan in Kedah in Malaysia, Jurua in Nakhon Si Thammarat in southern Thailand, Con Dau Island in southern Vietnam, the Tra Kieu in central Vietnam (near Da Nang), the Laurel site in Batangas Province and the Balangay Site in Butuan in the Philippines, Yangzhou and Fuzhou in China, the Kōrokan and Dazaifu in Japan. These Islamic wares are thought to have been made in Basra in Iraq or Siraf in Iran. They were carried from the Arabian Sea (the Persian Gulf), and the Indian Ocean through the Strait of Malacca or by crossing over the Peninsula Malaysia from the Kho kao Island to the Leam Po in Chaiya, then carried to northward in the South China Sea and reached to Guangzhou in China, then finally reached to Yangzhou in China and Kōrokan in Japan. Islamic ceramics found in the coastal areas in Vietnam and the Philippines are associated with the Chinese early trade ceramics as in the case of sites in Japan. Although 9th century sites with Islamic ceramics in the Philippines and Japan

are a little bit away from the main maritime trade route between the East and West Worlds ; Siraf in the Persian Gulf and Guangzhou in China, these Islamic ceramics found in the Philippines and Japan might indicate that the Philippines and Japan were also included in the trading network of the Arab traders at that time. In addition, a sherd of the Egyptian three-colored ware, which is called the Faiyūm policolored ware by the others and was produced at the shore of Lake Faiyūm south of Cairo City, was also excavated in the Laurel site in the Philippines.

3-2. The 10th to 11th centuries sites and Guangzhou Xicun Kiln wares

The type site of this period is the Balangay Site in Butuan city in Mindanao in southern Philippines. It is located at the mouth of the Agusan River which is famous for the producing area of gold.

The main excavated ceramics are white bowls, celadon pouring vessels with floral incised designs and the phoenix shaped neck and iron painted white saucers of the Guangzhou Xicun kiln. The same kinds of ceramics were also excavated in the following sites; Pengkalan Bujang and Sungai Mas in Kedah Province and Nippa in the Tioman Island in Pahang Province in Malaysia, Kupang in Brunei, Gedong in Sarawak Province in eastern Malaysia, Jurua in Nakhon Si Thammarat and Satingpura in Songkhla in southern Thailand and Tra Kieu in central Vietnam.

Guangzhou city, where the Xicun kiln is located, is a port city that had developed quickly as a port for international trades after shi bo si (市舶司) was established in the city in 971 (the fourth year of Kai bao (開寶)) during the Northern Sung Dynasty. Ceramics made in Guangzhou Xicun kiln during the 11th century, which have been found in many sites in various areas around the South China Sea, were carried by Guangdong type merchants whose base was Guangzhou port. The fact that a large amount of wares of Guangzhou Xicun kiln were excavated in the Balangay Site and Kupang Site indicates that business of Guangdong type Chinese merchants advanced in Insular Southeast Asia since around the 11th century. This kind of ceramics was started to be imported into Japan from the middle of the 11th century, then it occupied a fairly large percentage of white wares imported into Hakata during the middle of the 12th century.

3-3. The 12th to 13th Centuries Sites and Quanzhou Kiln Wares in Fujian

The type site of this period is the Abiog Cave in Palawan, Philippines. Standard ceramics of this period are celadon bowls of the Tongan kiln type in Fujian Province and yellow-glazed iron painted large jars of the Quanzhou kiln. Celadon bowls of the Tongan kiln type were excavated in the following sites; Tanjong Batu and Kupang in Brunei, the Eno Island in Sabah Province and Bongkisan in eastern Malaysia, Nippa in Tioman Island in Pahan Province in western Malaysia, Jurua in Nakhon Si Thammarat in southern Thailand and Satingpura in Songkhla in southern Thailand. Yellow glazed iron painted large jars of the Quanzhou kiln were excavated in the following sites; Puerto Gelera in Mindoro, sites in Brunei and in Sarawak. In Japan, this type of jars were typically excavated in Kamakura and Dazaifu.

A majority of ceramics of Fujian Province were exported from the large port of Quanzhou, where ceramics were loaded into ships, to foreign countries during the Sung, the Yuan and the Ming Dynasties. According to Ye Wen-cheng (葉文程) , Quanzhou Port replaced Guangzhou Port as a port with the largest amount of export ceramics during the early half of the 12th century . So it is thought that business of the Fujian type merchants in foreign countries have advanced since around this period. The Fujian type Chinese merchants with the Guangdong type Chinese merchants have built two major networks of Chinese merchants as the overseas Chinese in Southeast Asia.

3-4. The 13th to 14th centuries sites and celadons of the Longquan kiln type

The type site of this period is Sta Ana site in Manila City. The standard ceramics are mainly celadons of the Longquan kiln type in Zhejiang Province, which had continued since the previous period, color glazed wares of the Quanzhou kiln in Fujian Province and white wares of the Dehua kiln. In addition, the blue-and-white ware of the Jing-de-zhen Hutian kiln in Jiangxi Province is also a component of ceramics of this period, although they are only a few.

As the number of sites and the amount of trade ceramics rapidly increased in various areas around the South China Sea during this period, I have the impression that maritime trade networks had been constituted in almost all over areas around the South China Sea during this period. Chau Ju-kua (趙汝适), who was from Quanzhou in Fujian Province, edited "Chu Fan Chi" (『諸蕃史』) in 1225 and described in it that ceramics were carried to the following countries; Chan-ch'ong (占城) and Chon-la(真臘) in the Indochina Peninsula, Tan-ma-ling (單馬令), Ling-ya-ssi-kia (凌牙斯加) and Fo-lo-an (仏羅安) in Malay Peninsula, Ma-i (麻逸), San-su (三嶼) and Pu-li-lo (蒲里嚕) in the Philippines and P'o-ni (渤泥) in Borneo. They were bartered for native special products in each country. The number of countries and areas around the South China Sea, where ceramics were imported, during the Yuan Dynasty on the basis of the description in "Tao I Chih Lueh" (『島夷誌略』) edited by Wan Ta-yuan (汪大淵) in 1341, became twice (18) as many as the number of countries in the same area described in "Chu Fan Chi". According to Marco Polo, Quanzhou port was "the biggest trade port" in the world at that time.

Fujian type merchants, whose base was Quanzhou Port, went out to foreign countries during the 13th to 14th centuries. Not a few of them settled down in various areas in Southeast Asia where they bartered ceramics for native special products.

3-5. The 15th century site and ceramics made in Southeast Asia

The total ban of the overseas trip and trade was ordered in 1371 (the third year of Hong-wu (洪武) during the early Ming Dynasty. Then it was reordered several times and finally abolished in 1571 (the six year of Longqing (隆慶)). It strictly prohibited the overseas trip and trade of the Chinese. As a result, ceramic trades from China were largely limited during this period. Ceramics of Thailand, Vietnam and Champa appeared in the coastal areas around the South China Sea as substitute for Chinese ceramics. The type site of this period is a shipwreck off Pandanan Island, the southern tip of Palawan Island. It was excavated in 1995. Standard materials among excavated ceramics are Chinese ceramics, Vietnamese ceramics and Champa ceramics. Chinese ceramics include blue-and-white dishes of the Jing-de-zhen kilns, celadon dishes with foliated rim of the Longquan kilns. Thai ceramics include shallow bowls with design of fish painted in iron of Sukhothai kilns, brown glazed jars with four ears of kilns along the Noi River and celadon dishes with incised floral designs and floral rim of Suwankhalok kilns. Vietnamese ceramics include blue-and-white wares of Chu Dau kilns, (vases, covered boxes, dishes and jarlets). Champa ceramics include celadon dishes, brown glazed bowls with tightened body and brown glazed jars of Go Sanh kilns. A coin of Yong Le (永樂) (1403-1424) was associated with artifacts of the shipwreck. Ceramics made in Southeast Asia were excavated in Dazaifu (大宰府) in Japan as an easternmost site and in al-Tūr site in the Sinai Peninsula in Egypt as a westernmost site.

3-6. The 15th to 16th centuries sites and Champa ceramics

The type site of this period is the Calatagan Site in the Philippines. Standard ceramics of

this period are the blue-and-white wares of the Jing-de-zhen kilns, Thai ceramics, Vietnamese ceramics and Champa ceramics. The blue-and-white wares of the Jing-de-zhen kilns first appeared in the 14th century during the Yuan Dynasty. Then, they were largely produced during the 15th to 16th centuries of the Ming Dynasty and became main ceramics of Chinese trade ceramics and have maintained the position until now.

As I mentioned above, Champa ceramics were exported during the 15th century. They were excavated in the Calatagan Site, which is supposed to date the 15th to 16th century.

Champa ceramics were excavated in burial pits in the Dai Lang Cemetery Site in Lam Dong Province in southern Vietnam as an example within the Champa Kingdom, which were associated with Japanese Hizen ceramics of the early 18th century. If it is certain that Champa ceramics were associated with Hizen ceramics of the early 18th century, there's strong possibility that Champa ceramics had been made until at least the early 18th century.

4. Sites with the Champa ceramics

Finally I list up names of sites where Champa ceramics were excavated or found in the following:

Philippines	: Calatagan in Batangas, Sta Ana in Manila City, Lal-lo shell-middens in Cagayan, Puerto Galera in Mindoro, the shipwreck off Pandanan Island near southern tip of Palawan Island
Malaysia	: Bukit Sandon in Sarawak Province, Bukit Silam in Sabah Province, Juara in Tioman Island in Pahang Province
Thailand	: the shipwreck in Ko Kram in the Thai Gulf, Tarakyanel
Vietnam	: the shipwreck off Cham Island, Dai Lang in Lam Dong Province
Indonesia	: Banten Girang in western Java, Tanatraja in Sulawesi,
Egypt	: al-Tūr, Catar
Japan	: Dazaifu SK092

In the future, the number of sites, where Champa ceramics were excavated, will increase largely if excavated ceramics of sites around the 15th to 16th centuries will be checked again.

References

Aoyagi Yoji

1995 Tōhen ga kataru kaijō bōeki no nettowaku-Minami Shina kaiiki no tōji bōeki no hensen (Maritime trade networks as narrated by ceramic sherds-changes in the ceramics trade in the South China Sea), in *Umi to bunmei* (Ocean and civilization), ed Koizumi Tadashi and Tanaka Kōji. *Kōza Bunmei to kankyo* vol. 10. Asakura Shoten.

Momoki Shiro

1996 *Rekishi sekai to shite no Tōnan Ajia* (The historical world of Southeast Asia). Sekaishi rifuretto 12. Yamakawa Shuppansha.

Morimoto Asako and Ohashi Kōji

1996-97 The Excavation of No. 2-3 Kilns at Go Sanh in Binh Dinh Province, Central Vietnam, *Toyo Toji* vol. 26, pp. 49-68.

Yamamoto Nobuo, Hasebe Gakuji, Aoyagi Yoji, and Ogawa Hidefumi

1993 The Chronological Study of Vietnamese Wares and Excavation of the Old Kiln Sites in Champa, *The Journal of Sophia Asian Studies* No. 11, pp. 163-80.

Ye Wen-cheng

1988 Compilation of Articles of Studies on Old Chinese Trade Ceramics 『中国古外銷瓷研究論文集』 Zi jin cheng Publication (紫禁城出版)

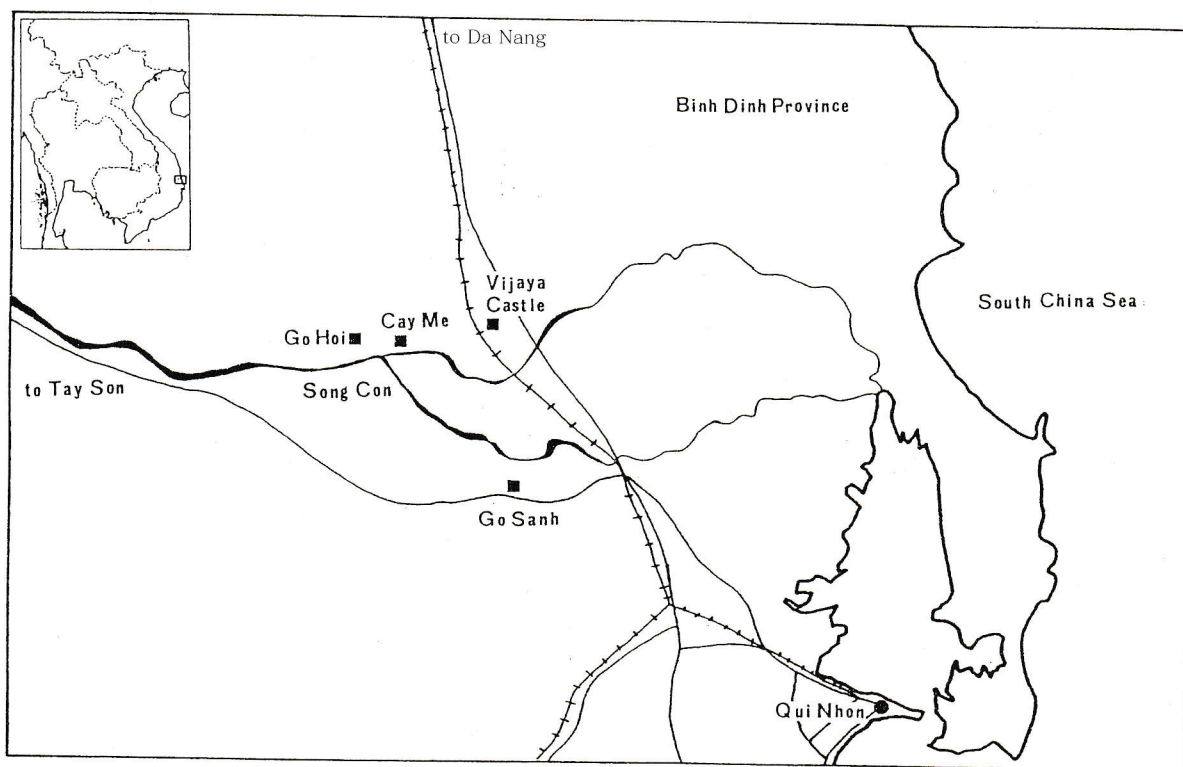


Fig.1 Location Map of Champa Ceramic Kilns in Central Vietnam

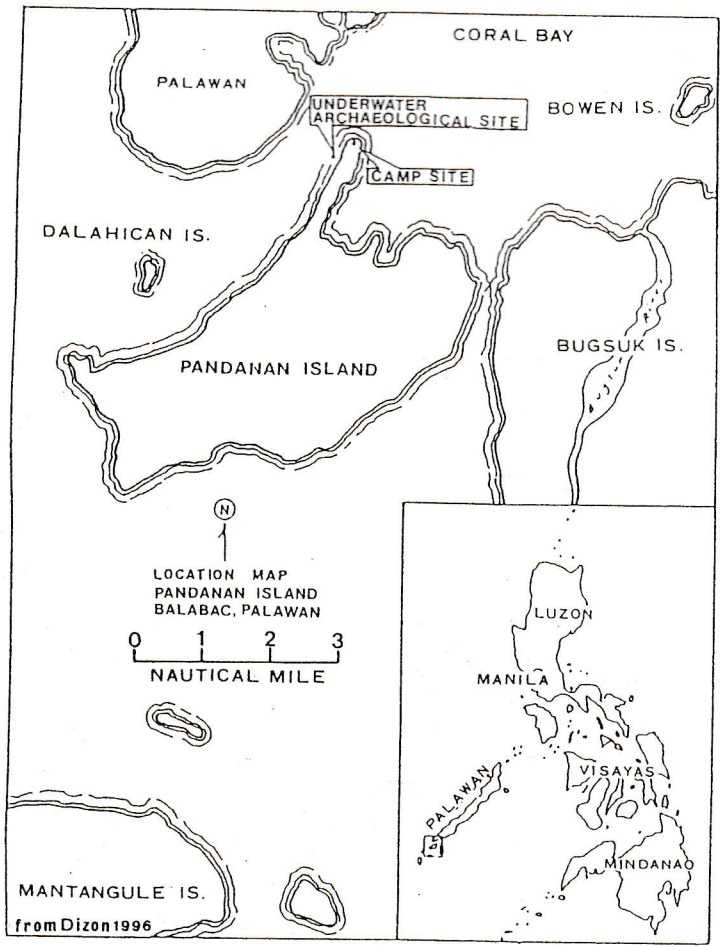


Fig.2 Pandanan Island

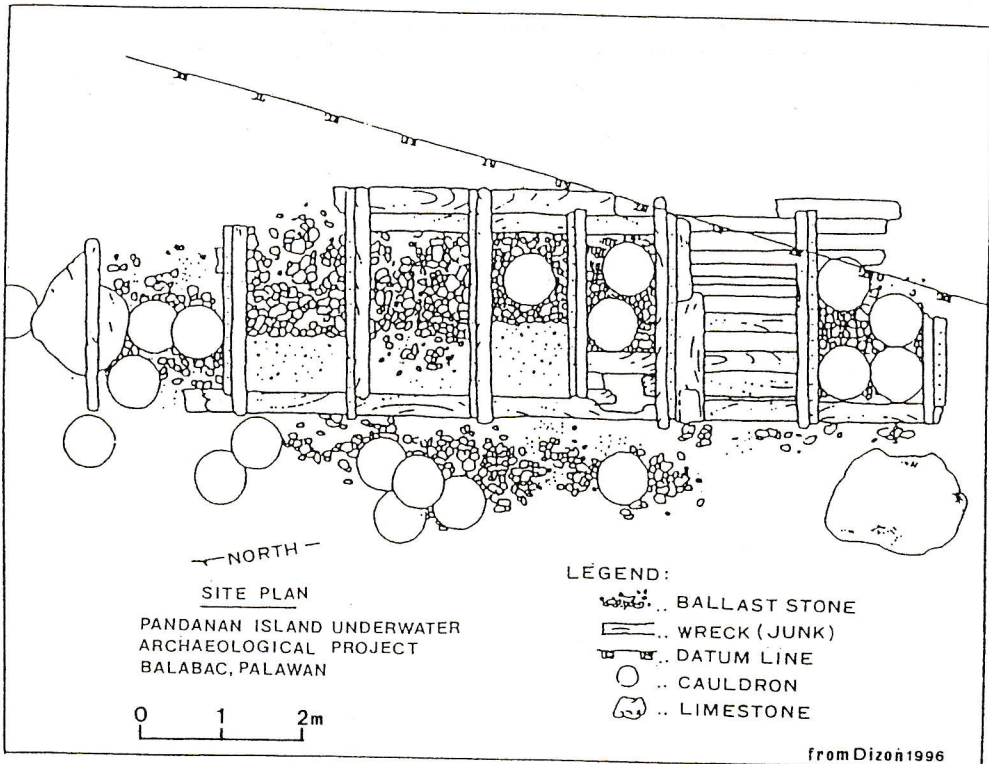


Fig.3 Shipwreck

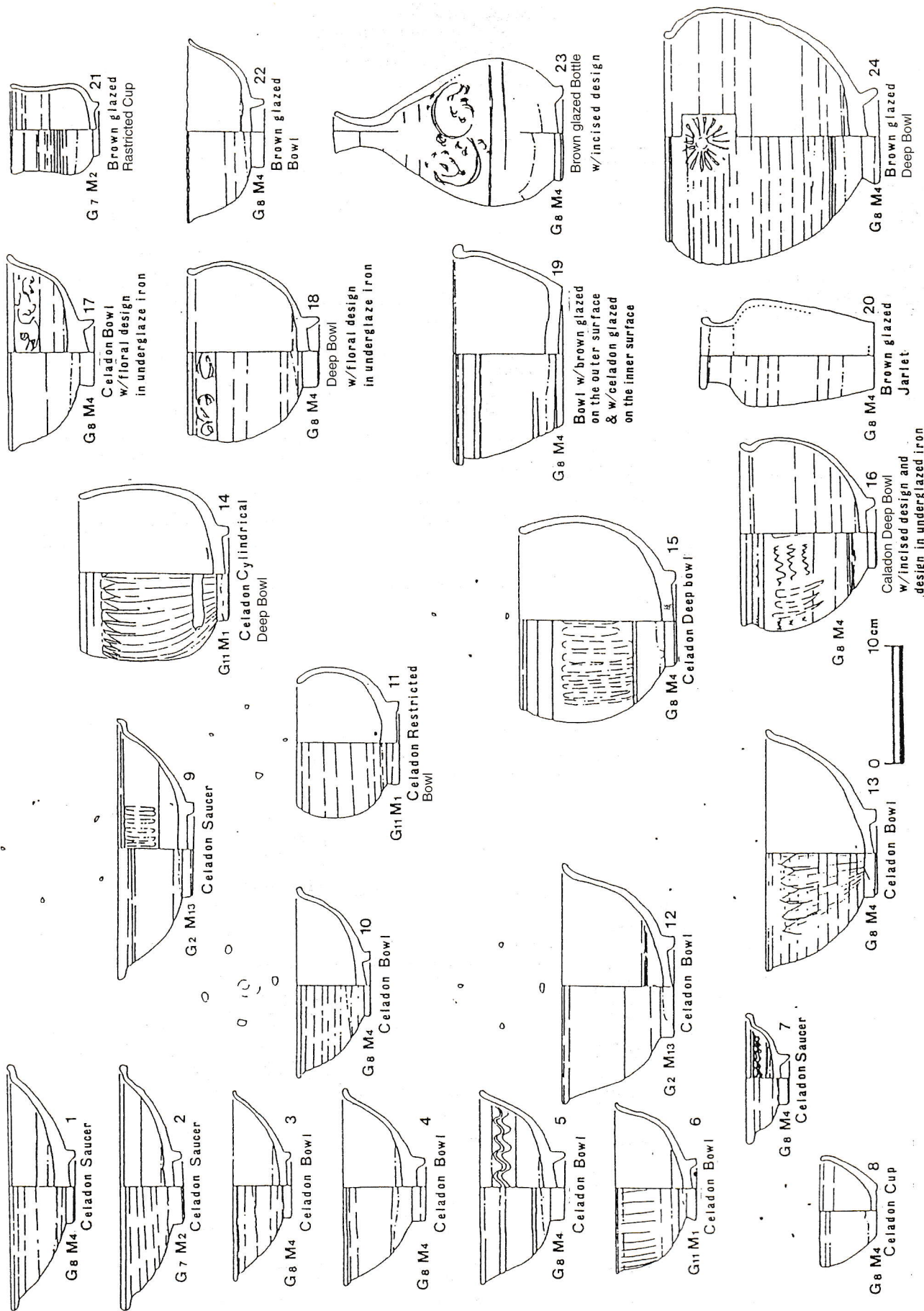


Fig.4 Champa ceramics excavated from the Dai Lang cemetery, Lam Dong Province, central Vietnam

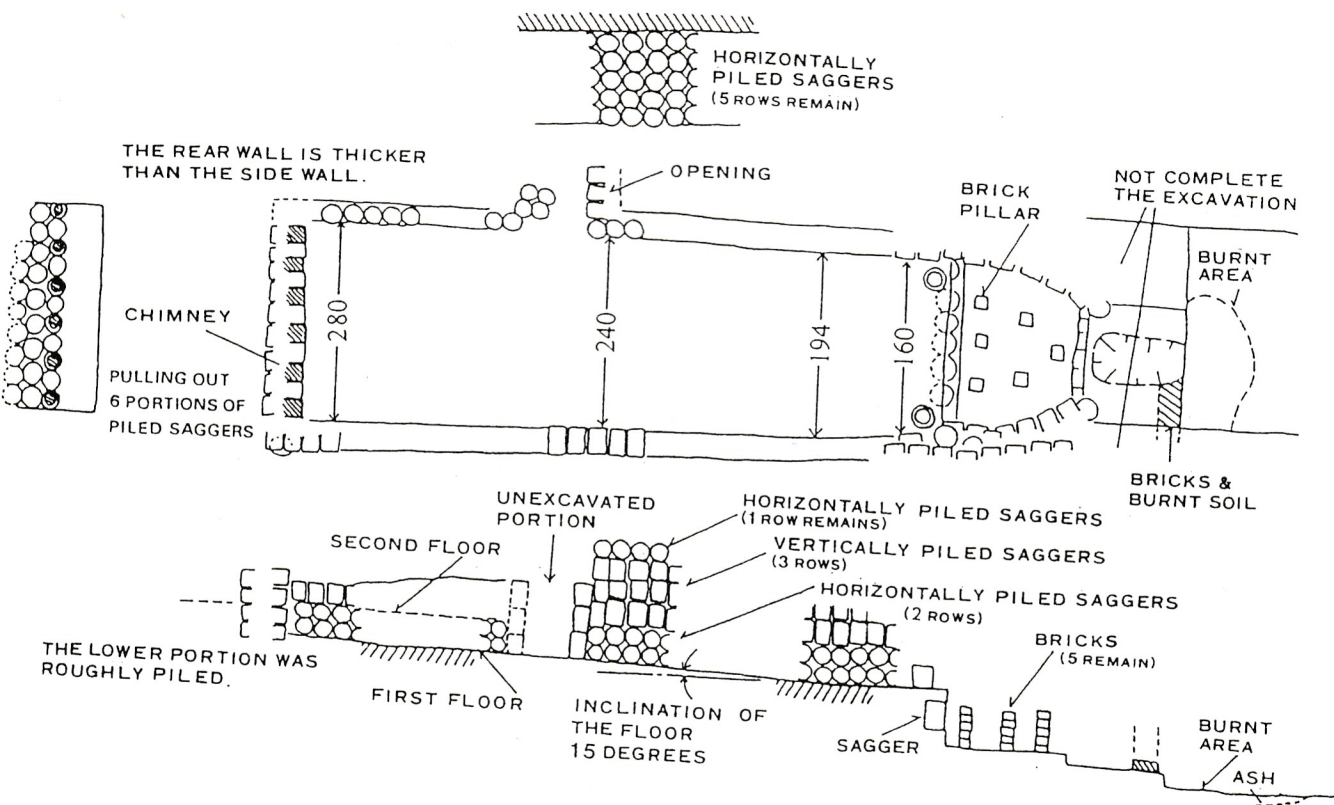


Fig.5 Go Sanh Kiln No.1

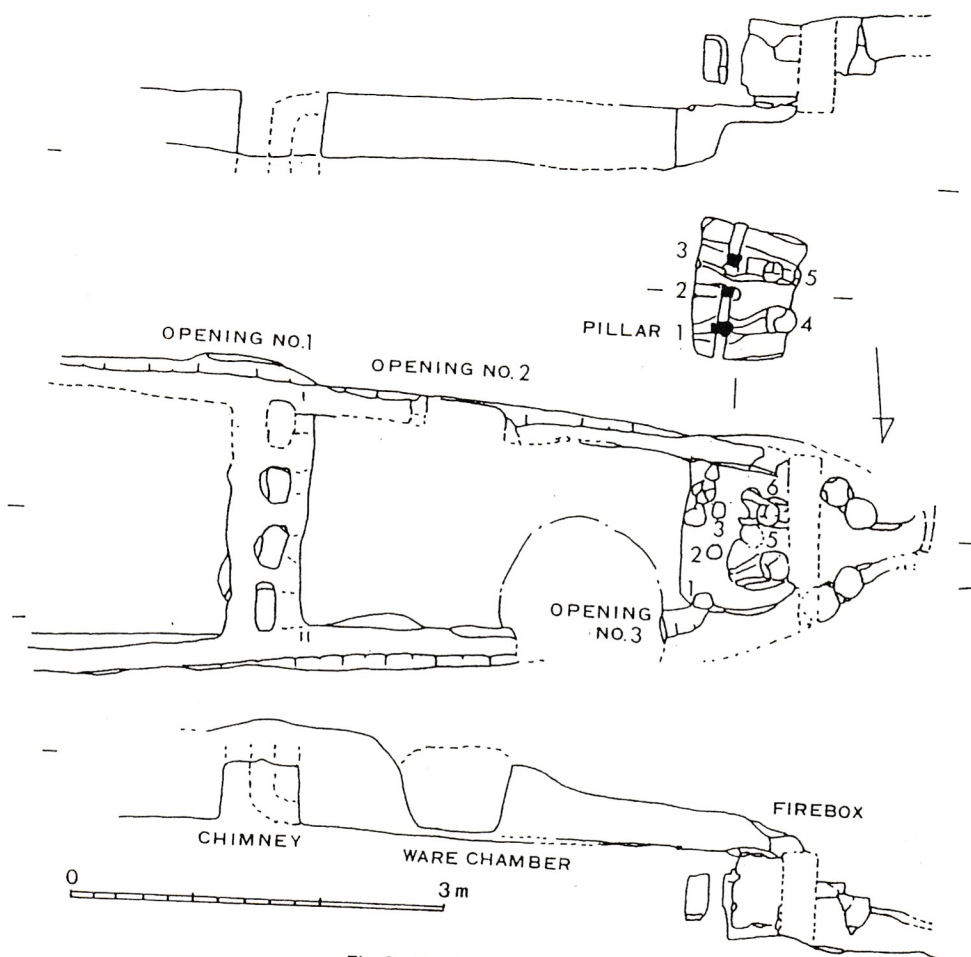


Fig.6 Go Sanh Kiln No.3C



Excavated Sites of Champa Ceramics

※ Vietnam : Vijaya in Qui Nhon City, Binh Dinh Province

1. Philippines : Calatagan Sites in Batangas Province
2. Philippines : Sta Ana Site in Manila City
3. Philippines : Lal-lo Shell-middens, Cagayan Province
4. Philippines : Puerto Galera Site in Mindoro Island
5. Philippines : Shipwreck off Pandanan Island near southern tip of Palawan Island
6. Malaysia : Bukit Sandon Site, Sarawak Province
7. Malaysia : Bukit Silam Site, Sabah Province
8. Malaysia : Juara Site, Tioman Island in Pahang Province
9. Thailand : Shipwreck in Ko Kram in the Thai Gulf
10. Thailand : Tarakyanel Site
11. Vietnam : Shipwreck off Cham Island
12. Vietnam : Dai Lang Site in Lam Dong Province
13. Indonesia : Banten Girang Site in western Java
14. Indonesia : Tanatraja Site in Sulawesi Island
15. Egypt: al-Tūr Site in the Sinai Peninsula
16. United Arab Emirates : Ras al-Khaimah Site
17. Japan : Dazaifu SK 092

Fig.7 Distribution Map of Champa Ceramics



Go Cay Me Kiln Site, Binh Dinh province
Vietnam



Go Thoi Kiln Site, Binh Dinh Province Vietnam



Champa Ceramics with China, Thai Ceramics Dai Lang Site,
Lamdong Province Vietnam



Champa Ceradon A type from Pandanan Shipwreck Philippines

Ceramic Production and Trade in Central Vietnam

— Based on excavations of the Go Sanh Kilns —

Nobuo Yamamoto

I. Location of the kiln sites, the excavation period, the members of the excavation committee, the member of the investigation team

[1] Location of the kiln sites (fig. 1 and 2)

The kiln sites are located at Go Sanh, about 25 kilometers northwest of Qui Nonh, at Nhon Hoa and An Nhon districts, in Binh Dinh Province. The kiln, on the south bank of Con river and about 1 meter high from the rice field around, has been excavated by the Ha Noi Institute of Archaeology, Binh Dinh Provincial Museum and Japanese Study group of the Go Sanh Kilns.

[2] Period of the excavation: from 1 to 6 March, 1993

[3] The members of the excavation committee

Gakuji Hasebe	Chief researcher, Professor, Keisen Jogakuin University, Tokyo
Yoji Aoyagi	Professor, Institute of Asian Cultures, Sophia University, Tokyo
Tadashi Nishitani	Professor, Kyushu University, Fukuoka
Hiroko Nishida	Chief curator, Nezu Institute of Fine Arts, Tokyo
Shiro Momoki	Assistant Professor, Osaka University, Osaka
Asako Morimoto	Board of Education, Fukuoka City
Nobuo Yamamoto	Board of Education, Dazaifu City
Hidefumi Ogawa	Assistant Professor, Kokushikan University, Tokyo
Seiichi Kikuchi	Hanoi University

[4] The members of the investigation team

Aoyagi, Nishitani, Yamamoto, Ogawa, Kikuchi, Trinh Cao Tuong (The Institute of Archaeology, Hanoi)

II. Contents of the excavation

This is the preliminary report on the excavation of the Go Sanh Kilns. Some of these kilns had been previously explored by Trinh Cao Tuong and two kiln sites were excavated by the Ha Noi Institute of Archaeology in 1991 and 92. These kiln sites, No. 1 kiln and No. 2 kiln, provided very important archaeological materials such as the kiln structures and ceramic shards found in the kilns. As the investigation was of very limited duration, we were only able to make additional digs at the No. 2 kiln site which had not been thoroughly excavated, and Trinh Cao Tuong made an additional investigation of the fire box and flue of No. 1 kiln which had not been previously completed.

The first investigation : The investigation done by the Ha Noi Institute of Archaeology during the previous year found two kilns layered at the same place, and only the upper kiln was excavated. Several farm houses located near the kiln site and hence the entire kiln structure could not be excavated at that time.

The second investigation : This investigation was conducted by the Japanese group in 1993. That investigation examined the limited area of No. 2 kiln and its surrounding area. The kiln found under the No. 2 kiln was named No. 3 kiln and it was investigated.

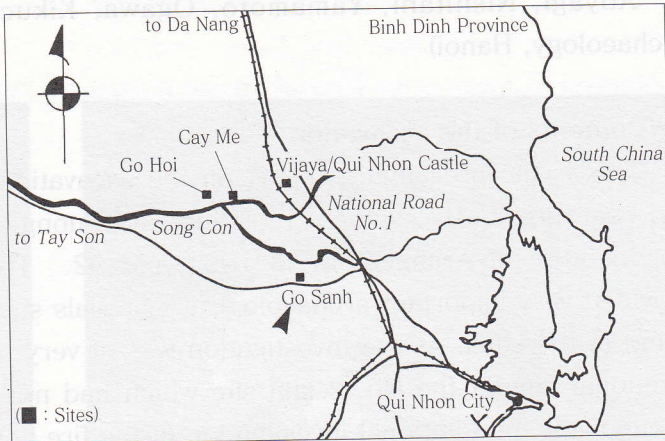


Fig.2 Location of Qui Nhon City and Go Sanh Kiln Complex

Fig.1 Location of Qui Nhon

The third investigation: The Japanese group conducted this investigation from 24 February through 5 March in 1994, and in the process found the kiln No. 3C. More complicated aspects of the Go Sanh Kiln Sites arose because of this investigation.

This paper mainly reports on the second investigation in which the author participated, and will point out some of the archaeological problems found by the author during the research.

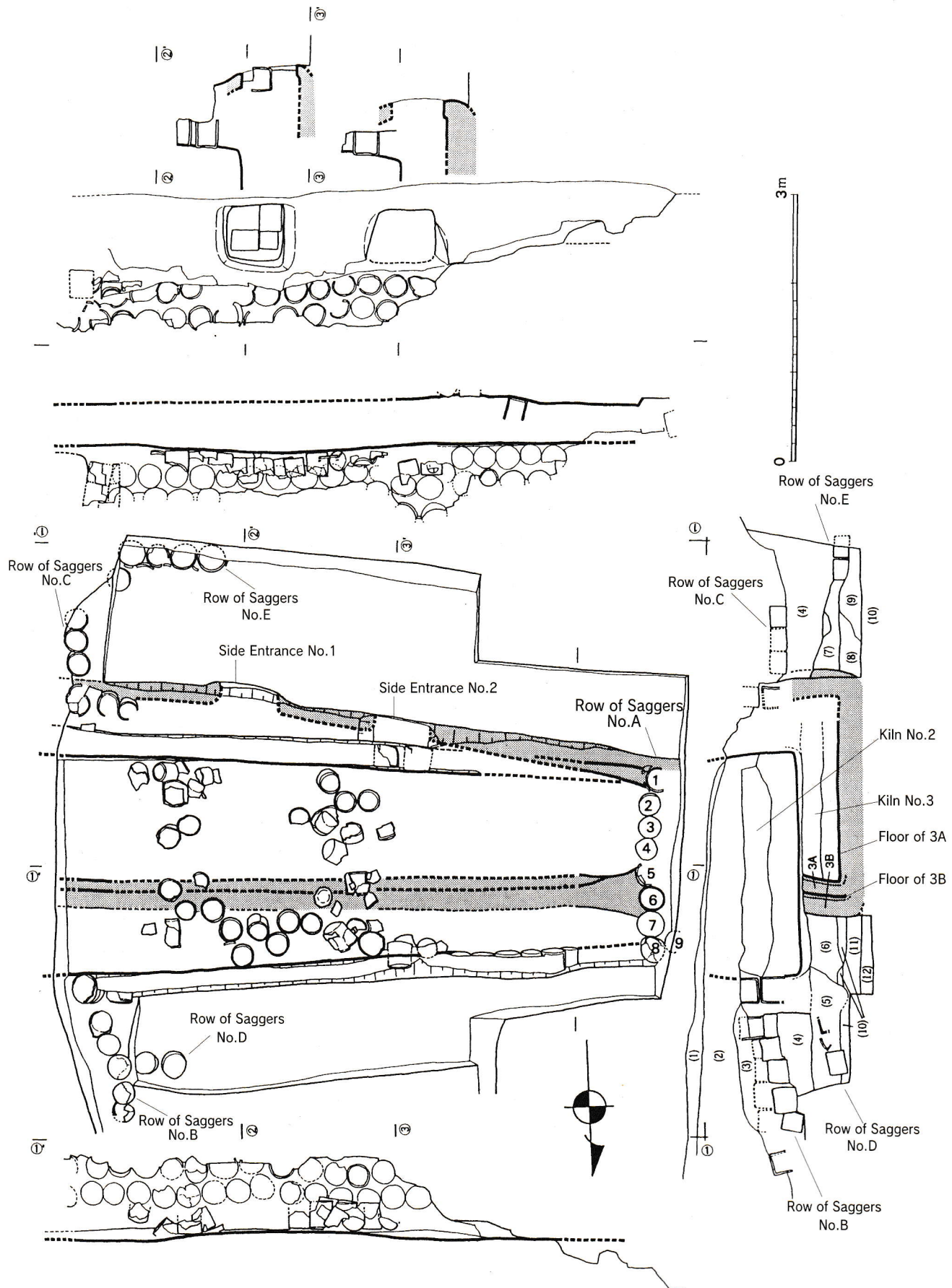


Fig.3 Plan View and Profile of Go Sanh Kiln No.2 and 3 (1/60)

[1] The stratigraphic profiles (fig. 3)

Figure 3 shows the stratigraphy of the east wall of the excavated area. Sections labeled (1) and (2) are the deposit after the No. 2 kiln activities, while (3) shows the surface over the used saggars placed on line B. (4) is the stratigraphic profile of light greyish red clay. The stratigraphic profiles under this (4) differ slightly at the south and the north of the outside kiln walls. Specifically, at the north side are (5) and (6), and greyish brown clay at the south side is (7). Layers (4), (5) and (6) contain a large number of saggars, pottery and fragments of wall-brick, while (7) contains few objects and (5) covers saggars D.

Layers (8) and (9) on the south side are dark greyish yellow clay which contain only a few saggars and potteries. The sagger on the east end of the saggars E was located in the (9) while others were on the upper line of (9). The yellow clay layer (10) is under (9) at the south side while located under (5) and (6) at the north side. The saggars D are located on the layer (10), under which layer (11) and (12) of greyish clay layers are observed. These (11) and (12) layers were excavated in a small space at the east end of the excavated area to make sure the condition against No. 3 kiln.

The result of this excavation indicates that layers (10), (11) and (12) were made before the No. 3 kiln, some soft pottery of early style were found in layers (11) and (12) which suggests the existence of earlier structural remains than No. 3 kiln.

No. 3 kiln structure cut the layers (10) to (12) and the saggars D and E belongs to the outside of the kiln are placed on the layer (10). At the south side, layers (7), (8) and (9) were probably leveled by saggars E, which are on the layer (10). The layers (4), (5) and (6) are deposited on the No. 3 kiln, and this means these layers were the leveling ground for No. 2 kiln. The saggars B and C placed on these layers belonged to No. 2 kiln.

The layers (1) to (5) and (7) were already removed by the former excavation by the Institute of Archaeology Hanoi, so we were able to excavate a part of layer (6), layer (8) and followed layers. A part of layers (5) and (6) remained unexcavated as they are located under the wall of No. 2 kiln. The floor of No. 2 kiln was excavated and some saggars and pottery were found, and remains were collected from some layers of the walls.

[2] No. 2 kiln (fig. 3, pl. 1)

The excavated area was in the combustion chamber, other parts such as the kiln's fire box, back wall and smoke vent were located outside of the area. The entire length of the kiln is uncertain, but a 6.7 meter long section of kiln floor was excavated and it was confirmed that No. 3 kiln had been made under the No. 2 kiln.

Floor of the kiln: The clay floor was burned to yellowish brown on which saggars were placed and the location of saggars suggest its west end area was near the fuel hole. The saggars A, these saggars were placed upside down and were of differing height, show the boundary between the fire box and the combustion chamber. The highest saggars A8 and 9 were placed about 10 cm under the floor of No. 2 kiln. The fuel hole of No. 2 and 3 kilns were doubled at the same space and saggars A2 to A4 likely belonged to No. 3 kiln. It is not certain where the other saggars belonged. This is a point that remains for future investigations. The east side of the floor was 2.4 meter wide and the west side of the floor was 2.2 meter wide, and the floor was mostly level.

The relative height of the saggars vs. the kiln height

A2-A4 7 cm lower than the floor of No. 3 kiln

A5-A7 6 cm higher than the floor of No. 3 kiln and 34 cm lower than the floor of No. 2 kiln

A8, A9 10 cm lower than the floor of No. 2 kiln

Kiln walls: Walls were built out of saggars and clay. The saggars were regularly spaced and placed sideways. The highest remaining wall was 0.8 meters, and the thickness of the wall was 0.25 - 0.30 meters, which was more or less similar to the height of the saggars. The wall of the west side, the fire box area, is missing because of earlier disturbances to the site. The saggars B met the outside of the south wall at right angles and the saggars C of the north wall and the saggars became lower towards the end. These saggars B and C were presumed to be side entrances of the kiln. The width of the side entrances are presumed to be about 0.7 - 0.8 meters according to the precedent seen in No. 1 and No. 3 kilns. The top of the wall, the ceiling, was broken and its height uncertain.

Archaeological remains: 32 saggars were found on the floor of the kiln, one sagger belonged to the No. 3 kiln underneath. Potteries were found in 7 saggars only, and most potteries were found on the floor, this suggests these potteries were left there at the final firing of the kiln.

[3] No. 3 kiln (fig. 3, pl. 1)

Because No. 3 kiln is located under No. 2 kiln the entire kiln was not excavated and only several trenches were made to investigate the existence of the kiln. The wall and the floor were built with clay only, and No. 3c kiln was built with saggars in part of the fuel chamber.

The outer facilities of the No. 3 kiln: The saggars D and E were placed about 2 meters from the kiln walls and consisted the outer facilities, but the relation of these saggars and the kiln walls is not clear. The end of the saggars E was placed at the same line of the east side of the side entrance of the kiln, so that it is presumed that these saggars belonged to the No. 3 kiln.

The kiln walls: The cut in the north wall revealed two layers of fired clay. This suggests the kiln was mended at least two times, with the older wall 3A, and the later wall 3B. The south wall had two side entrances, each 0.7 meters wide. The entrance of the north wall was not examined. Side entrance (1) was closed with clay and saggars, while side entrance (2) was empty. The floor level of (2) is about 6 cm higher than that of (1). As the result of this examination, it is not certain that these two entrances were used at the same time. Here I would like to suggest the (1) belonged to No. 3A and the (2) belonged to No. 3B.

The floors: No. 2 kiln had been built on the floor, and only a small part was investigated. The width of the west side of 3B was 1.4 meters and the east side was 1.8 meters. The west side of 3A was 1.4 meters and the east side was presumed to be wider than 3B.

The fire box: The saggars from A2 to A4 were presumed to have belonged to No. 3 kiln, but the third investigation clarified that they belonged to No. 2 kiln.

[4] No. 1 kiln (comparative materials fig. 4, Pl. 2)

This kiln was excavated by the Institute of Archaeology Hanoi and Dr. Tuong and was covered and protected by a ceiling. This time, the fire box, the back wall and smoke vent of the kiln were excavated, so that investigators were able to measure essentially the entire size of the kiln. The No. 1 kiln has a combustion chamber, firing chamber, and a smoke vent and has wall made with saggars and clay. The plan of the kiln has not been published by the Institute, so here I have had to use a conceptional plan in an inaccurate scale.

Firing chamber: The front part of the firing chamber was 1.6 meters wide and back wall was 2.8 meters wide, while the length was about 10 meters. An entrance was made by saggars at the side wall. The floor an approximately 15 degree slope and two layers of floor were investigated. The new floor was built on the old floor about 0.3 meters high, and its lightly fired clay suggests that the new floor was used for a rather short period. There was a step about 0.5 meters high between the firing chamber and the combustion chamber, and the firing chamber was higher than the combustion chamber.

Combustion chamber: The chamber moves into an arched shape near the fire box. On the floor, six pillars made of stacked bricks stood, one at the fire box side, two at the center, and

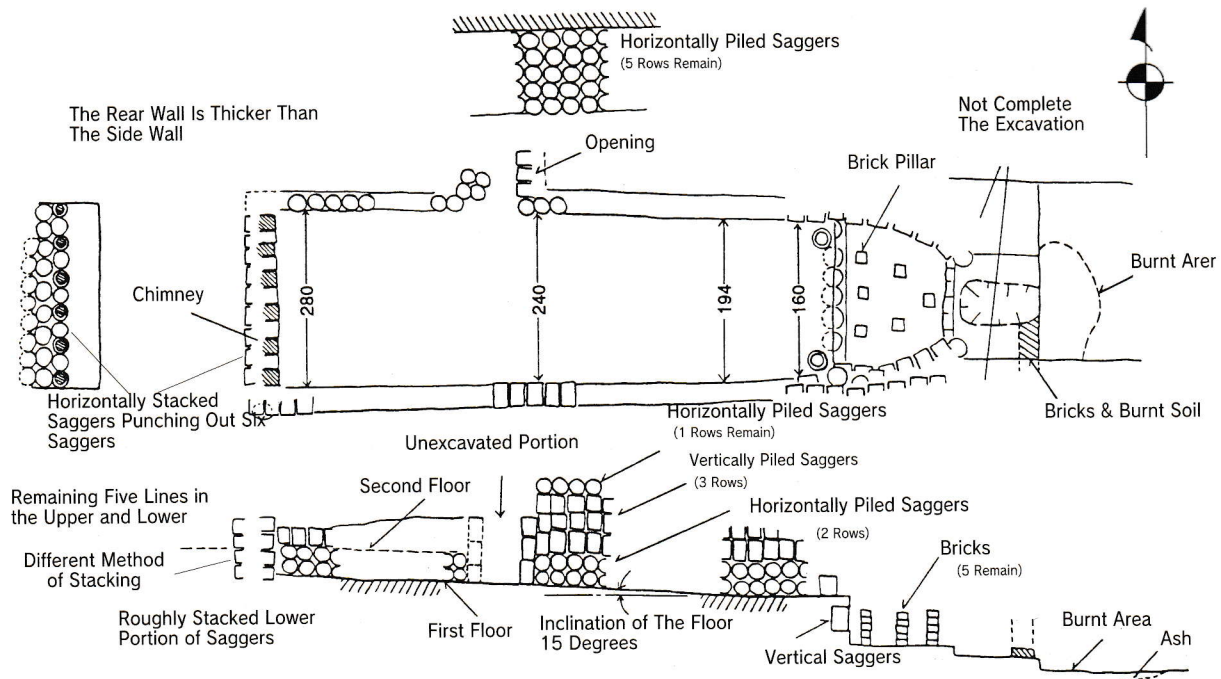


Fig.4 General View Of Go Sanh Kiln No.1

three at the back wall of the chamber. The highest remaining pillar was piled with five bricks.

The Flue: At the back wall, six smoke vents were made with saggars placing alongside. The back wall was more thickly made than the side walls. The ceiling had fallen in and thus its original shape could not be traced, but some burned clay found on the ground suggests that it was an arch-shaped ceiling.

The combustion chamber is presumed to have been 3 meters long and the entire length of the kiln was about 14 meters. Each the kiln's walls was built up with saggars, with the saggars placed in different arrays. The north wall shows two layers of saggars spaced sideway, then three layers regularly, and again sideway. The highest remaining wall was piled on six saggars. The south wall was built with saggars spaced sideway with their bases facing towards inside. The back wall and smoke vent were built with saggars spaced sideway with at most three layers extant. The kiln's wall remained 1.6 meters in maximum height. The floor was repaired at least two times, which suggests the kiln had been repaired several times.

[5] About the structural remains

The structures of the Go Sanh No. 2 and 3 kilns were flat kilns with one chamber and flat firing chamber, similar to those of Chinese kilns. The shape of the ceilings are unknown as they had been destroyed, but they were probably built with clay. Though the structures were similar to those of Chinese kilns, there are no kilns in China, which have the very same construction of these.

III. Excavated items (figs. 5 and 6, pls. 3 and 4)

Most of the excavated items, including glazed tiles and fine celadon plates, were removed during the previous excavation, and few examples were collected this time. The following reports is on the findings at this excavation of No. 2 kiln. The findings of No. 3 kiln must wait for the next excavation given the large number of uninvestigated spaces.

[1] Items excavated from No. 2 kiln

Pottery was found on the kiln floor and in the saggars placed on the floor.

Celadon ware: bowls types A1 and A, cups (small)

Pottery: black-brown glazed jar, jar with vertical handles, jar with dark greyish green glazed over white slip, jar with black glaze, jar with gray body and horizontal handles, jar,

basin, lid, bowl with reddish grey soft pottery.

Tiles: glazed and unglazed

Kiln furnishings: cylindrical saggars and setters (tochi)

[2] Remains of the No. 3 kiln

Potteries were found on the kiln floor and outside of the kiln as waste heap on which No. 2 kiln was built.

Celadon ware: Small bowls types A1, A2, A and B, Bowl type B, Plates.

Pottery: Jar with dark brown glaze, jar with black-brown glaze, jar with yellowish brown glaze, jar with two vertical handles and greyish green glaze, jar with dark green glaze, jar with hard greyish red clay and horizontal handles, jar, bowl, bowl with soft brownish red clay.

Tiles and weights

Kiln furnishings: cylindrical saggars, stands and setters

[3] Items excavated at the ground level of the No. 3 kiln (Nos. 8 and 9 of the stratigraphic profile)

A small number of items were found in this area, so that this level is presumed to have been the ground level for No. 3 kiln, or of the period of No. 3A.

Celadon: Bowl types A and B

Pottery: Jar with black-brown glaze, jar with dark brown glaze, jar of hard reddish grey body, bowl or jar

Kiln furnishings: Cylindrical saggars, flat saggars, setters, shards of the celadon bowl type B with a hole

[4] Excavated items dating before No. 3 kiln (Nos. 11 and 12 of the stratigraphic profiles)

Mainly potteries found in the grey strata before No. 3 kiln.

Soft pottery: Large basin of the Safin type, large jar with paddle marks, plates

No pottery and kiln furnishings.

[5] Items excavated from No. 2 and No. 3 kilns (figs. 5 and 6, pls. 3 and 4)

On the plate 5 and 6, the marks ● are the items belonged to No. 3 kiln.

[6] Some remarks on the excavated ceramics

Most of the remains are celadon ware without decoration, namely types A and B. Their characteristics are also seen in ceramics found in the other kilns in the Go Sanh area.

-1- Celadon ware (fig. 5)

-1-1 Celadon ware type A (figs. 5-1 and 2) : The characteristic feature is the unglazed band in the center of vessel.

①Body: light grey or light greyish brown, hard fine clay, few examples including small black grains.

②Glaze: green lighter than celadon B, or light greyish green, light yellowish green color, smooth surface.

③Method of glazing: no white slip, glazed inside and outside but unglazed portion was wider than type B and unglazed stacking ring in inside centre.

④Shape: mouth rim is everted, the foot ring is small and has a slanted interior surface. The foot ring of type A1 appears to be taller than celadon type B as the inside was carved deeply. Type A2 is a small piece.

⑤Modeling techniques: the center of the inside foot ring swells slightly as it was planed with obtuse angled plane. The outside of the vessel was finished on a turn table, the upper was stroked horizontally then the lower carved. Celadon B has a wider portion of carved finish.

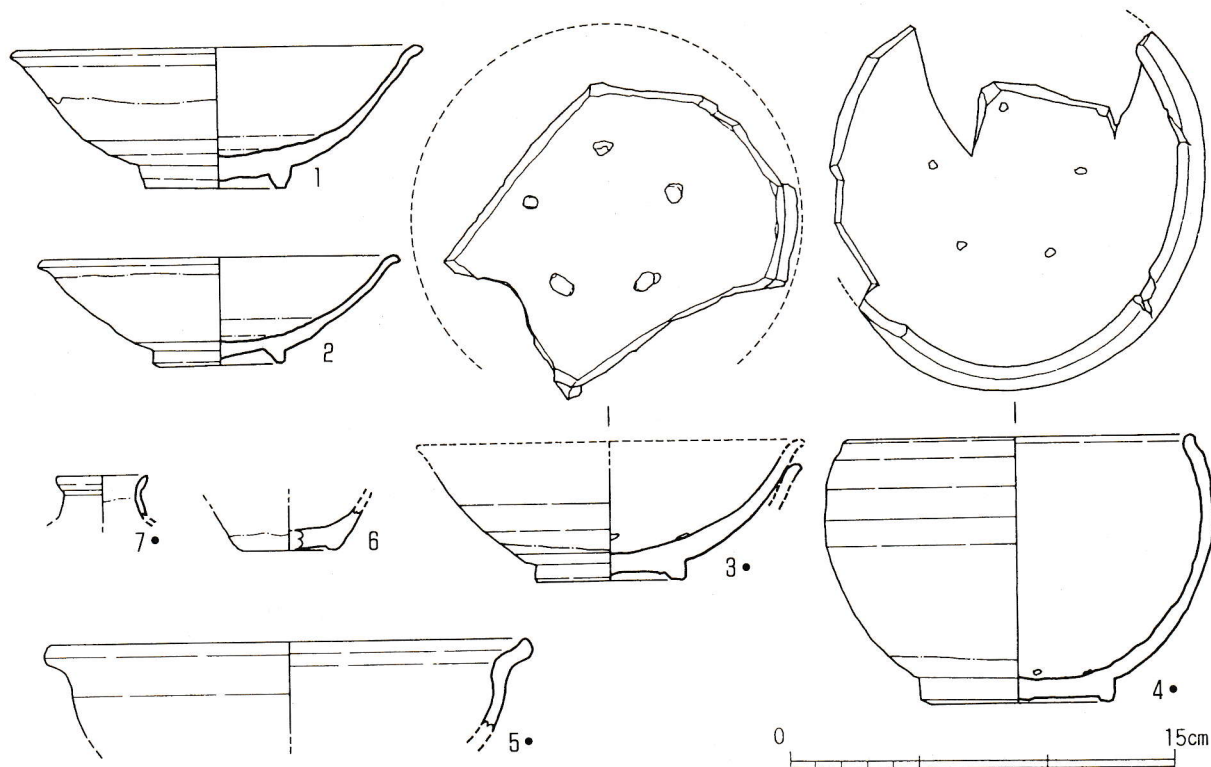


Fig.5 Celadon From Kiln No.2 & No.3 (1/3, The Marks ● are the items belonged to No. 3 kiln)

⑥Decoration: mostly without decoration.

⑦Spur marks: no spur marks as vessels were placed one inside the other.

⑧Size: Bowl type A1 (fig. 5-1) 16.4 cm at the mouth, 5.6 cm height, 5.7 cm at the foot was found on the floor of No. 2 kiln. Bowl type A2 (plate 5-2) 14.4 cm at mouth, 4.3 cm height, 5.4 cm at the foot was found in the saggars of No. 2 kiln.

-1-2 Celadon ware type B (figs. 5-3 and 4) the characteristic feature is the spur marks on the center of the vessels.

①Body: light grey, rougher than type A and hard, small holes in the body. Yet some fine bowl like type A can be recognised.

②Glaze: darker green than celadon type A, some greyish green, light brown, and brown glaze. The surface of these glazes are uneven.

③Method of glazing: glazed inside and outside, but the lower part of the vessel and the foot are left unglazed. No slip.

④Shape: the mouth rim is everted, the round body is thickly potted. The foot ring is roughly carved.

⑤Modeling techniques: the inside of the foot ring swells slightly as it was planed with an obtuse angled plane. The outside of the vessel was finished with horizontal carving and stroking on a turntable. Celadon type B has wider proportion of carved finishes than type A and is finer than type A.

⑥Decoration: mostly no decoration.

⑦Spur marks: Four or five spur marks remain on the base.

⑧Size: Bowl type B (fig. 5-3) 15 cm at mouth, remaining height 4.4 cm, foot 5.9 cm found at covered layer of No. 3 kiln. Bowl type B (fig. 5-4) probably 13.9 cm at the mouth, 10.5 cm at height, 7.5 cm at foot. Found on the outside of No. 3 kiln, in the leveling ground of north side, the layer (6).

-1-3 Deep bowls (fig. 5-5) with everted rim. Greyish blue-green glaze is applied overall, is slightly opaque and has fine crackles. The body is fine light grey clay. Found in the upper structure of No. 3 kiln.

-1-4 Cups (fig. 5-6) small piece with low foot. The greyish green glaze turned opaque yellow over the entire body. The fine clay is light yellowish-white in colour. There are small reddish spots on the foot ring which are presumed to be spur marks. Found on the floor of No. 2 kiln.

During this investigation, the celadon ware found in No. 2 and 3 kilns were all undecorated vessels. However, a number of dishes, cups, and bowls with carved lotus flower and combed decorations have been found from the kilns near the site. Celadon vessels of A type are extremely similar to Chinese celadon vessels of this type. The differences are found in the techniques used to form the lower part of the vessel.

-2 Glazed pottery (figs. 5 and 6)

-2-1 Small jar (fig. 5-7) with short neck. Dark brown glaze was applied on mouth rim and outside. The inside of the jar remained unglazed, the body is a hard and fine clay of yellowish grey with some black grain. Found outside of No. 3 kiln in the lower layer of dark yellowish grey on the south side of the kiln.

-2-2 Jars (figs. 6-1, 2, 3, 4) with thick mouth rims. Only the necks have been found and they might be jars with four handles. 6-1, 2 and 3 have black brown glaze and 4 has yellowish brown glaze. The inside of the necks of 6-1 and 6-4 are without glaze. 6-2 has white slip. The bodies are: 6-1--reddish grey fine clay with some dark brown spots; 6-2 -- rough black grey with white grain; 6-3 -- rough black grey with some white grain, and 6-4 -- reddish brown with white grain. 6-1 was found outside No. 3 kiln, in the lower layer of dark yellowish grey clay at south side. 6-2, 3 and 4 were found in the upper layer of No. 3 kiln.

-2-3 Jar with handles (figs. 6-5, 6)--- Large jar with vertical handles on the shoulder. Jars with four handles and six handles were recognized. The lower end of these handles are not flattened, but pinched up. Similar examples are found on Fujien products of the 13th century. 6-5 was covered with greyish green glaze on white slip. The inside was unglazed and is a purplish grey colour. The rough body is dark purple with some white and brown grains. Found on the floor of No. 3 kiln. Jar 6-6 was covered with dark brown glaze around the neck and a white slip on the outside. The inside was unglazed and is a dark purplish grey colour. The clay is dark brown with white and brown grains. There are shards of jar bodies which are presumed to have belonged to the jar 6-6. Found on the floor of No. 2 kiln.

-3 Unglazed pottery (fig. 6)

-3-1 Vessels 6-7 to 6-12 are stoneware type pottery. The bodies are of dark reddish grey, dark grey, purplish grey, red grey or red brown clay.

-3-2 Jar (figs. 6-7, 8, 9) Jar 6-7 has a thick, everted mouth rim. Jar 6-8 has a horizontal handle at the shoulder and the outside surface shows potter's wheel marks. Jar 6-9 has unfinished bottom. All found on the floor of No. 2 kiln.

-3-3 Lid (fig. 6-10) Domed shape lid, missing the top. Found on the floor of No. 2 kiln.

-3-4 Bowls (figs. 6-11, 12) with everted mouth rim. Bowl 6-12 has a thinly made body and was found on the floor of No. 2 kiln. Bowl 6-11 was found on the upper layer of No. 3 kiln.

-3-5 Miscellaneous (figs. 6-13,14) Low cylindrical vessels. The usage of these vessels was discussed as they may well be used as kiln utensils, such as saggars. The body was similar to the stoneware type vessels, not like rough clay as the saggars used for the kiln walls. 6-13 was found at upper layer of No. 3 kiln and 6-14 at the south side of No. 3 kiln, the upper layer of dark yellowish grey clay.

-4 Earthen ware (fig. 6)

-4-1 Bowls (figs. 6-15, 16) are called small basins or vases. The bodies are a red soft,

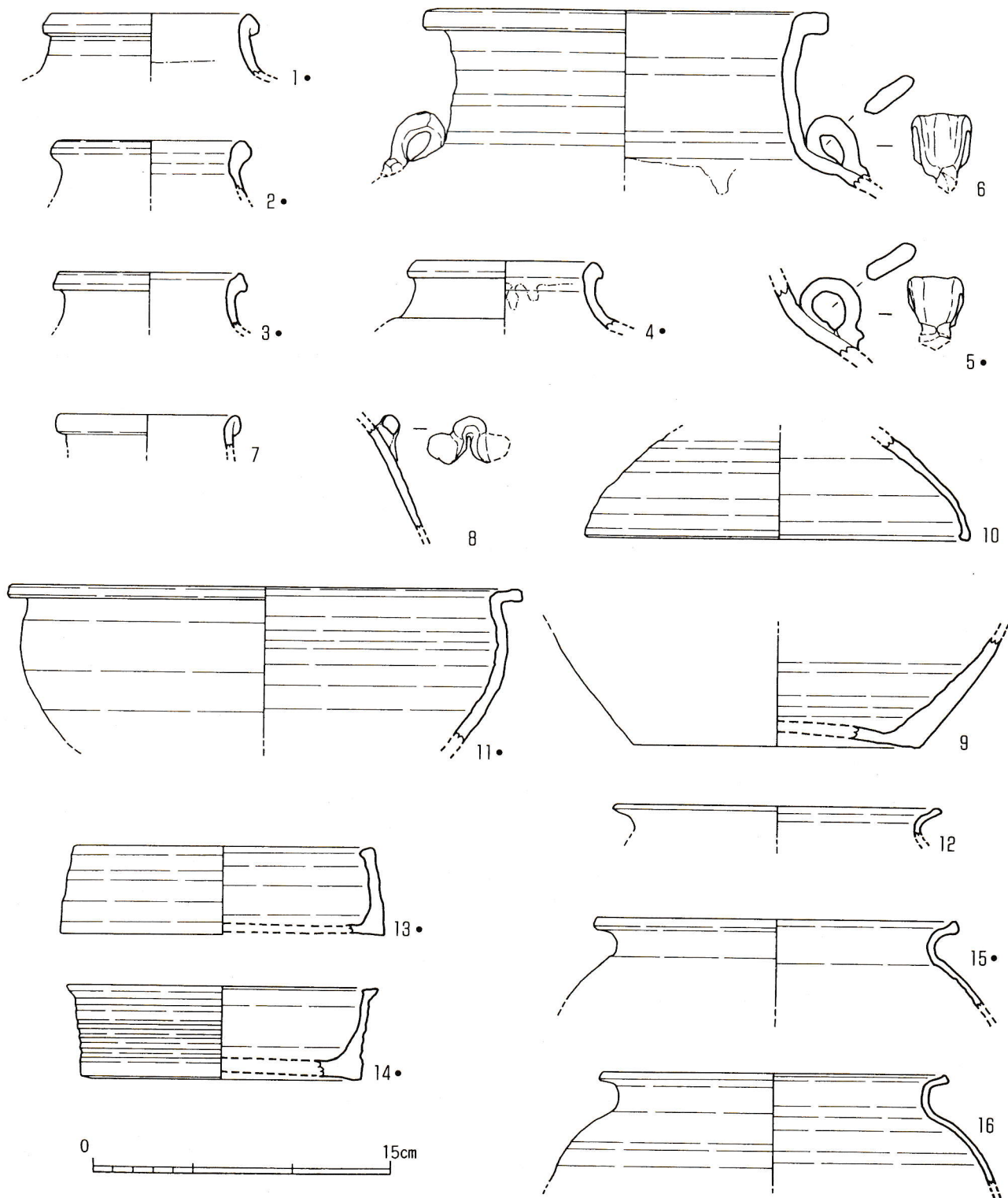


Fig.6 Pottery From Kiln No.2 & No.3 (1/3, The Marks ● are the items belonged to No. 3 kiln)

fine clay. Their bodies are presumed to be oval in shape. Several shards of the mouth of Bowl 6-16 have been found, and all of them are finely made with a thin body and were found in a sagger placed on the floor on No. 2 kiln. Bowl 6-15 found on the upper layer of No. 3 kiln.

-5 Kiln utensils

Cylindrical saggars and setters were used. The diameter and height of these saggars are about 25 cm. The setters were made with coiled clay and have 4 or 5 small projections on one side. Setters were used in between two bowls, inside the center of a bowl and foot ring when several type B celadon were fired together. Saggars were used for stacking same sized vessels

for mass production. If an empty space was left on the top vessel, a smaller vessel was then added to the stack to save the space. This case was recognized in the kiln.

1) Normally type B celadon bowls have 5 setter projections on their foot rings, but it is thought that a smaller vessel was placed on top of those type B bowls which have 4 smaller projections on their foot ring.

2) An example of the smaller vessel placed in the large celadon bowl type B (fig. 5-4).

3) This same technique may have been used on celadon bowl type A-1 and A-2 which are different sizes.

IV. Some Problems in Dating the Potteries

The main No. 2 kiln product was celadon bowls type A and that of No. 3 kiln was celadon bowls type B, while celadon bowls A-1 and A-2 types were found in both kilns. Hence it is difficult to date the B type as earlier than A type based on this investigation. I would like to suggest the following possible dating.

1) The stage of B type only → the stage of A and B types together → the stage of A type only.

2) The stage of mainly B with small numbers of A type → the stage of A type only.

Different firing techniques were used for firing stacks of Celadon bowl A and B types, so that it is hard to determine whether or not these two techniques were used at the same time in the same kiln. The lower strata, those dating earlier than No. 3 kiln, consist of soft pottery in the later Safin type which can be dated much earlier than No. 3 kiln. The items found in the lower strata include a small dish (pl. 4-H, diameter 11.3 cm, height 2.1 cm). A similarly shaped dish (mouth diameter 15 cm) in the collection of the Historical Museum of Hanoi, excavated at Thieu doung-Thanh hoa, is dated ca. 1st to 3rd century and is the reference to date the kiln products.

V. The dating of the kilns

The structure of these Vietnamese kilns and their products have not been studied before and not enough comparable materials exist. The celadon bowls of A type are presumably date after the 14th century when judged in comparison with celadon bowls excavated at other Southeast Asian sites, but it is difficult to date them to a specific time period. Therefore, I would like to present some noteworthy pieces that might provide the key to future studies. This grouping and dating is based on the method used at the Dazaifu investigation.

The dating of celadon bowls type A and B: As has been mentioned, these two groups of mass produced celadon ware show certain characteristics in their shapes and techniques used. Celadon bowls A and B types have hard porcelaneous bodies which are similar to that of Chinese celadon. The Chinese prototype of celadon bowl A type is presumed to have been the white porcelain produced in Fujien area in the Southern Song dynasty, because of their slanted shape foot ring, their unglazed band, and color of the glaze. On the other hand, the prototype of celadon B type may well be found in Southern Song dynasty Longquan yao celadon bowls with carved decoration, an angled foot ring and shape. These Chinese prototypes date to around the mid 12th century. However, some basins with flat mouth rim were found in No. 3 kiln and a similar basin of Longquan yao (group III of the Dazaifu investigation) was dated in the first half of the 13th century. Given their foot ring shapes and the glazing method used, they may well be related to Yuan dynasty Longquan yao celadon (group IV of Dazaifu -- Hakata investigation). The group IV celadon ware were found in the site after the early 14th century. Therefore, I would like to date the celadon B after 14th century, in comparison to the group IV, and because

the shape of the basin shows the latest style of the products. Celadon A type was later than celadon B type because of their strata locations.

VI. Conclusion

[1] Kilns fired Celadon A and B

The distribution survey during the investigation clarified that several kilns existed that fired celadon A type and B type. These sites were close to Go Sanh kiln sites in Binh Dinh Province. Roman numerals indicate the sites found this time.

Go Ke I and a part of Go Hoi	Celadon A and B types
Go Ke II	Celadon A and B types
Go Ke III	Celadon A and B types
Go Thoi and a part of Go Hoi	Celadon A and B types
Go Cay Me	Celadon A and B types
Truong Cuu I	Celadon B type
Truong Cuu II	Celadon A and B types
Truong Cuu III	Celadon A and B types
Truong Cuu IV	Celadon A ? and B types
Truong Cuu V	Celadon A type

[2] Markets for Celadon A and B types

Celadon A and B types wares seem to have suddenly been widely noticed during this investigation. So many examples have been found because these celadon wares were not only fired at kilns near Qui Niong, Binh Dinh Province of central Vietnam, they were also found at various places in Southeast Asian countries. However, the consumption trend of these celadon wares in Vietnam is unclear, and also these celadon ware have not been reported as found in Japan. These issues remain for future study.

Photographs and suggestions by Gakuji Hasebe, Yoji Aoyagi, Tatu Sasaki, Asako Morimoto, Hidefumi Ogawa and Naoki Tezuka all indicate that Celadon A type wares with their clear characteristics were exported to the following various countries. Reconfirmations of these suggestions are indicated, and I mention them here as material for further research.

They are as follows:

Malaysia Sarawak province

Malaysia Sava province celadon type A 14 - 15th centuries

Malaysia Pahang province celadon type A 14 - 15th centuries

Thailand sunken boat off Ko Khram island

Thailand

Philippines St. Anna celadon type A mid 14th - late 14th century

Philippines celadon type A 15 - 16th centuries

Indonesia Sulawesi Island celadon type B included

Egypt Qatar

Egypt Tour

Acknowledgments

The archaeological research members of Vietnam, centering Mr. Tuong, made the greatest effort in order pursue the investigation with the Japanese team. I was greatly impressed with their attitude for this research. I would like to express my deepest gratitude for this opportunity

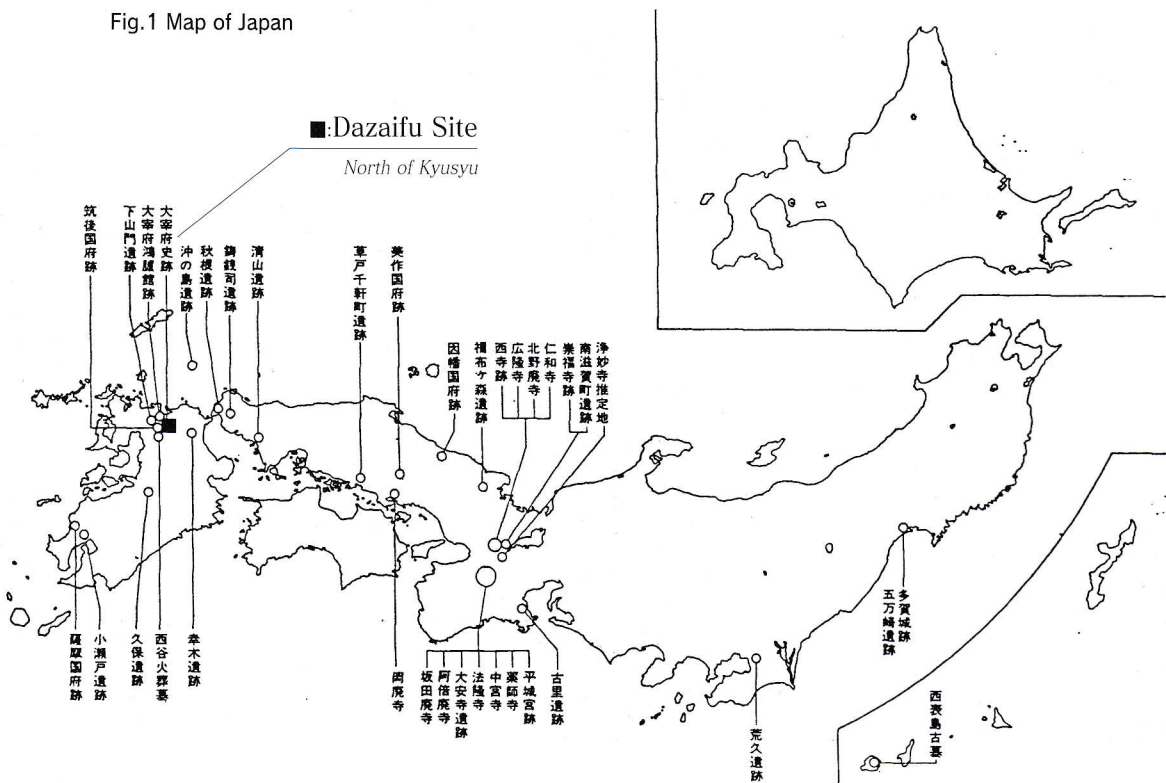
to work with them on Oriental ceramics, working beyond political and geographical boundaries.

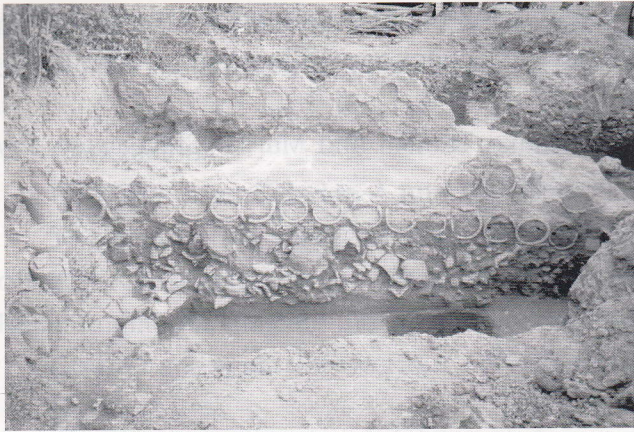
This investigation was supported by Nishida Memorial Foundation and by grant of Mitsubishi Foundation for Human science.

I would like to express my appreciation to Ms. Katsuko Tanaka and Mariko Shigematsu for making the measured drawings and tracings of the potteries.

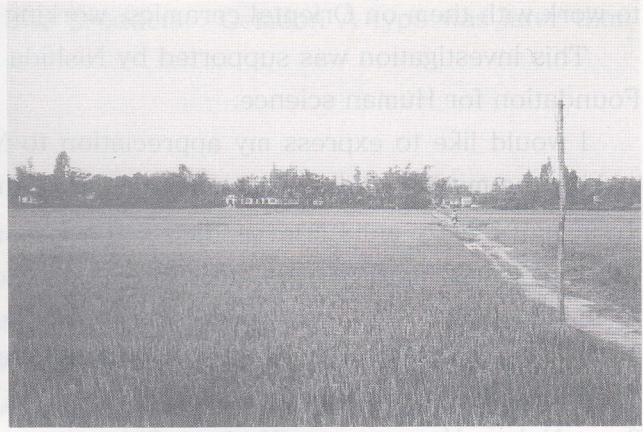
Notes

1. Tatsuo Sasaki: Gen Ming jidai yogyoshi kenkyu, 1985
Yoshikawa-kobunkan.
2. Nobuo Yamamoto: "Various Chinese ceramics of the 13th century in Dazaifu Historical Sites" Trade Ceramics Studies No.10 1990
3. Yoji Aoyagi: "The study of Chronological sequence of Chinese Trade Ceramics Excavated in the Philippines, A problem of Dating at the Santa Ana Site and Calatagan Site," Essays in Honor of Prof. Dr. Tsugio Mikami on His 77th Birthday, Heibonsha, Tokyo 1985
4. Yoji Aoyagi: "Trade Ceramics Discovered in Insular Southeast Asia." Trade Ceramics Studies No. 11 1991
5. Yoji Aoyagi: "Interim report, the investigation of old kiln sites in mid Vietnam", the paper for the Japan Society for Southeast Asian Archaeology on 7th August, 1993
6. Yoji Aoyagi, Gakuji Hasebe, Asako Morimoto, Shiro Momoki and Hidefumi Ogawa:
"Archaeological Research of an Old Kiln Site in Vietnam, Preliminary Report" Journal of East-West Maritime Relations, Vol. 2 1992
7. Asako Morimoto: " Kiln sites in Vietnam," Nanban and Shimamono--Exported Southeast Asian ceramics for Japan 16th - 17th century, Nezu Institute of Fine Arts, Tokyo 1993

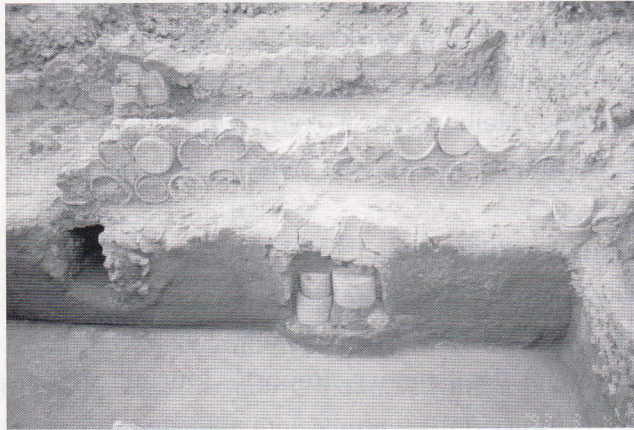




2 Firing Chamber of Kiln No.2 (The second investigation)



1 General View Of Go Sanh Kilns



4 Firing Chamber of Kiln No. 2 and 3



3 General View Of Kiln No.2



6 Row of Saggers No. A



5 Row of Saggers No. B and D



8 Side Entrance No.1 of Kiln No. 3



7 Row of Saggers No. C and E, And View of Layer



2 View of Firing Chamber of Kiln No.1



1 Covered and Protected by a Ceiling



4 Stacked Saggars of Entranc (North Outside)



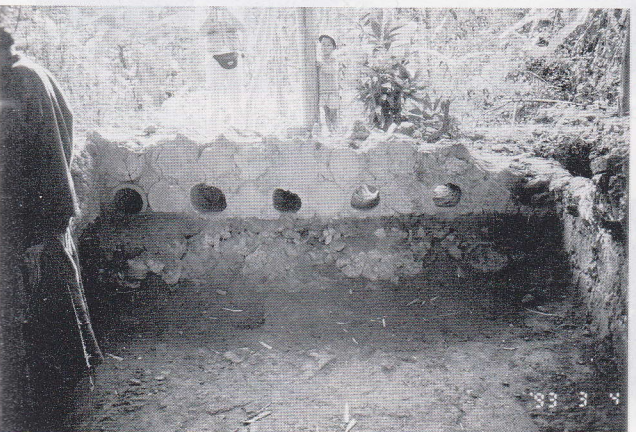
3 Pillars in Fuel Combustion Chamber of Kiln No.1



6 Firing Chamber of Kiln No.1 (Inside North Wall)



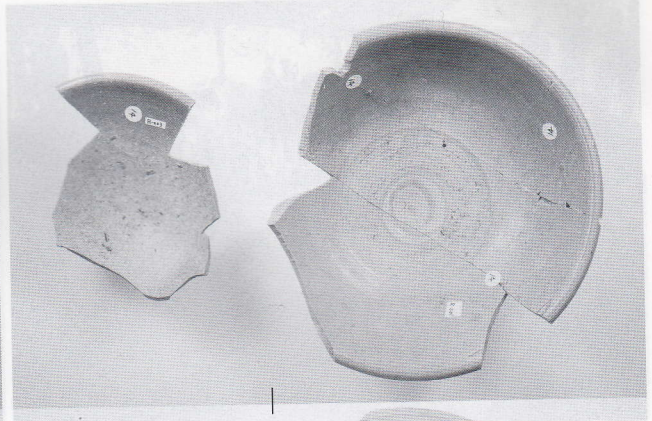
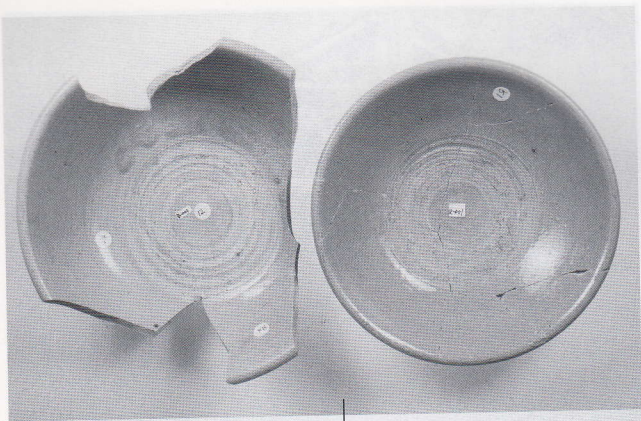
5 Firing Chamber of Kiln No.1 (Inside South Wall)



8 Inside of Chimney

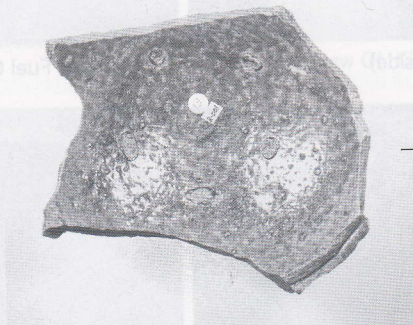
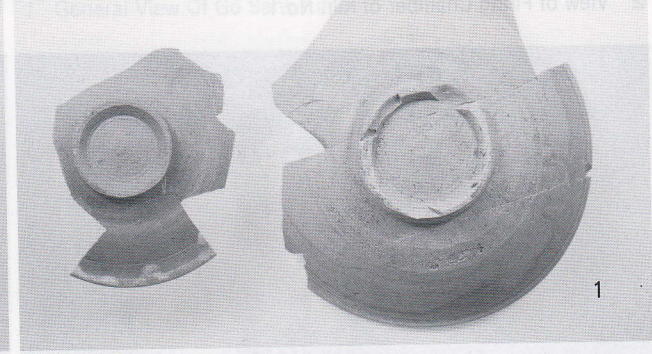
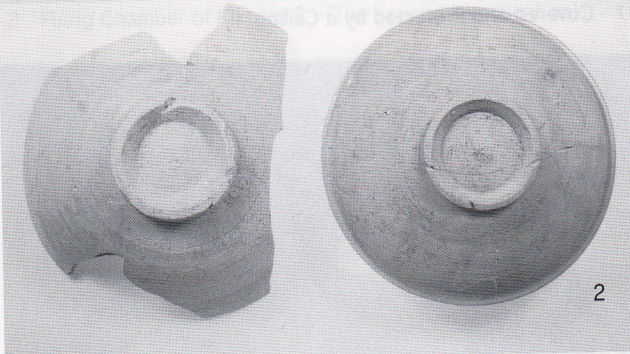


7 Outside of Chimney



B Celadon Bowls Type A from Kiln No.2

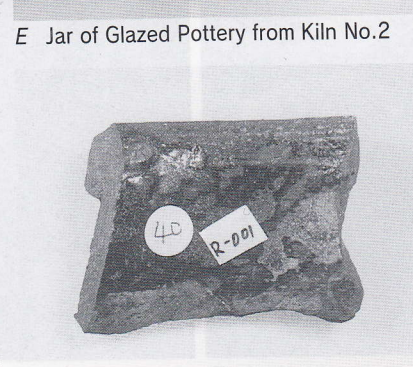
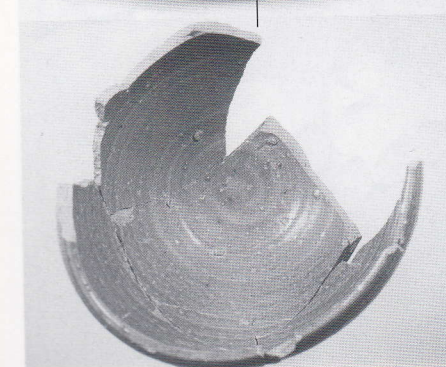
A Celadon Bowls Type A from Kiln No.2



C Celadon Bowl Type B from Kiln No.3

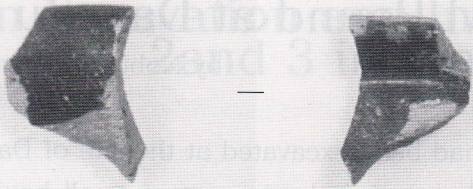


E Jar of Glazed Pottery from Kiln No.2



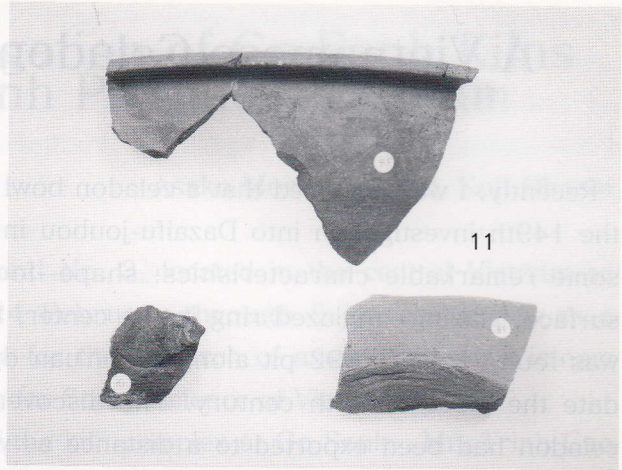
D Celadon Bowl Type B from Kiln No.3

F Jar of Glazed Pottery from Outside No. 3 Kiln in the Lower Layer



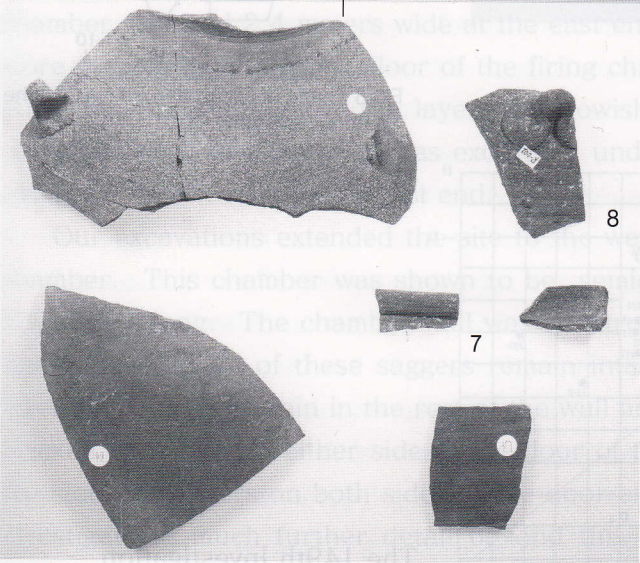
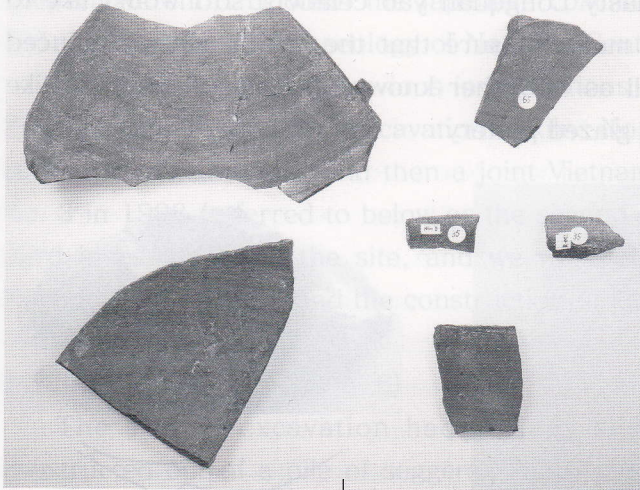
7

A Small Jar of Glazed Pottery from Outside of No. 3 Kiln in the Lower Layer



11

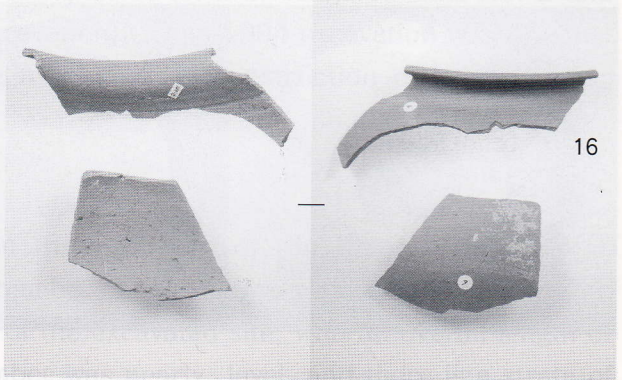
B Bowls of Unglazed Pottery from Kiln No.3



8

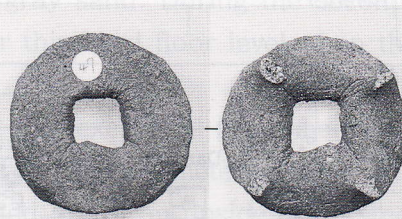
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C Jars of Unglazed pottery from Kiln No.2



16

D Bowls of Earthen ware from Kiln No.2

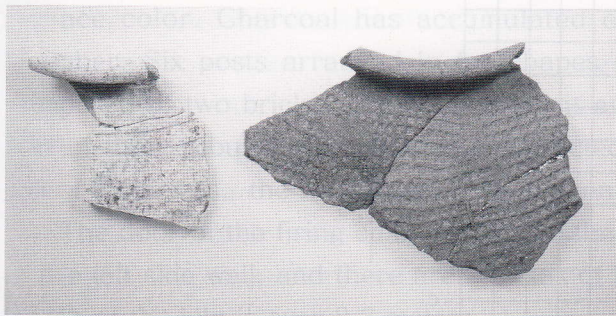


E Kiln utensil from Kiln No.2

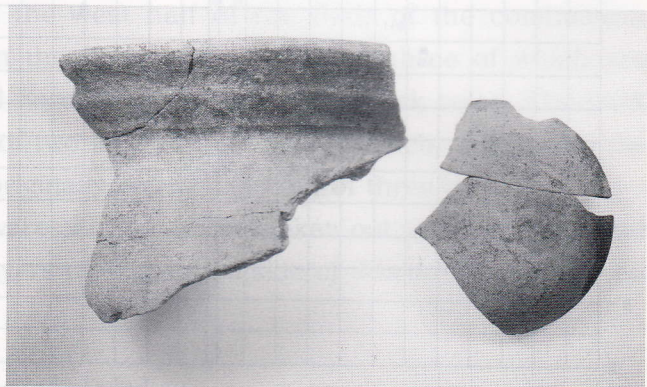


14

F Kiln utensils from Kiln No.3



G Excavated items dating before No. 3 kiln



H Excavated items dating before No. 3 kiln

A Vietnamese Celadon Bowl Found at Dazaifu

by Nobuo Yamamoto

Recently, I was informed that a celadon bowl type A had been excavated at the site of Dazaifu, the 149th investigation into Dazaifu-joubou in 1994. The piece is lower part of small bowl with some remarkable characteristics: shape--foot ring is thick and tall, and a slanted interior surface; glazing--unglazed ring in the center; body--fine, including small black grain. The piece was found from SK092 pit along with Yuan dynasty Longquan yao celadon, so I would like to date the piece of 14th century. The discovery makes it sure that the crude, mass produced celadon had been exported to a distance as well as the other known Vietnamese potteries like blue and white ware, iron painted pottery, brown glazed pottery.

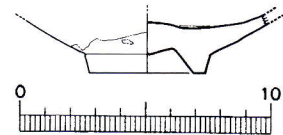
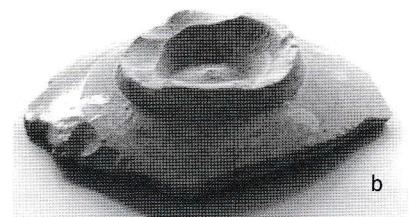
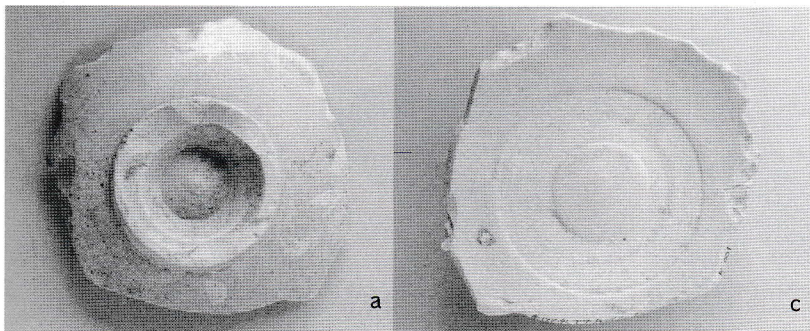


Fig.3 Shade of Excavation, Pit No.092, the 149th Investigation (1/3)

a and b: Outside Surface, c: Inside Surface

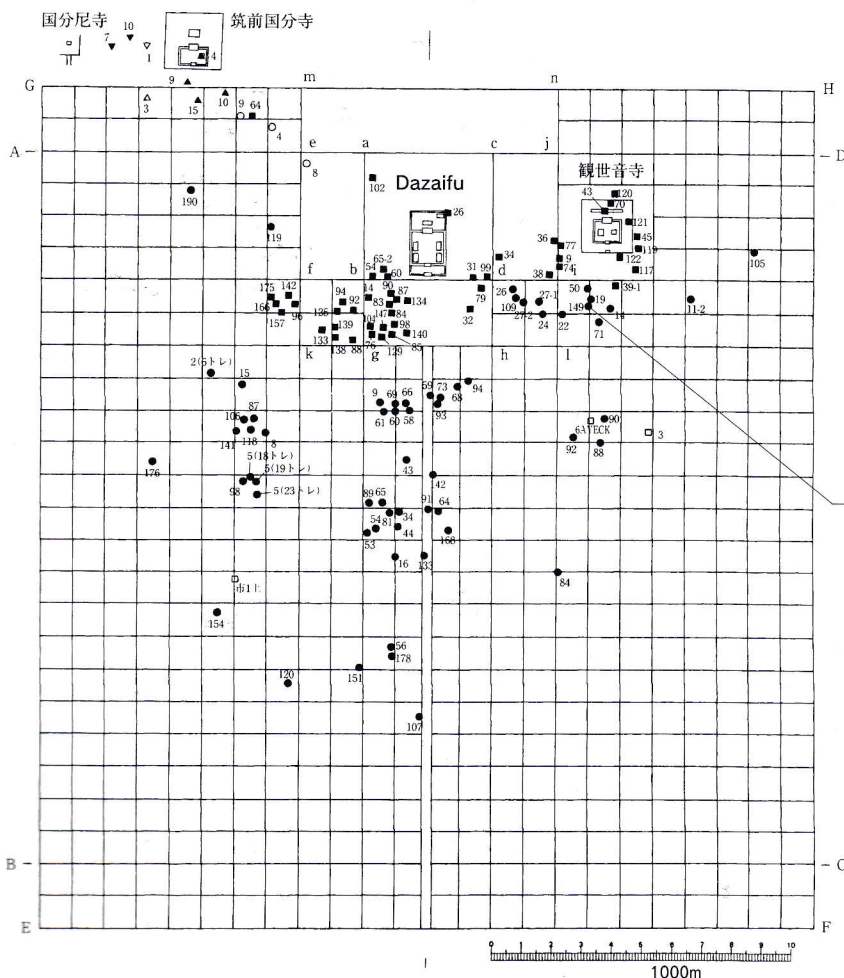


Fig.2 Dazaifu Jyobo Site (大宰府条坊跡)

An Excavation and Investigation of Go Sanh Kilns Nos. 2 and 3 in Binh Dinh Province, Vietnam

Asako Morimoto and Koji Ohashi

The excavation of the Go Sanh kilns No. 2 and No. 3, located in the central Vietnamese province of Binh Dinh, was conducted from 24 February through 5 March, 1994, as a cooperative effort between the Japanese committee for the research of ancient kilns in Vietnam and the Institute of Archaeology of National Center for Social Science of Vietnam.

There had been two previous investigations of the kiln complex at Go Sanh. Mr. Trinh Cao Tuong conducted the first excavation of kilns No. 1 and No. 2 starting in 1991 (referred to below as the first excavation), and then a joint Vietnamese-Japanese team investigated kilns No. 2 and No. 3 in 1993 (referred to below as the second excavation). Our 1994 excavation was thus the third investigation of the site, and we were able to clarify the construction of a combustion chamber of kiln No. 2 and the construction of kiln No. 3.

1. Kiln No.2 (Fig.1, Pls.4 ~ 6)

The second excavation had already shown that the wall of the firing chamber was constructed out of a pile of saggars. The firing chamber is 2.1 meters wide on the combustion chamber side and 2.4 meters wide at the east end of the excavated site, with an overall length of more than 6.5 meters. The floor of the firing chamber was nearly level, and there is a strata of burnt hard soil under the top layer of yellowish gray sand. During the second excavation, the north side wall of kiln No. 3 was excavated under this hard floor level when they dug the floor along the trench wall on the east end.

Our excavations extended the site to the west and excavated the remains of the combustion chamber. This chamber was shown to be semicircular, 1.65 meters wide at the back wall, and 1.5 meters long. The chamber wall was constructed out of an upside-down stacking of saggars. While three layers of these saggars remain intact on the north (left) side of the wall, only two layers of saggars remain in the rest of the wall area. We determined where the saggars had been stacked as pillars on either side of the door of the combustion chamber, and the origin point of the stacked saggars on both sides of the door extending to the west, but we were not allowed to investigate in much further detail beyond this basic positioning. The door of the combustion chamber is 20 cm wide and the floor was made 13 cm lower than that of the combustion chamber. The door of the combustion chamber interior wall is burnt and hardened with red-brick surface color. Charcoal has accumulated on the west half of the floor of the combustion chamber. Six posts arranged in fan-shapes on the floor were excavated, three of which are composed of two bricks. The floor is burnt and hardened, showing a red-brick color. The back wall of the combustion chamber is constructed of two layers of six saggars each. Judging by the top of the layers, the wall seems to have been originally constructed out of three layers.

The door of the firing chamber, where the wares are put in and taken out, is on the east end of the left side wall, and there are remains of layers of saggars outside of this door. The overall length of the kiln is over 8.3 meters.

2. Kiln No. 3 (Fig.2, Pls.7 ~ 14)

Kiln No. 3 is located under the floor of Kiln No. 2, and the wall is constructed only in clay. In our earlier excavation, we had found traces of the rebuilding of kiln No. 3, and in the present excavation we also found that Kiln No. 3 had been re-built a second time in order to shorten the length of the kiln. We designated the original kiln as Kiln No. 3A, the first rebuilt version as Kiln No. 3B, and we called this last kiln stage Kiln No. 3C.

The left side wall is held in common by these three kilns. On the east side of the back of Kiln No. 3C, we found that the left wall constructed only of clay had been re-plastered. The inside inclination of the wall suggests that originally it had an arch-shaped roof. Three layers of floor were confirmed in the trial trench along the east side wall. The top floor consisted of a black carbon layer thinly covered with light brown sand, and is thought to have been the leveled surface outside the back of Kiln No. 3C. The second floor layer consists of a burnt reddish-brown layer with a hard black surface, and is probably the floor of Kiln No. 3B. The third floor beneath these two floors consists of the sand floor of Kiln No. 3A on top of a hard, brick red-colored layer.

Kiln No. 3C--the last stage of Kiln No. 3-- is 1.2 m wide on the combustion chamber side, and 1.7 m wide at the back wall, with an overall length of 5.3 m. The floor of Kiln No. 3C's firing chamber is sloped up from the combustion chamber toward the back with only a slight 1 degree gradient, while those of Kilns No. 3B and 3A are seen to have had an incline of 3 degrees. This reveals that the newest kiln was made more horizontally level.

The wall at the back of the kiln is 60 cm thick, the outside is covered with stone, the inside surface is relatively vertical, and there are four smoke vents at the base of the wall interior. A smoke vent, with a diameter of 13 ~ 22 cm, extends back 42 cm and then bends up in an L form. The upper structure of this vent cannot be observed, however, as it was cut off by Kiln No. 2. There is a doorway on the right side wall of the firing chamber. A doorway on the left side wall cannot be confirmed, because the wall was destroyed by the large pit of stacked saggars used in the upper, newer kilns.

The combustion chamber consists of a shelf made up of columns and ridges, and a hole was let into the combustion chamber on the same level as the firing chamber to allow both air to rise into the chamber and ash to fall down.

Because our current excavations left the row of stacked saggars of Kiln No. 2 intact, we were not able to determine the positioning of the ridges running towards the fuel hole (fire box). Only the wall sections on both sides of the fuel hole were made up of two saggars.

The fuel hole is 30 cm wide, and its floor level is one layer lower and covered with burnt sagger fragments. Outside, 10 cm thick, burnt clay walls are built on both sides of the fuel hole up to a height of 30 cm, and the floor is burnt to the same hard consistency. At a 50 cm distance from this hole, a difference in level was noted and the floor is covered with black clay containing a high percentage of carbon. Inside the combustion chamber, two ridges extend inward and a sagger is set in each ridge to serve as a pillar (posts 4 ~ 5). Further in, there are three clay pillars (posts 1 ~ 3) with a crossbeam. All of these pillars support the ceiling of the combustion chamber. Only half of the ceiling remains, and there are two rows of six or more holes (1~6). We determined that on the upper surface of this combustion chamber under part ceiling the bottom fragments of saggars were used as a barrier to divide the combustion chamber and the firing chamber into separate units.

3. Conclusion

As mentioned above, we found that Kiln No. 3, which is older than No. 2, had been rebuilt two times. The first rebuilding was noted in the preceding excavation, and the current investigation included the excavation of Kiln No. 3C, which had been rebuilt to shorten the length of the kiln. The differences between Kiln No. 2 and No. 3 are (1) the construction of the combustion chamber and (2) the building materials of the wall. Kiln No. 2 has walls constructed out of saggars, while Kiln No. 3's walls are made of clay.

When we investigated the construction of each kiln, especially their combustion chambers, we noted that the combustion chamber of Kiln No. 3C is relatively similar to that of the kiln with vertical draft (Gong - xian) dating to China's Sui-Tang dynasties. Examples of their similarities include the smoke vent construction, as both have smoke ducts which extend from the back wall and move upward to form an L shape. But not all construction aspects are the same; for example, in terms of the number of smoke ducts, Kiln No. 3 has two or so, while Sui-Tang kilns have four ducts. A comparison with the climbing kilns in Chekiang province, however, reveals many similarities between both kilns. It is difficult to point to the direct relation between them, considering their difference in floor plan and period, but we cannot deny the possibility that this Go Sanh kiln construct might have originated in Chinese kiln constructs. Of further note is the fact that the Gong - xian kiln complexes produced construction tiles, as well as white porcelain, before production declined in the Song dynasty.

On the other hand, Kiln No. 2, whose construction differs from that of Kiln No. 3, is built on the site where Kiln No. 3 was destroyed. Kiln No. 2 shares the following aspects with Kiln No. 1: there are pillars of stacking blicks in the combustion chamber, and the wall of the kiln is constructed out of saggars. The smoke vent of Kiln No. 2 has not been excavated, but observation of Kiln No. 1, which has the same construction as Kiln No. 2 and has been excavated to the back of the kiln, clarifies the construction that would have been used on Kiln No. 2's smoke vent: the back wall is constructed by saggars laid on their sides, and holes were made by removing the bottom part of every other sagger arranged in each line.

Similar examples of this style, however with slight differences, can be seen. Kiln No. Y 32 Anfu (Ming dynasty) of the Longquan complex is longer (43.15 m long), and rises more steeply (13.5 degree), than Kiln No. 1, but shares such common points as its semicircular combustion chamber and five rows of vertically placed 5 cm thick blicks arranged in a curving pair of opposite rows, and a wall constructed out of blicks and saggars. (ref. Jiang Zhong Yi, 1981)

In terms solely of the pillars used in their combustion chambers, Ying - chang - gan - yao kiln Y No. 6 (one of the Shui - ji - jian - yao kiln complex in Fujian province and constructed in the Song - Yuan dynasty) is a climbing kiln, has a total length of 40.5 m, and rises with an incline of 7 ~ 12 degrees. The wall of this kiln is made of stacked blicks. The semi-circular cross-section combustion chamber of this kiln has nine rows of blicks arranged in a fan-shaped pattern. This so-called "furnace-fence" type combustion chamber then has blicks, saggars, lids of saggars, shards of tiles, and other miscellaneous material on top of the nine rows of blicks. Such a miscellaneous jumble of materials allowed small and large holes into the overall construct. This "fence" style construction of the combustion chamber is also seen in the kiln with vertical draft at Gong - xian mentioned above. It is possible that this format was adopted from the styles developed in the north in order to raise the internal temperature of the chamber. While all information would lead to the conclusion that the Go Sanh kilns are small-sized climbing kilns, in fact they differ essentially from a normal climbing kiln which takes advantage of a natural hillside slope to raise its firing temperature. Rather, the methods used to raise temperatures at the Go

Sanh kilns derive from the northern style of flat kilns (kilns with vertical draft). As also seen in the Chinese influence on Vietnamese ceramic wares, Vietnamese potters developed their own kiln construction types while still being heavily influenced by Chinese kiln types. And we can also indicate the possibility that there is some technical influence between Kiln No. 2 and Kiln No. 3.

Koji Ohashi

4. Excavated materials

As mentioned above, this is the third investigation of Kilns No. 2 and No. 3. The current excavation extended the site to the south and north in order to expand upon the work accomplished in preceding investigations. In terms of the materials excavated, the Vietnamese team has not yet published their findings from the first investigation of the site, and the second investigation only excavated a few new materials because their excavated site almost completely overlapped that of the first excavation. Hence our decision to excavate the layers containing cultural remains in addition to our investigation of the kiln itself.

We were able to compare the strata of the southern extension of the site with the strata of the eastern wall observed during the second excavation. The strata excavated this time, and designated as third layer upper / lower, follows the strata (4) designated during the second investigation. Strata (4) is posited to have been made before the construction of Kiln No. 2, given that it was either the stratum piled up after the demolition of Kiln No. 3, or the land leveled for the construction of Kiln No. 2 (Yamamoto 1995). The third layer of the extending site is separated off by sagger Line 1 into eastern and western sections, and only on the latter section does the third layer replace the second layer. Thus, the second layer does not appear on the east side wall. We have also divided the third layer into upper and lower parts for convenience. As for the line of saggars, their current condition does not allow a clear sense of either their purpose, or how the lines would protrude beyond the extended excavation site. The first strata which covers all of these layers was formed by materials accumulated after the construction of Kiln No. 2 (pl. 3).

We extended the excavation site to the west in order to find the combustion chamber, and the top soil and second strata of this section of the site are on top of Kiln No. 2.

Several unresolved issues remain regarding the northern extension of the site.

We compiled all materials excavated from the stratum, and their features are detailed in the attached table. Our original intention was to count all materials, but time limitations have meant that some material types are only described as "many" or "a few", without a precise number.

We tried to categorize our materials according to the categories used in the report of the second investigation, but, as mentioned below, some modifications to this categorization arose as we proceeded with our work.

Excavated remains were first classified into products and tools (i.e. tools used inside the kiln for firing products). Products categories include celadon, porcelainous pots and jars, glazed potteries, unglazed potteries, earthen wares, and building materials. Tools categories include lids of pots, saggars, supports and test samples.

(1) Celadon

This is the largest group of products among the excavated materials. Celadon is classified into

two types according to the way they were set in the kiln for firing.

Celadon : **Type A** (Fig. 4-1 ~ 11; Pl. 2-7, 3-1, 2)

This type has an unglazed ring inside the bowl as a proof that it was fired set in stacks. In order to avoid the bowls adhering to each other, the potters firstly glaze the whole inside and upper part of the outside of each bowls, then they shave the glaze in the center inside in the shape of the foot ring where the unglazed foot ring of the next bowl would be placed. The foot on these bowls is rather tall and cut obliquely inside to create a trapezoidal cross-section.

This type consists mainly of bowls. There are some smaller scale bowls in this type, but they do not have unglazed ring in the center inside of each bowl. Surely they were set on the top of stacks.

While the majority of these bowls expand straight out from the foot with everted rims, there are some with swelling sides and others with straight rims.

In addition to the bowls in this category, there are some dishes with varying flat flange-like rims. Some of these dishes are small, while others are large with carved sides and wide flat rims.

A fragment of a base with an angle around the foot ring is thought to be part of a deep bowl, but an upper part that would correspond to such a base fragment has not been found. (Fig. 4-8)

This celadon type is made of a finely textured clay, which is usually light gray in color. The glaze on these works is also light in tone, for example light grayish green, light bluish green or light yellowish green, and has a smooth, lustrous surface. Most examples of type A are glazed on the inside with the glaze extending to the upper part of the outer surface. No decorated remains of this type were found in this excavation.

Type A has not been found in the third strata of the southern extension of the site.

Celadon : **Type B** (Fig. 4-12 ~ 17, 5-1 ~ 10; Pl. 3-3 ~ 6)

This type has setter marks as proof that they were fired in stacks. In this firing method, donut-shaped setters with five pads are put between bowls set in stacks. Thanks to the use of the setter, the feet on these wares need not be tall.

This type also consists of various sized bowls, with most examples having a 15 cm mouth diameter. A setter with four pads was used in the case of small size bowls. (Fig. 4-12 ~ 17)

In addition to the wares mentioned above, there are also small deep bowls, various-sized globular bowls, and dishes with flat rims.

There are two types of deep small bowls, which we call cups for convenience sake. These cups either have a flat base or a hollowed out base, and their rims are either straight or rounded. (Fig. 4-18, 19)

Globular bowls are found in three sizes: small, medium and large. The majority of these globular bowls have the rim curved inside, but some have the lip rounded and slightly everted. The bases have a wide, short ring foot.

A fragment of the lip section of a thick-bodied work (Fig. 5-6) was found, and it is thought to correspond to one of the base fragments drawn Fig. 5-7. However both may be parts of different deep bowls.

As for dishes with flat rims, some are large with a large flat rim, while others are small with a slight flat rim. (Fig. 5-8 ~ 10)

The clay of this type ranges in color from light gray to gray, and on the whole, is coarser and darker than type A clay. The glaze is also darker than type A wares, and covers a wider

surface extending from the inside of the bowl to the bottom part of the exterior. The most common shape of this type is a bowl with a curved lower side which then extends up to an everted rim.

Two decorated fragments of this type were excavated (Pl. 3-5, 6). Both fragments are glazed and fired, and are extremely simple and seem almost partially unfinished. It is thought that decoration was not general in this type. B type is the only celadon excavated from the third strata of the southern extension of the site.

Excavated celadons can be generally classified into types A and B in accordance with the above-mentioned characteristics, but when a fragment is only a part of the body of a work, i.e. not its base or rim, there are cases where it is impossible to determine if the fragment is of type A or B. In other words, because the two types share some common body forms, such body-only fragments are difficult to classify without the characteristic base part. Therefore, fragments without base sections are counted as a separate, undifferentiated group.

(2) Porcelainous pots and jars (Fig. 5-11, 6-1, 2, Pl. 4-1)

These works are made out of a gray or grayish white clay covered with blackish brown, greenish brown, or yellowish brown glaze. Strictly speaking, these can not be classified as porcelainous wares, but they are at least as porcelainous as celadon types A and B. A small glazed pot reported in the second investigation is now classified in this group (P. 26 - Fig. 5-7). Fig. 6-1, 2 shows shallow bowls covered inside with a light olive glaze and outside with brownish olive glaze.

There are only a small number of porcelainous pots and jars in this group of excavated materials, and they were not found in the third strata of the southern extension of the site.

(3) Pottery and earthenware

The rest of the excavated materials are glazed and unglazed pottery and earthenwares. As we began our classification process, we discovered that we could not find clearly different characteristics between glazed pottery and unglazed pottery, or unglazed pottery and earthenwares, which would allow us to set up specific categories. Some of the glazed wares are partially unglazed, and thus are hard to distinguish from unglazed wares. Unglazed wares were sometimes underfired, thus revealing reddish clay and other similarities to earthenwares. Simply stated, this entire group, from earthenwares to glazed pottery, all seem to use the same kind of clay. In terms of firing temperature, the unglazed pottery reveals a wider firing temperature range than the glazed pottery, the majority of which were fired at high temperature. There are also earthenware jars that were originally intended to be fired unglazed and are similar to those seen sold as cooking jars in the daily market today in Qui Nhon City. Generally the glazed pottery is finished in either blackish or reddish gray color with white grains. Some melted iron black spots were found on the surface of the blackish colored wares. On the other hand earthenware works show a reddish color with brown or white grains. In our classification of these wares, we automatically grouped the materials into 1) those with glazed parts into glazed pottery, 2) the fired shards showing reddish and cooking jars into earthenwares, and 3) all other examples into unglazed pottery. Inevitably, this last group probably contains the unglazed sections of glazed wares.

Glazed pottery (Fig. 5-12 ~ 16, 6-3, Pl. 4-2)

The glaze varies widely in color from blackish to yellowish, but the majority range from blackish brown to greenish brown. Some are covered with iron glaze on white slip, while others have been double glazed, with an ash glaze applied over an iron glaze. Most of these wares are pots, but there are also some vases and bowls.

Unglazed pottery (Fig. 6-4 ~ 6, Pl. 4-2, 3)

Most of these wares are pots similar to those made of glazed pottery. There are also vases and bowls.

Earthenwares (Fig. 6-7 ~ 9)

There are two types of wares in this group. Some, such as jars or lids, were intentionally completed as earthenware works. Others, such as pots, remained in earthenware state because of firing conditions, not original intent. We count here only formers as earthenwares.

All wares mentioned above were made on a right-handed wheel.

(4) Building materials

Tiles (Pl. 4-4, 5)

There are many tiles among the excavated materials. These tiles are plain tiles with a pointed end and can be divided into several groups according to their width or the shape of the back part of the tile. As no whole tiles have been excavated, we can only judge their overall size from the example in the Binh Dinh Provincial Museum, which is 33 cm in length and 9 - 12 cm in width. Excavated materials from kilns mostly show a reddish fired state, but there are some which are blackish, and others which are covered with a greenish brown or cloudy gray glaze.

Decorative materials for Cham tower, for short DMCT (Fig. 6-10 ~ 15, Pl. 5-3)

These works are earthenware in quality, and carved and finished with polishing. An example of their use is here illustrated at pls. 5-2, 4.

The bricks included in Table 1 are the materials used to create the partitioning pillars in the Kiln No. 2 combustion chamber, and were not necessarily produced at this kiln site.

(5) Tools

The tool types include lids of pots, saggars, setters, and test samples.

Lids of pots (Fig. 6-17, Pl. 5-5)

By far, lids of pots represent the largest number of tool remains. These lids are shallow cylindrical bowls, and sometimes there is a finger sized hole on the side. These lids were thought to have been used to stack pots in the kiln. Basically, a pot lid would be laid upside down over an unglazed, four-handled pot, and then that lid would be used as a stand for the next pot in the stack. In general sites, lids have been excavated that were actually used as pot lids, but at this site many lids have been excavated in a condition that would indicate they were used as firing stands. The clay in these lids is the same as that described in the unglazed pottery above.

Saggers (Fig. 6-21, Pl. 5-6)

Heavy (thick) cylindrical forms with a flat base and made of a coarse-grained clay. Some

have a finger-sized hole near the bottom, while some have finger-drawn lines that look like a kiln mark. We found traces of rice husks on the outer base of some of these saggars. The presence of such rice husks is reminiscent of similar traces which are found in instances of celadon firing where rice husks were used in place of fire-resistant clay.

Ring Setter (Fig. 6-18, 19, Pl. 6-1)

Flat loops of grayish white clay with five pinched pads. Most have five pads, but a few have only four. These were laid pad-side down on the inside base of Type B celadon wares so that the wares could be fired in stacks.

Disk Setter (Fig. 6-20, Pl. 6-2)

Thin disks with a hole in the center, some of which are slightly larger than ring setters.

Test Samples (Pl. 6-3, 4)

A celadon type A or B base section or a bowl shard of these wares, which was pierced with a hole and then used as a test sample. These test samples were taken out during the finishing stage of firing through the hole on the wall of the kilns so that the potter could see whether he can stop firing.

Lumps of clay for filling in the hole on the kiln wall were also excavated. (Pl. 6-5)

5. Conclusion

Judging from the layer containing artifacts, celadon type B can clearly be seen to have preceded type A. Celadon type A works were found in the main section of Kiln No. 3 and not in the third strata of the southern extension of the site. Because no celadon type A works were found in the third strata, we can state that the third strata of the southern extension of the site and another stage of kiln development occurred prior to the construction of Kiln No. 2.

The fact that saggars were used in the construction of the combustion chamber of Kiln No. 3 suggests that there were earlier kilns around this kiln. Vietnamese scholars have also indicated the possibility that a kiln crossing near the back part of Kilns No. 2 and 3 existed on the south side.

Essentially, the products of Kilns No. 2 and 3 cannot be identified solely on the basis of the results of the second and the third excavations. We must also consider the possibility that celadon type A was already being fired at Kiln No. 3, or that another kiln existed nearby.

This excavation did not clearly reveal a direct relation between Kilns No. 2 and No. 3, but we did ascertain that celadon type B preceded type A. We think that this order of production is common to the Binh Dinh old kiln complexes located in this district. In addition to Go Sanh, kilns have also been found in Go Ke, Go Thoi, Cay Me, and Truong Cuu in Binh Dinh province. The excavated materials from each kiln indicate that each had distinctive features. By comparison, remains from the present investigation of the southern extension of the site seem to lack variety, especially in the celadon type A stage.

We must also note that the products from this site range from earthenwares to porcelains, which suggests that the potters at this site had the necessary skills to produce several types of wares with different firing temperatures in the same kiln. These works could have been either fired at the same time, with the judicious placement of wares within the kiln to reach the temperatures needed for each ware type, or through the firing of the separate ware types in separate, temperature-specific firings. The former seems hard to imagine, given the rather small scale of these kilns, and the latter method seems more likely. And yet, there are no clear clues to

the actual firing system used at these kilns, so we can only posit these ideas as suggestions.

This excavation did not produce any clues to help us date the kiln, and we hope for future research of consumer sites in this regard. An investigation of the many tiles and decorative materials for Cham tower, which were excavated in this investigation, may also contribute to the dating of the kilns.

Finally, we hope that progress will be made on the systematic research of Binh Dinh kiln complex.

Asako Morimoto

No.	Excavated materials	Quantity	Unit	Material	Color	Size	Shape	Remarks
1	Third layer North Extension	8	unit	brick	red	20x20	square	
2	Second layer South Extension	28	unit	brick	red	20x20	square	
3	First layer North Extension	18	unit	brick	red	20x20	square	
4	Second layer West Extension	17	unit	brick	red	20x20	square	
5	Third layer West Extension	81	unit	brick	red	20x20	square	
6	Lower part of third layer West Extension	180	unit	brick	red	20x20	square	
7	Upper part of third layer South Extension	458	unit	brick	red	20x20	square	
8	Second layer South Extension	25	unit	brick	red	20x20	square	
9	Third layer South Extension	145	unit	brick	red	20x20	square	
10	Lower part of soil filling Kiln No. 3A	37	unit	brick	red	20x20	square	
11	Upper part of soil filling Kiln No. 3A	4	unit	brick	red	20x20	square	
12	Under-floor soil Kiln No. 3C	12	unit	brick	red	20x20	square	
13	Soil filling entrance Kiln No. 3B	2	unit	brick	red	20x20	square	
14	Passage ways for lower kiln No. 3C	2	unit	brick	red	20x20	square	
15	Soil filling the combustion chamber Kiln No. 3	2	unit	brick	red	20x20	square	
16	Lower part of soil filling Kiln No. 3C	12	unit	brick	red	20x20	square	
17	Soil filling Kiln No. 3	8	unit	brick	red	20x20	square	
18	Upper kiln No. 3 and lower kiln No. 3	14	unit	brick	red	20x20	square	
19	Under-floor soil Kiln No. 3	4	unit	brick	red	20x20	square	
20	Under-floor soil Kiln No. 3	23	unit	brick	red	20x20	square	
21	Under-floor soil Kiln No. 3	18	unit	brick	red	20x20	square	
22	Under-floor soil Kiln No. 3	44	unit	brick	red	20x20	square	
23	Soil filling near Kiln No. 3	3	unit	brick	red	20x20	square	
24	South outside Kiln No. 3	2	unit	brick	red	20x20	square	
25	Soil filling Kiln No. 3	12	unit	brick	red	20x20	square	

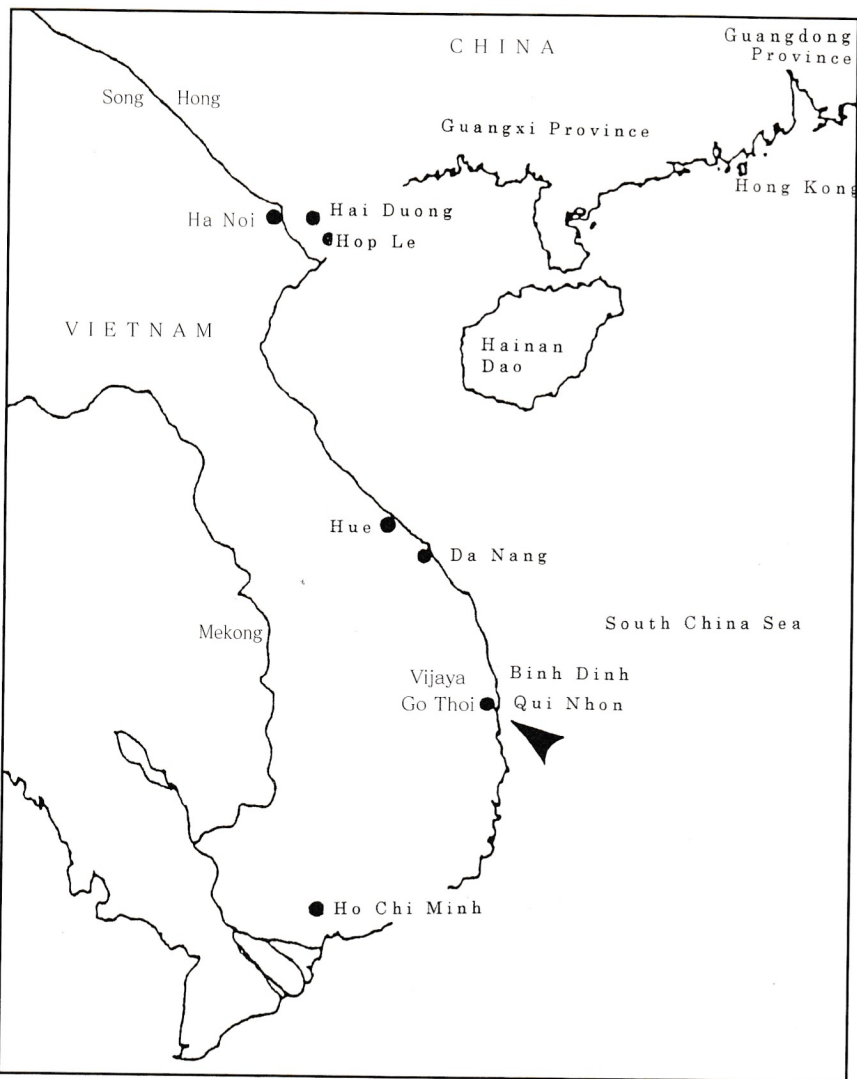
Table Excavated materials from Go Sann Kiln No. 3

Point of Excavation		Categories			Celadon (bowl, dish, etc.) fragment A or B	Porcelainous pot & jar	Pottery				Earthen ware
		Type A	Type B				black glazed	brown glazed	yellow glazed	unglazed	
1	Pit	2				1	1	1	30		
2	South outside Kiln No.2	2	5	5					2		
3	Soil filling mouth Kiln No.2	3	5	22		6	1		28	18	
4	Under mouth-floor soil Kiln No.2								a few		
5	Under floor soil Kiln No.2	4	23	82		16			30	9	
6	Outer-Kiln No.3 soil	1	16	64			3		7	3	
7	Soil filling Kiln No.3	6	2	16					15	5	
8	Upper-part of soil filling Kiln No.3C	7		32			2		23	27	
9	Lower-part of soil filling Kiln No.3C	12		27					8	12	
10	Soil filling the combustion chamber Kiln No.2	2		6						1	
11	Passage ways for flame Kiln No.3C										
12	Chimney Kiln No.3C	5		16					1		
13	Soil filling entrance Kiln No.3C	2		9					5		
14	Under-floor soil Kiln No.3C	1		12					2	5	
15	Upper-part of soil filling Kiln No.3AB	5	4	27		7	3		11	9	
16	Lower-part of soil filling Kiln No.3AB	37	22	80	brown glazed 1	8	3		13	※83	
17	First layer South-Extension	115	※14	537	yellow-brown glazed 138 black glazed 2	35	7	24	153	16	
18	Second layer South-Extension	35	25	239	yellow-brown glazed 20	30	41		86	※6	
19	Upper-part of third layer South-Extension		※56	102		1	many	1	many	14	
20	Lower-part of third layer South-Extension		150	2		many	many	1	many	many	
21	First layer West-Extension	74	※23	61	yellow-brown glazed 51	5	21		20	2	
22	Second layer West-Extension	17	17	28	3	5	3	1	9	3	
23	First layer North-Extension	18	18	67	※					4	
24	Second layer North-Extension	26	23	46	yellow-brown glazed 2	4	2		8	1	
25	Third layer North-Extension		6	7					5	2	

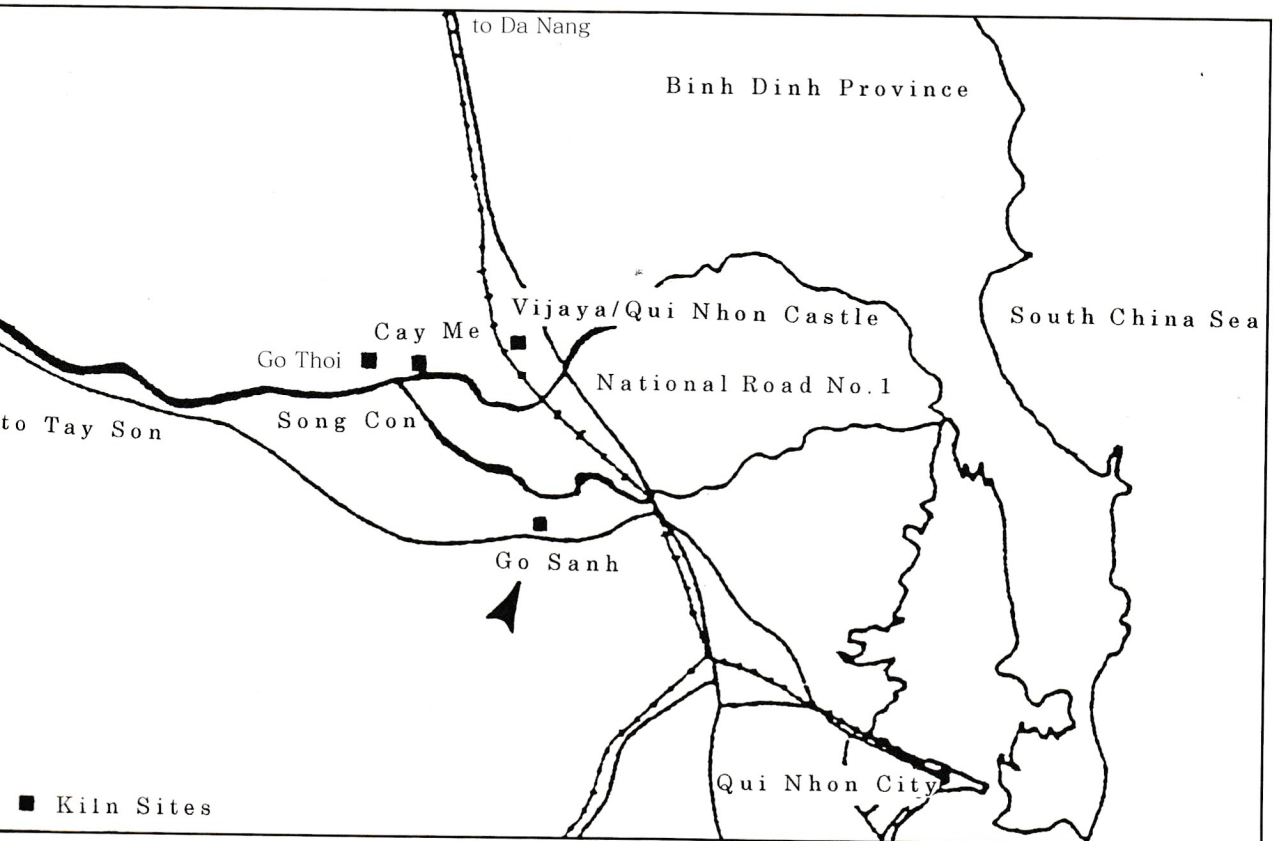
Table Excavated Materials from Go Sanh Kiln No.2 · 3

Building material			Kiln Tool				Wares from Other Kilns		Other categories: notes
glazed tile	Unglazed tile	DMCT & brick	Test sample	setter	Lid of pot	saggar	Porcelainous ware	Pottery	
					13	9		1	Feature after abandonment of Kiln No.2
	2			6		1			
	14	※bricks 12		9	14	many			※Used as flame dividing pillars
	a few					a few			
	15 many wide			7	many	10			1 filler of observation window
	wide 2				8	many		※1	※ Small mouth jar from Quanzhou, Fujian, China
	9	DMCT 1		3	3	16			
	27			4	21	21			An earthen ware with unknown use
	17 (wide 7 narrow 3)	brick 1			5	9			
	6 (wide 3 narrow 3)	DMCT 1			12	many			
	2					2			Filler of passage ways for flame
	3					many			
				1	1				A part of an earthenware ox-figurine's head
	5			1					
	3		1	4	1	many			
				4	3	22			※ Including a blue-black glazed ware with traces of bivalve
13	56	DMCT 3	127	2	※※87	many	23	3	※ Including a ware with lotus-pedal design ※※ Including a blue-black glazed ware with traces of bivalve
6	wide 66 narrow 149	DMCT 1	64		※※123	many	2		※ Including a lotus-pedal shaped roof tile with brown glaze ※※ Including 3 blue-black glazed wares with traces of bivalve
	many		20	2	7	many			※ Including celadon wares with ribbed design A disk support
	wide 151		a few	8	many	many			5 disk supports
	wide 1 narrow 1		1	1	3	6		※※6	※ Including a botton of basin with inside celadon glaze / outside brown glaze. ※※ Including stone wares from 17-18c.
a few		DMCT 1	6	1	6	a few			Above Kiln No.2
3	wide 2 narrow 5		3		3				※ Including a ware with yellow-brown and celadon glazes
	wide 1 narrow 9		7		5	a few			
	1		2		2	many			

DMCT = Decoration Material for Cham Tower



Map.1 Location of Qui Nhon



Map.2 Location of Qui Nhon City and Go Sanh Kiln Complex

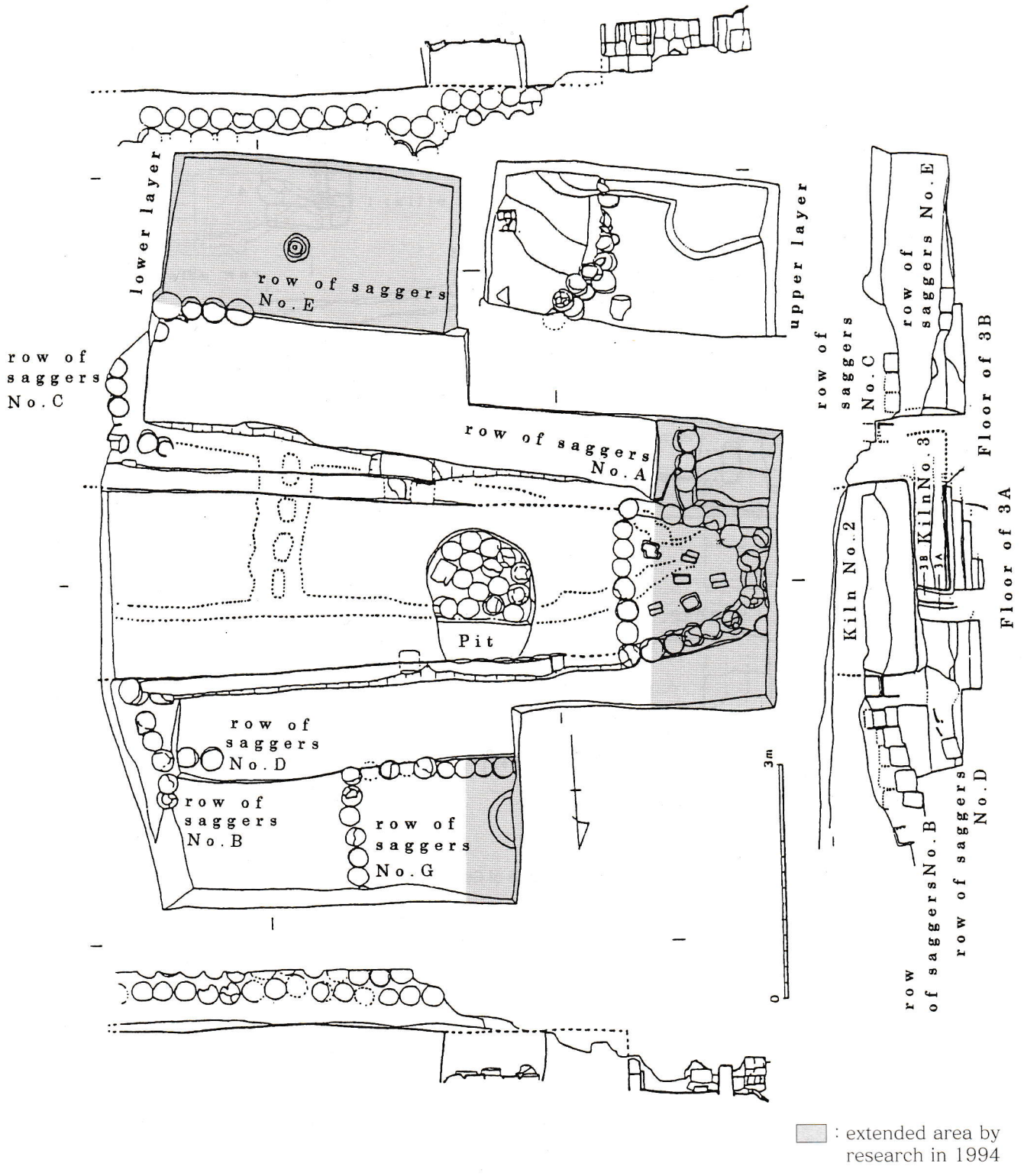


Fig.1 Plan View and Profile of Go Sanh Kiln No.2 and 3

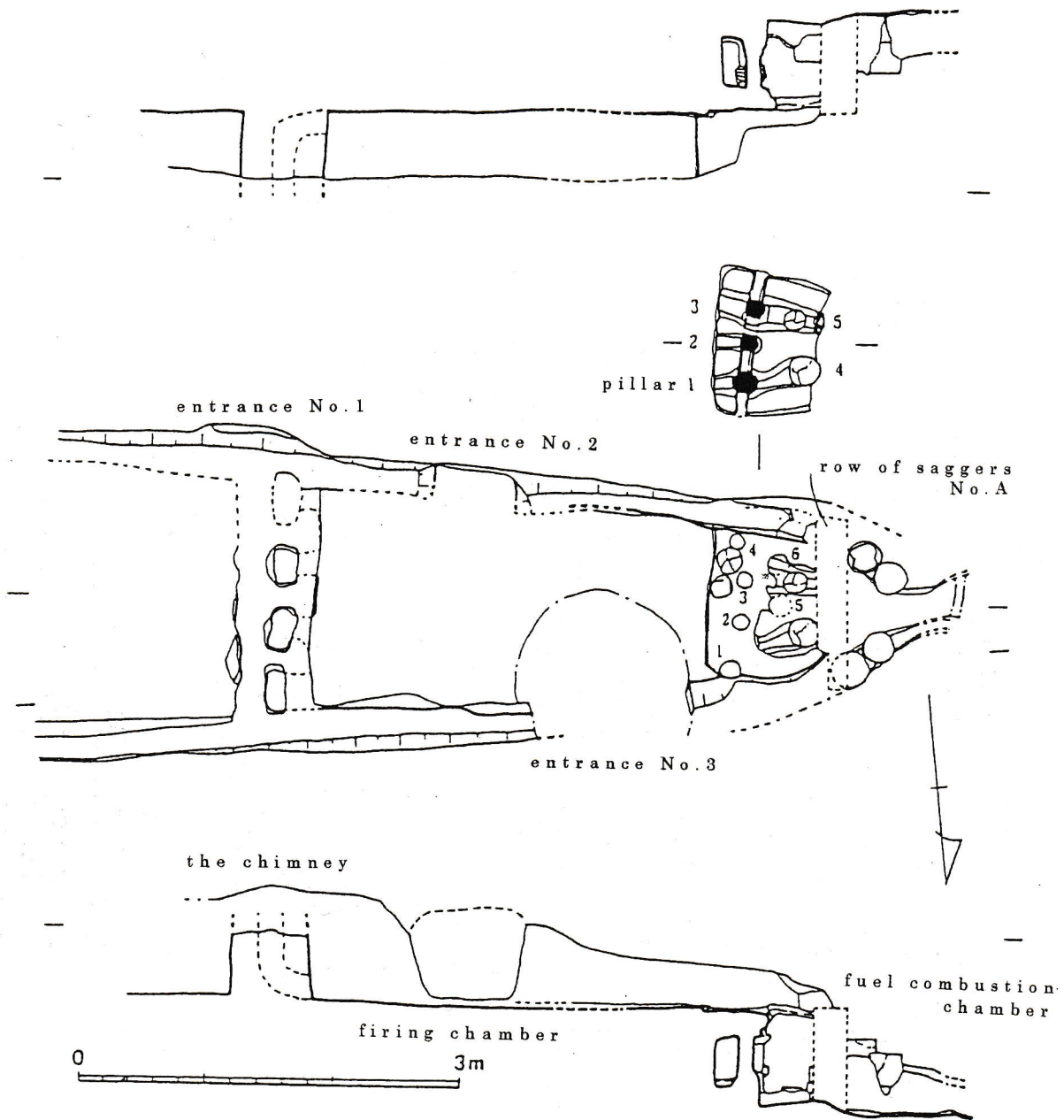


Fig.2 Plan View and Profile of Go Sanh Kinh Kiln No.3

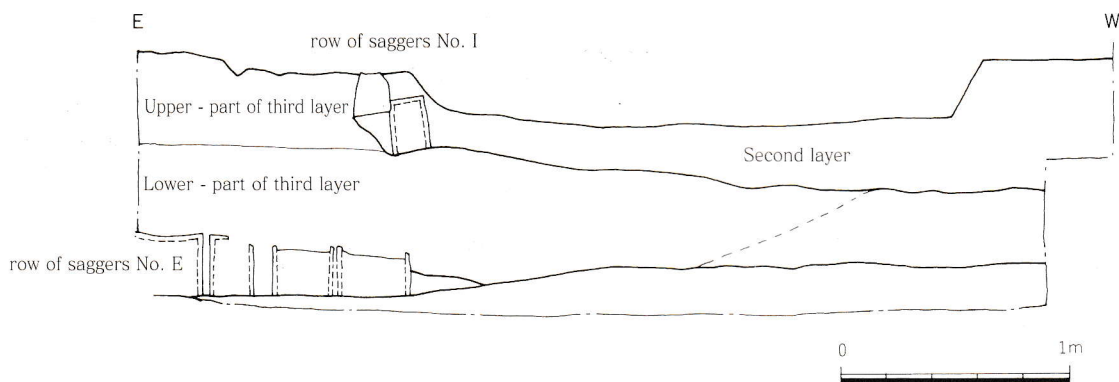


Fig.3 Row of Saggars No. E, And View of Layer

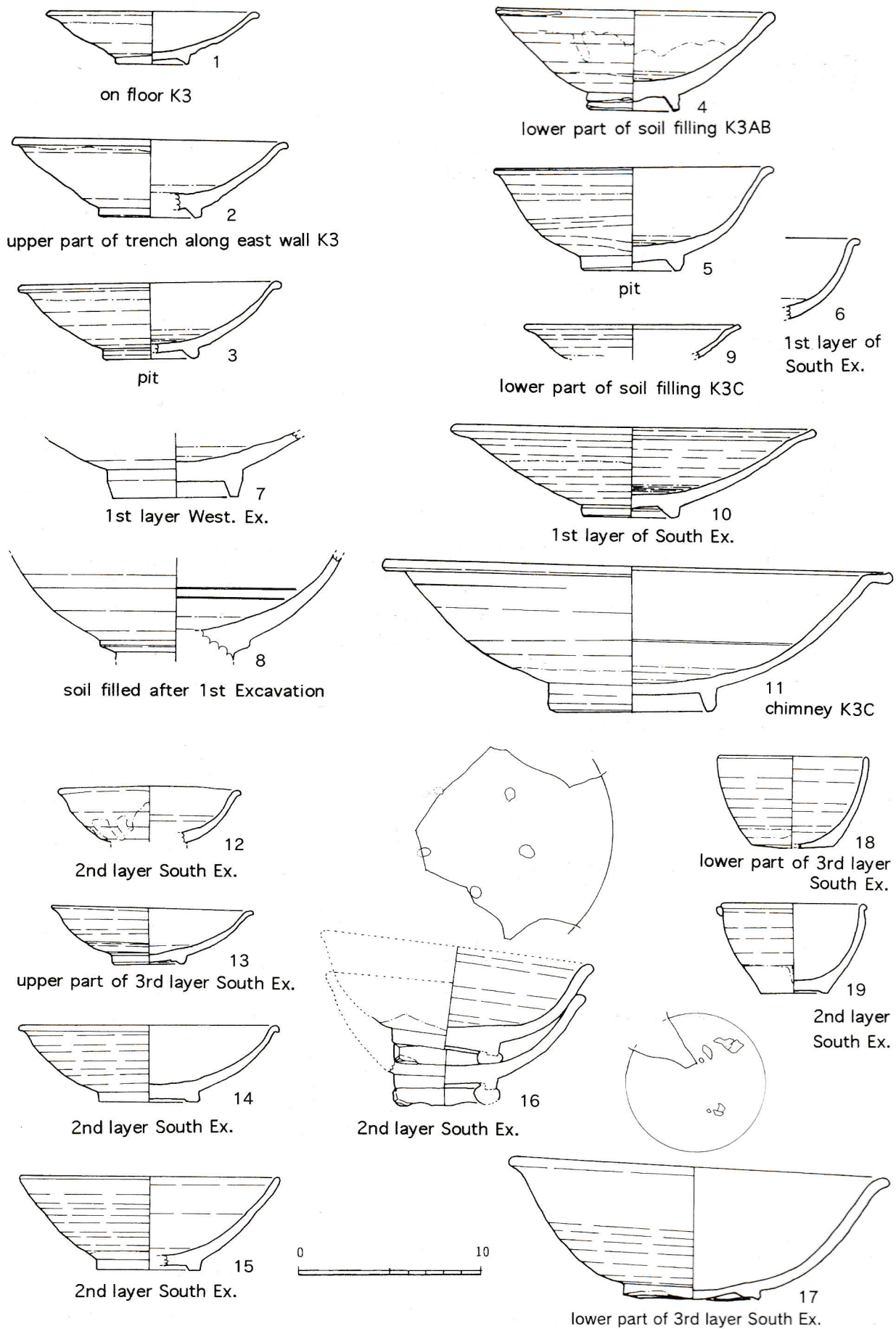


Fig. 4 Excavated material and finding point : Celadon type A 1~11;

Celadon type B 12~19.

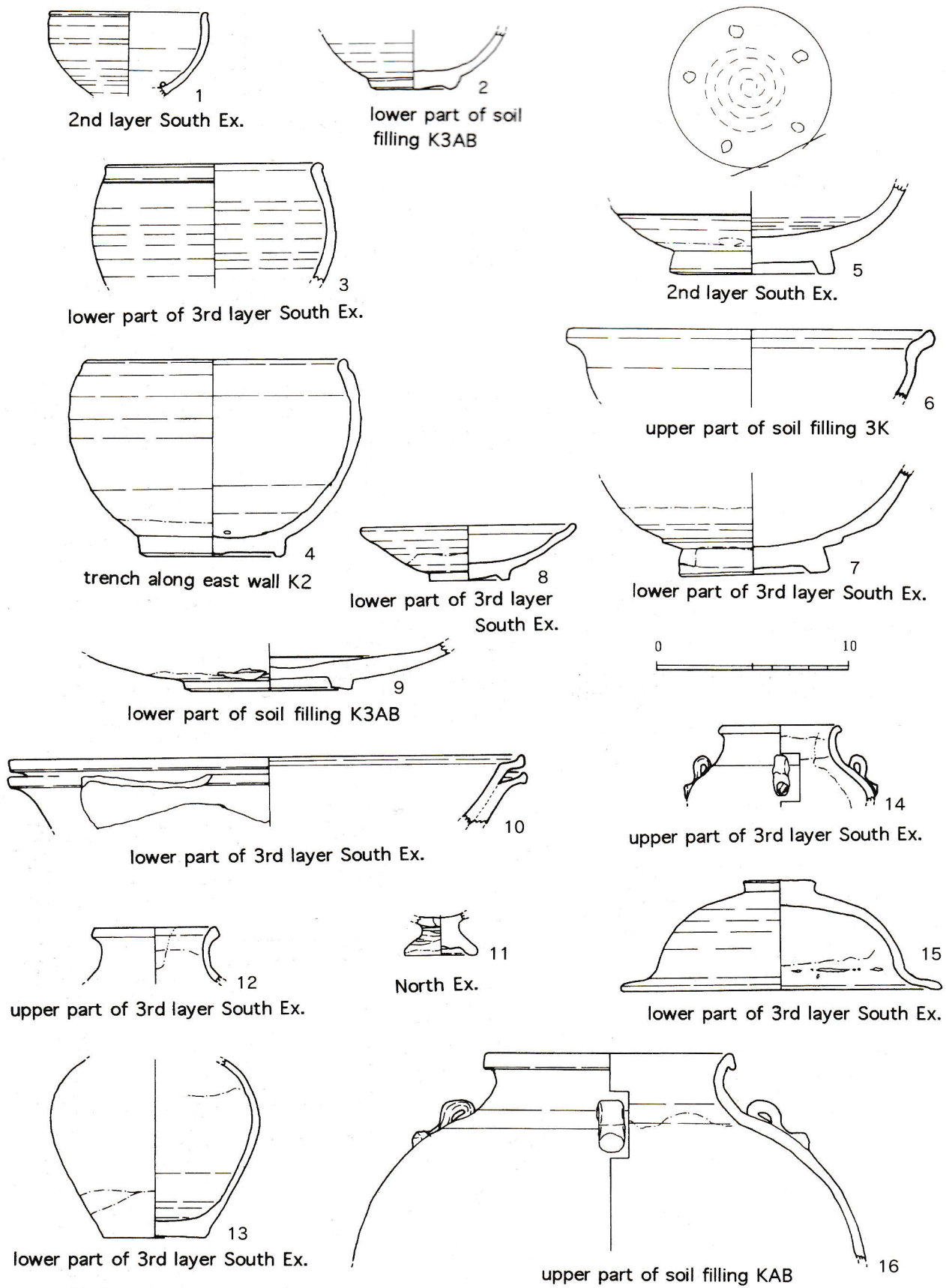


Fig. 5 Excavated material and finding point: Celadon type B 1~10;
Glazed pottery 11~16.

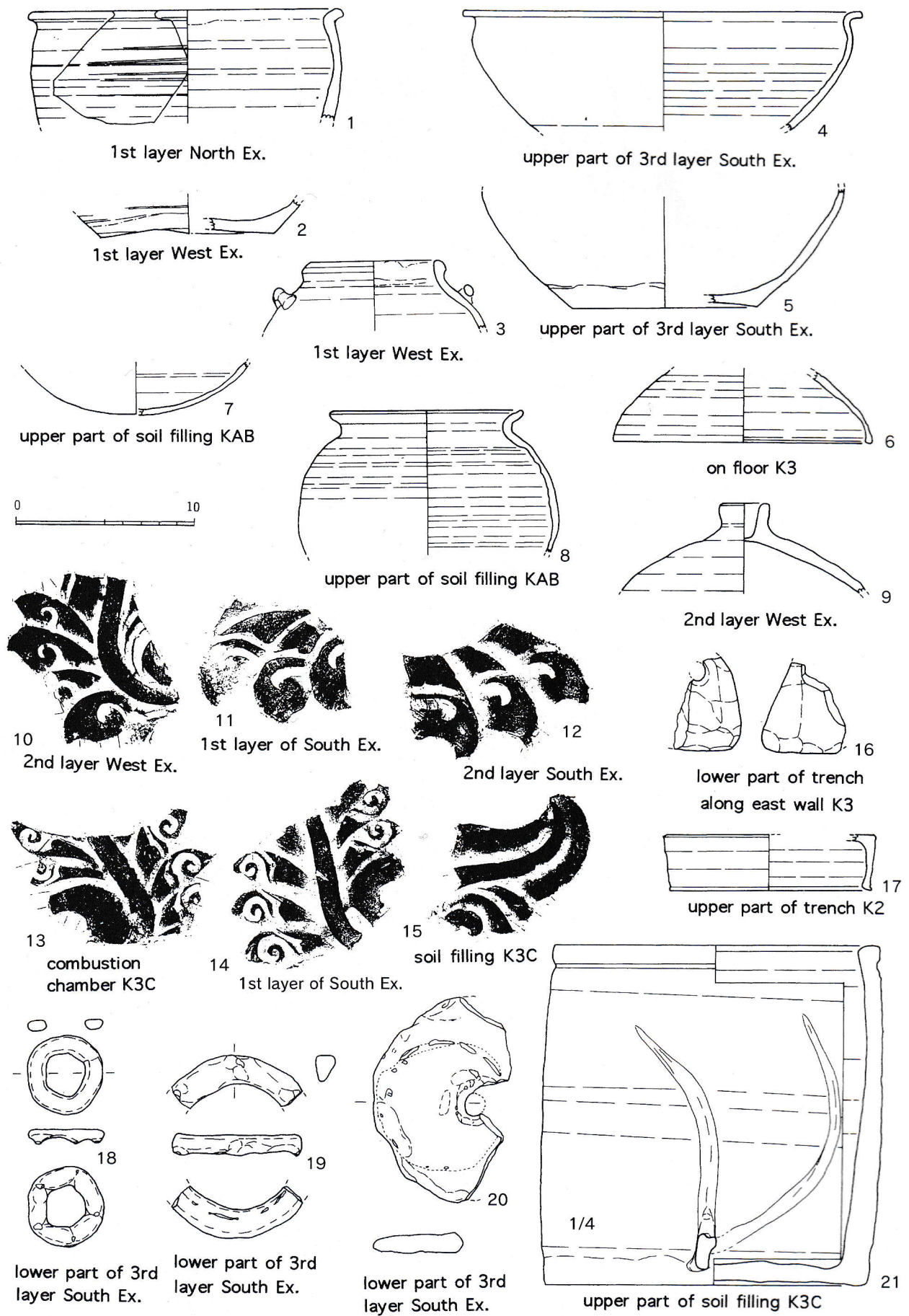
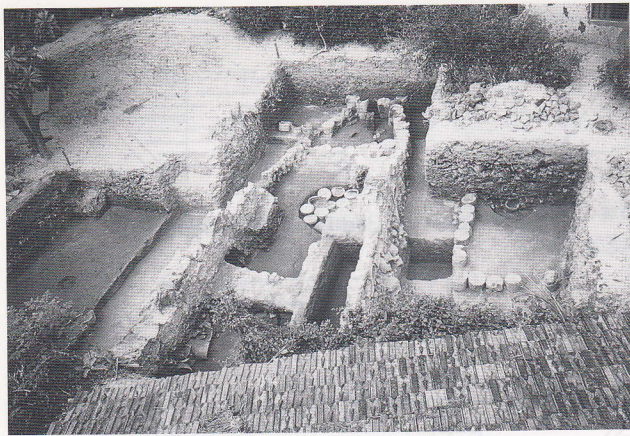


Fig. 6 Excavated material and finding point: Pottery; Earthenware;
Building material; Kiln tool.



1. Investigated area of Go Sanh Kiln No. 2 and 3 (from east).



2. The row of saggars from upper part of third-layer South-Extension.



3. Upper section of the east wall South-Extension.



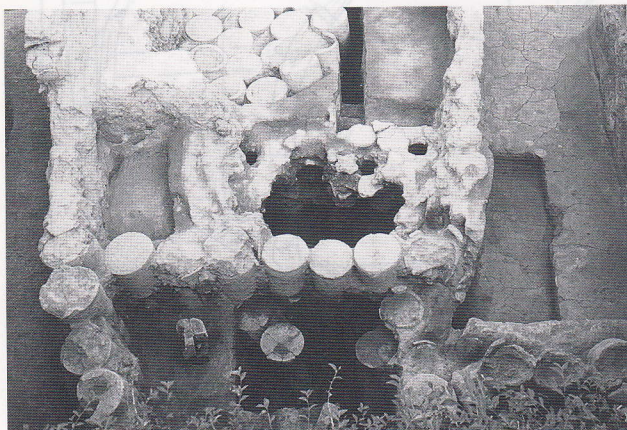
4. The fuel combustion chamber of Kiln No. 2 when fully excavated (from east).



5. The fuel combustion chamber of Kiln No. 2 (from south).



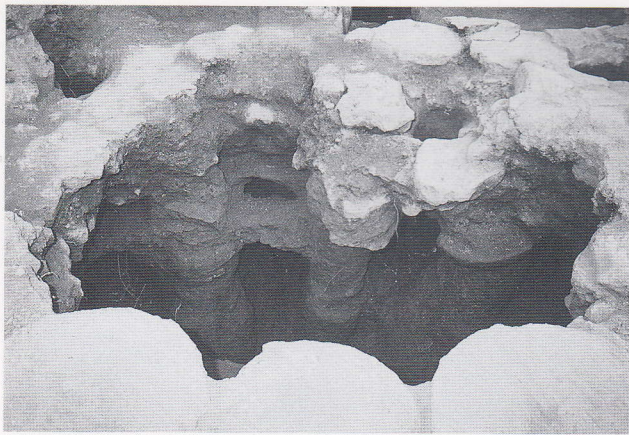
6. The mouth of fuel combustion chamber Kiln No. 2 (from east).



7. The fuel combustion chamber Kiln No. 3C (from west).



8. The fuel combustion chamber Kiln No. 3C (enlarged).



1. Shelves and holes inside fuel combustion chamber Kiln No. 3C.



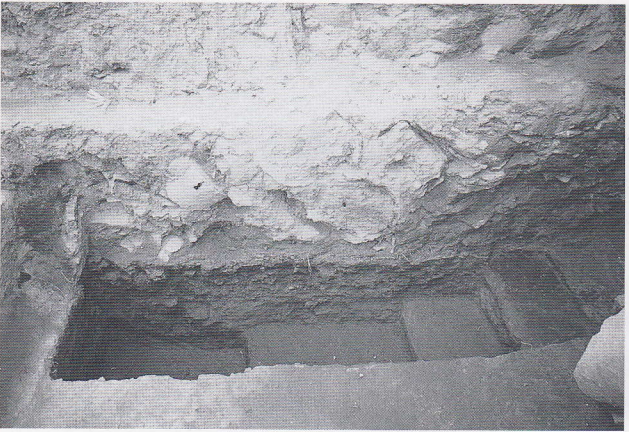
2. The mouth of fuel combustion chamber Kiln No.2 (from west).



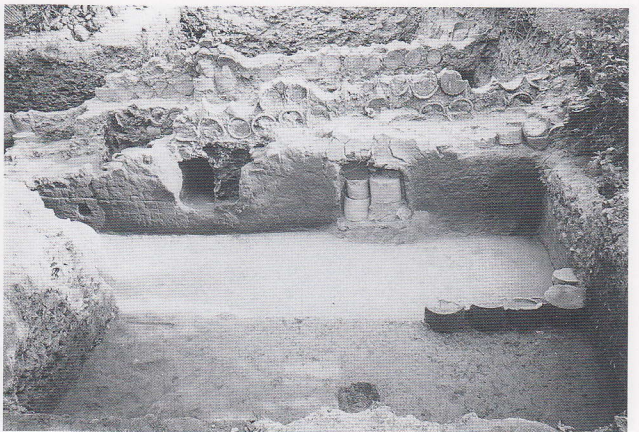
3. The chimney (see holes at floor level) Kiln No. 3C (from west).



4. The other side lined with stones of the same chimney (from east).



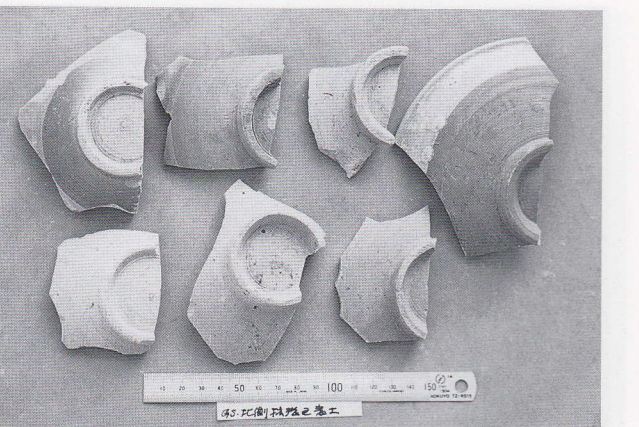
5. Three levels of floor Kiln No. 3 trenched along east-wall (from west).



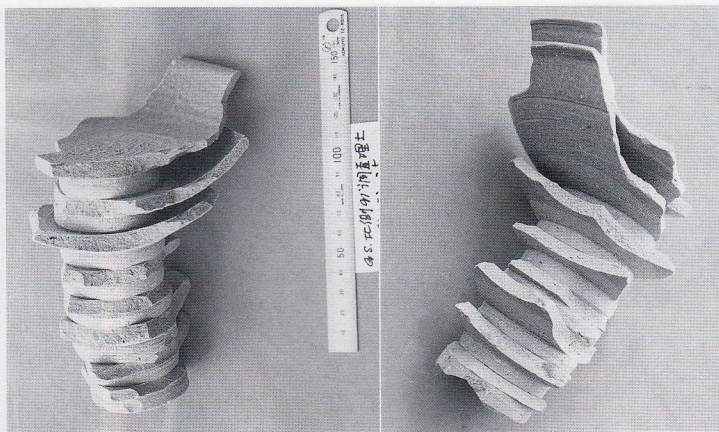
6. Entrances Kiln No. 3 (from south).



7. Celadon bowls type A (see unglazed rings).

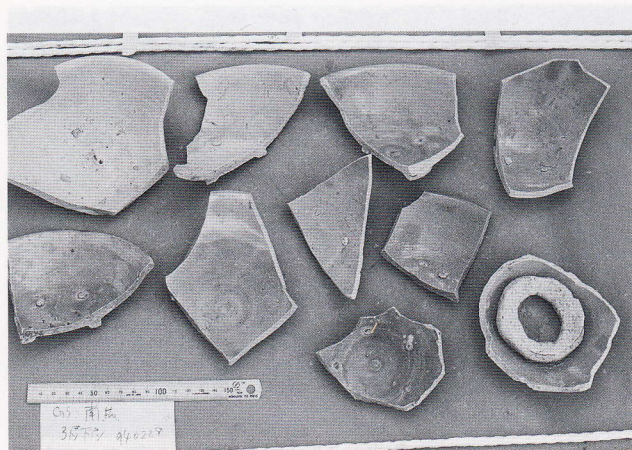


8. Celadon bowl type B with fluted cavities.

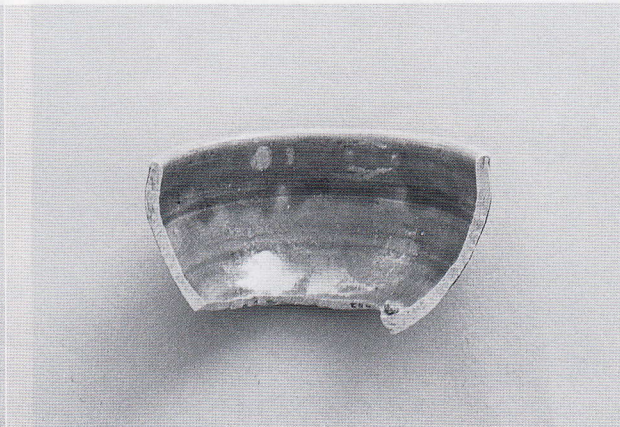


1. Celadon plate type A.

2. Fused celadon bowls type A.



3. Celadon bowls type B with setter marks (the coner piece wears a setter).

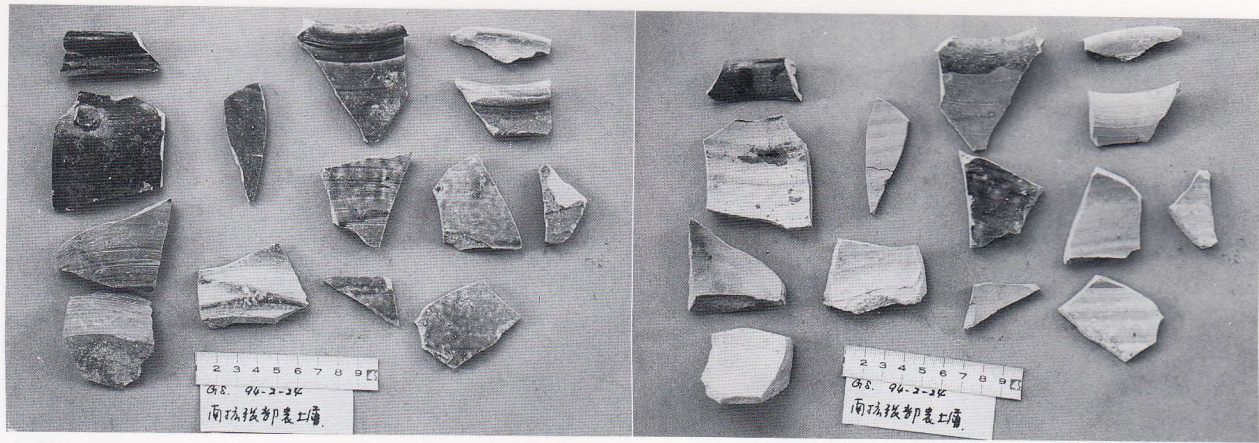


4. Celadon cup type B with rounded lip.



5. Celadon bowl type B with fluted cavettos.

6. Celadon bowl type B with incomplete lotus motif.



1. Porcelainous pots & jars from the first layer of South-Extension.



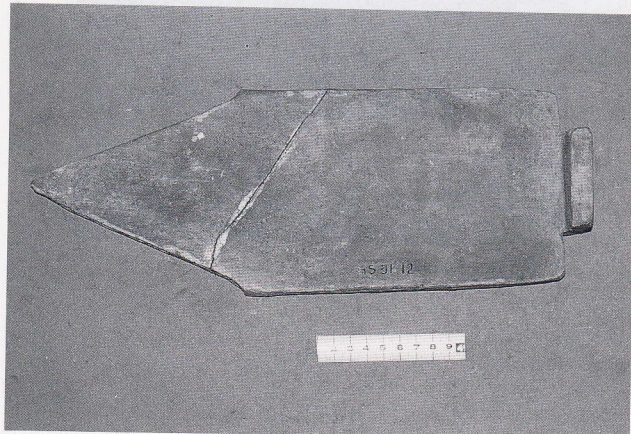
2. Jars lids (right); Unglazed pottery (upper-center); Glazed pottery (under-center); Earthenware (left). Among these pieces, no difference but burning.



3. Unglazed pottery jars (see traces of stacking while firing).



4. Narrow roof tile.



5. Wide glazed roof tile (see the difference of end making from 4).



1. Materials from second layer of South-Extension (see roof tiles in center).



2. Cham tower, Phan Rang.



3. Part of decoration of Cham tower found from Kiln No.2 & 3.



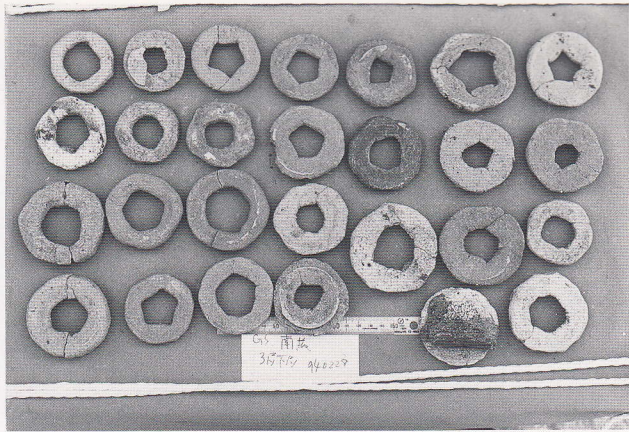
4. Details of decoration of 2.



5. Numerous jar lids excavated.



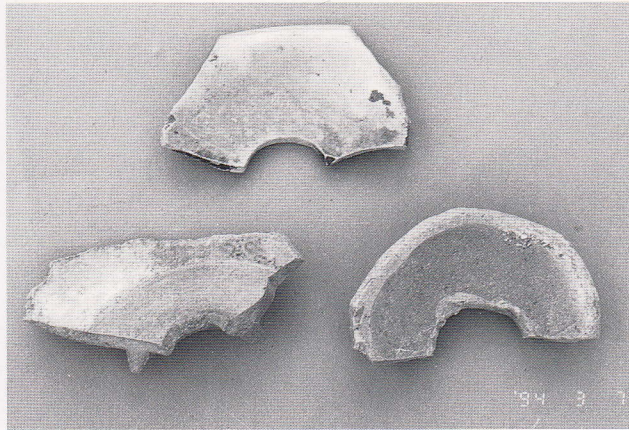
6. Sagger with a mark of potter.



1. Ring setters.



2. A disk setter fused with glazed jar.



3. Test-sample celadon type A.



4. Test-sample celadon type B.



5. Filler of observation window.

