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2025 Summer Internship Report

1. Introduction

During the 2025 summer, I undertook a two-month internship at the Guangzhou Municipal Institute of Cultural Heritage and Archaeology 廣州市文物考古研究院 in the Department of Archaeological Research 考古研究部. Through hands-on practice at archaeological sites, this internship opportunity provides valuable practical application to bridge my theoretical training in field archaeology, archaeobotany, and Hong Kong archaeology in class. The practice includes field techniques like exploration, investigation, excavation, flotation, and the study of regional material culture like potter typologies and faunal bones identification. I gained a deeper understanding of regional archaeology, particularly in Lingnan's archaeological narrative within the broader context of South China's history.

2. Fieldwork Activities

2.1 Soil Flotation

Flotation is one of the archaeobotanical sampling techniques used on site to investigate ancient plant remains. This process captures small finds, including grains, seeds, and charcoals that would normally be missed during archaeological excavation. 5L soil samples are taken from each context (mainly the pit). On the site, I helped to process several soil samples from the Shang Dynasty layer using a manual flotation basket, which includes a basket, mesh, and a stick. After placing the soil sample in the flotation tank, fill the water, then use the stick to stir it gently to help the soil dissolve. Organic remains float to the top and over the lip of the basket, where they are collected in a bag with mesh. These materials are called the light fraction and include plant remains and fragments of bone and shell. The materials that don't float are called the heavy fraction and are captured inside the basket. Heavy fraction can include gravel, small pottery sherds, and larger bones. Both the light fraction and the heavy fraction samples are then dried for processing.

The heavy fraction, including human-made or manipulated remains, including ceramics, worked stone, larger pieces of bone and shell, and occasionally charcoal, is collected, sorted, recorded, and catalogued on site. We primarily focus on the light fraction on this site. Light fraction samples are dried and sent to the lab for processing. An archaeobotanist will then sieve the samples through three geological sieves, separating the different-sized grains and seeds. The samples are further sorted into modern and ancient categories, as well as general plant species.

2.2 Exploratory Surveys

Archaeological exploratory surveys are the fundamental first step in locating and identifying archaeological sites within a larger area. Our goal is to find sites, estimate their size and date, and assess their significance without large-scale excavation.

In the steps of pre-fieldwork planning and assessment. Firstly, it is necessary to define the survey goals — Why is the survey being done? For academic research, like exploring ancient settlement patterns or investigating a specific hypothesis? This goal is to determine the intensity, methods, and area of the survey. In our investigation and probably most scenarios, it is rescuing excavation, which is cultural resource management ahead of construction for real estate development or a new road. Then, for the archival research, some historical documents like old maps, records of past land use, historical photographs, local gazetteers, or previous archaeological studies in the area are needed to check.

Secondly, there is remote sensing and geospatial analysis through aerial photography, LiDAR, and satellite imagery, which allows researchers not only to analyze cropmarks, soil marks, or shadow, to “see through” vegetation to reveal buried features in earthworks like buried walls, but also provides a broad overview of the landscape. All existing data (maps, site records, environmental data) is compiled into a GIS (Geographic Information Systems) database to model and analyze the landscape, helping to predict where sites are likely to be found. In the area of Guangzhou, the environmental setting, like topography, soil type,

proximity to water, vegetation, and modern land use, all of which influence where past humans chose to live.

Lastly, after the pre-field work had been done, there were many logistics that needed to be negotiated. Securing permission and access from landowners and relevant government authorities is essential. And tools like GPS units, maps, clipboards, cameras, and bags for artifacts will be useful for the field process of examining the ground.

The most common method is field walking. Our group walks systematically over the survey area and visually scans for artifacts on the surface. Some artifacts like pottery shards, stone tools, brick, and metal might be found, plotted, and collected using GPS with precise location data to mark the spatial pattern. Prospection is often conducted on a promising site, located through field walking to define its extent and features without digging. Some test pitting with a shovel at regular intervals across the survey area is needed to help understand the depth and density of cultural material below the plow zone. When doing the test pitting, artifacts are cleaned, labeled, cataloged, and identified for analysis, basically including dating pottery typologies and dating the possible time period.

2.3 Case Study of Guangzhou

Guangzhou city has a rich, continuous history spanning over two millennia, serving as a crossing point of the central plains culture zone and the Southeast culture, as well as a critical port on the Maritime Silk Road. The objective of the archaeological survey was to systematically identify and document ancient settlement patterns within the broader Guangzhou region to understand the interplay between past human activities and urban development, and environmental change through the shifting courses of ancient rivers.

The survey could be roughly separated into two distinct contextual challenges: The suburban context, where most ancient sites are located on hilltops, and the urban core, where archaeological remains are buried deep beneath the modern metropolis, within the historical precinct of the ancient Guangzhou city downtown. The survey adopted a “context-specific, multi-method” approach to address this complexity with an integrated methodology of archaeological principles with modern technology.

As mentioned before, the historical and archival research included analyzing ancient records. The focus was on delineating the historical extent of the city, its walls, and, most importantly, the evolution and change of ancient waterways like the old Pearl River channels. Existing archaeological reports from other major discoveries around this region (e.g., the Nanyue Palace, Tang dynasty wharves, Song city walls) were synthesized to create a chronological framework of cultural layers and provide a vital reference for dating new findings. Based on experiences, the suburban sites are predicted to be located on hilltops and elevated terraces in proximity to ancient or modern rivers, which optimizes access to water while avoiding flooding in old times; and the urban sites are predicted that remains would be concentrated within the documented historical urban core, and that key functional areas (e.g., harbors, administrative centers) would correlate with the locations of documented ancient waterways.

3. Laboratory processing

3.1 Ceramic and pottery

For the Lingnan region, which generally includes modern Guangzhou, Hong Kong, Macau, and the provinces of Guangdong and Guangxi, ceramics and pottery are important for us to unlock past human behaviors, beliefs, and social structures. It could inform us about technological innovation, subsistence strategies, trade, cultural identity, and the basic question of the social complexity process.

In museums, we saw different kinds of pottery with various forms and functions, revealing how people lived and what they ate. The early pottery can be traced back to the Neolithic Period (5000-3000 BCE) in shell midden sites in the Pearl River Delta, and they are often

coarse, sandy, and low-fired. From the Late Neolithic to the Bronze Age, new forms appear over time, such as *dou* (stemmed plates), *guan* (jars), and *zun* (urns). The diversification of vessel types points to the diversification of cuisine and food presentation.

Pottery styles and materials are markers of communication and exchange networks as well. A defining characteristic of the Lingnan region from the Neolithic into the Bronze Age is the widespread use of geometric stamped pottery. Checkerboard, zigzag, double-F, thunder pattern, etc., are some of the most distinguished geometric stamped pottery. The distribution of specific stamp patterns helps archaeologists define cultural spheres and trace interactions between groups within Lingnan and with neighboring regions like Fujian and the Yangtze River Valley. Shared motifs with those regions may suggest a shared cultural language or that active trade and communication networks existed in ancient times.

As the influence of the expanding Central states in northern China moved southward, the ceramic repertoire of Lingnan changed dramatically. The appearance of high-fired, glazed ceramics (primitive celadons), tripods (ding), and wine vessels (hu) in tombs is direct imports or local imitations of styles from the Central Plains. This signifies show as the powerful cultural and political influence of the north.

3.2 Faunal remains

Faunal remains (animal bones) provide a more direct example of ancient economy and daily life. Many of the sites in Guangzhou with relatively better remains are the “Shell Midden”（貝丘）economy, with the most distinguished character of massive piles of discarded shells. That’s because the soil in the Lingnan region is predominantly acidic, whereas the alkaline soils found at shell midden sites provide favorable conditions for the preservation of archaeological remains. There is a presence of fish bones as well, showing that fishing was a major component of ancient people’s diet. The reliance and exploitation of fish (or many other aquatic resources) as a subsistence strategy could also be supported by stone sinkers (to weigh the fish nets), hooks, traps, or spears. As it’s not unusual for us to know that ancient people here were intensively adapted to its watery environment, archaeological evidence shows us that their economy was based on the sedentary or semi-sedentary exploitation of the rich and diverse resources of the Pearl River Delta. The reliable food base allowed for population growth and the establishment of long-term settlements.

Moreover, many terrestrial animal bones were shown in the archaeological excavations. Deer bones remark the primary large animal in prehistoric times. Hunting deer requires knowledge of animal behavior, coordinated effort, and possibly more sophisticated tools like bows and arrows or spears. And that's efforts are worthy because deer provided a significant amount of meat, hide (for clothing), bone, and antler (for making tools). Those mammals showed that the ancient people supplemented their diet with hunting. This shows a broad-spectrum subsistence strategy where they exploited a wide range of available resources, as well as provided materials (like antlers and bones) that were crucial for making tools.

Some further scientific archaeological methods may also be applied to answer more questions, for example, the critical distinction between hunting and husbandry about pig bones. In early Neolithic contexts, pig bones could be from wild boar. However, their presence in a settled shell midden site raises the possibility of early pig domestication or management. This could be studied through age profile structure, morphology of size, and isotope analysis of the diet of the pig. The answers might answer the huge shift from moving from portaging to food production, because husbandry would provide a controllable, on-demand source. It is a key indicator of the transition towards social complexity, as controlling food resources is a foundation of power.

4. Conclusion

This summer internship at the Guangzhou Municipal Institute of Cultural Heritage and Archaeology has provided a fruitful opportunity for me to bridge the theoretical knowledge I've learned at school with fieldwork in archaeological practice. Through participation in field activities such as soil flotation, exploratory surveys, and laboratory processing, I gained practical experience in key methodologies, including sampling, artifact identification, and spatial analysis. I would like to thank the department for providing me with such a great opportunity here as an intern, and I remain grateful to all my mentors here for teaching me from the start.