

Interdisciplinary Analyses of High-Value Antiquities Reveal Black Market Dynamics

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Published on: Nov 12, 2024

URL: <https://www.crimrxiv.com/pub/9x97gx2m>

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ABSTRACT

Looting and destruction of archaeological sites is a worldwide problem significantly hampering archaeological research and knowledge production. The understanding of archaeological cultures represented by few known sites is especially harshly impacted. While the problem has exacerbated in recent years, due to heightened demand and the consequent sharp increase in market prices, information on the illicit trade of Asian antiquities and the dynamics and functionality of the black market remains scarce. In this interdisciplinary study, we combine archaeological, art historical, archaeometallurgical, and legal expertise in order to contextualize extremely rare artifacts traded on the black market. The results show that the items are likely not forgeries but illegally obtained and exported antiquities. The investigations provide evidence for the destruction of key archaeological sites and identify artifacts from an imperial tomb. The Hong Kong antiquities blackmarket operates with significant knowledge of the risks associated with individual artifacts, keeping high-risk items out of sight until purchase interest is established.

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Competing Interest Statement: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Significance Statement

This paper provides unique insights into the inner workings of the Asian antiquities black market through the analysis of extremely rare archaeological artifacts. We identify and discuss terracotta figurines from an imperial tomb which were initially stolen in 2001 and we assess the potential theft of a gold mask from the Sanxingdui culture which could indicate the existence of an undiscovered key archaeological site yielding national treasures. The findings substantiate Hong Kong's role as an international hub for illicit trade within Asia and highlight risk mitigation strategies applied by traders to avoid legal repercussions.

Introduction

Archaeological research and knowledge production is significantly hindered by looting and destruction of archaeological sites, which remove important artifacts from their stratigraphic context [1, 2]. This global issue is particularly devastating to our understanding of cultures that are represented by only a few known sites as the archaeological record is indefinitely obscured and knowledge becomes unrecoverable [3]. While in recent years a number of high-profile criminal cases have been brought forward the prominence of dealing with European antiquities [4, 5, 6], the Asian market for antiquities continues to thrive [7], arguably showing geographic disparities in the attention given to the subject matter by the research community. Because of its legal status, Hong Kong has served as a major hub for the illicit trade of ancient artifacts within Asia [5]. Over the last decades, domestic demand for Chinese antiquities has surged and led to the subsequent increase in

market prices [8]. Despite this, the area is not well-covered by criminological research [9] and thus constitutes a major gap in our understanding of shifting market dynamics. Access problems have limited research on the dynamics, functionality, and impact of the Asian antiquities black market on archaeological heritage [7].

A systematic investigation of antiquities selling shops in Hong Kong by the authors led to numerous offers by the gallery owners of both potentially genuine artifacts as well as obvious forgeries. Thousands of antiquities were displayed in the shops, but the rarest items for a high-paying clientele were usually not openly shown. The sellers often kept artifacts in storage that were perceived as potentially having negative legal implications. These items are then brought in on special request by an interested party. In this interdisciplinary study, we contextualize several extremely rare archaeological artifacts encountered on the Hong Kong antiquities market. We do not focus on low value bulk items but rather trace the origins of a select few important archaeological artifacts to exemplify the nature of the market beyond the shop windows. The items we discuss can, with a high degree of confidence, be proven to be of illegal origin and thus grant a rare insight into the inner workings of the antiquities black market in Asia and its effects on known and unknown heritage sites.

This paper starts with establishing the legal framework of the antiquities trading hub in Hong Kong. We then proceed to analyze high-value items on offer in the market, assessing their historical context, (criminal) backstory, comparative art historical features, and material composition. We argue that the current legislation in Hong Kong, in combination with its permeable borders, limited expertise among law enforcement, and rising domestic Chinese demand for antiquities unabatedly continue to destroy major archaeological sites.

Results

The Asian antiquities trade has long been intricately tied to Hong Kong and its unique legal framework. While surrounding nations, including Mainland China, have adopted stringent measures by aligning with international conventions to curb the illicit trade of archaeological items, Hong Kong's legislative landscape remains markedly different. The absence of explicit laws governing archaeological artifacts sourced from outside the Hong Kong Special Administrative Region has created a business niche. In order to understand the following argument and methodological approaches it is necessary to briefly outline the legal landscape of Hong Kong, creating and incentivizing the trade in illicit artifacts.

Hong Kong has no particular law dealing with archaeological artifacts looted from outside of the Hong Kong Special Administrative Region, including Mainland China. Although China is party to both international conventions intended to combat the trafficking of illicit antiquities — the 1970 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, ratified in 1989, and the 1995 Convention on Stolen or Illegally Exported Cultural Objects, ratified in 1997— Hong Kong is not. In consequence of its ratification of the two international treaties, China maintains very stringent export laws for archaeological artifacts. In contrast, Hong Kong does not have any import restrictions for archaeological artifacts other than those relating to an obligation to declare goods on cargo manifests. Hong

Kong has only one law intended to protect archaeological sites, antiquities, and relics, but this only protects artifacts discovered in Hong Kong [10]. This law has never been used to prosecute or convict a looter in Hong Kong. Therefore, the only laws Hong Kong may use to prosecute those trafficking or possessing looted archaeological artifacts are customs regulations [11], statutory provisions concerning stolen property [12-14], or common law offenses.

Although there is control of the export of archaeological artifacts from China, there is no prohibition on the import from the People's Republic of China into Hong Kong. This disjunction between the laws of Hong Kong and the mainland is one of the reasons Hong Kong is such a useful jurisdiction for antiquities smugglers. Because of the restrictions on export from China, antiquities are usually not declared or are falsely described on the manifests required for their import into Hong Kong. Anyone caught smuggling Chinese cultural relics into Hong Kong without declaring them or having falsely described them may be prosecuted for import offenses. As the penalty for false description is significantly less than complete failure to declare the artifact, most smugglers will describe the artifacts as copies or imitations.

Looted artifacts would be considered stolen goods for the purposes of Hong Kong's theft laws if the looting in their home jurisdiction would be considered a crime. Thus, if a thief or looter is caught in Hong Kong, then they may be prosecuted for theft even if the artifacts were stolen or looted somewhere else. If an individual was proven to be in possession or have been in possession of artifacts looted in China, and it could be proven that the possessor knew or believed that the artifacts were stolen when they obtained them, then they may be prosecuted for handling stolen goods.

Even when no criminal prosecutions are brought forward, if stolen or looted artifacts are identified in Hong Kong, the original owner may also have a legal claim, through a basic rule of the common law. This simple rule of ownership, "*nemo dat quod non habet*" or "no one may give what he does not have," makes it difficult to sell stolen artifacts. Even if a thief sells stolen goods to a buyer who buys them in good faith, pays a fair price, and has no knowledge that they are stolen, the buyer cannot obtain "good title" to the stolen goods in Hong Kong. The buyer will not have a claim to ownership that defeats the claim of the original owner, as the thief does not have good title to pass on to them. The original owner, which in the case of cultural property looted from China is the Chinese state, may then be able to rely on the tort of conversion—the principle that no one may use another's property as their own unless they have permission to do so—to recover the stolen goods.

However, in Hong Kong, there are limits to actions for the recovery of stolen artifacts. The original owner may be required to bring the action for conversion within six years of the first sale of the stolen goods to a good faith purchaser [15]. A purchaser may also obtain a good title to stolen artifacts if they buy them from a shop or market in Hong Kong which usually sells such goods, and they are in good faith and do not know they are stolen. This is the ancient English principle of market overt, sometimes described as a "thieves' charter", and abolished in England, where it originated, but maintained in Hong Kong [16].

Very few prosecutions or convictions for smuggling of cultural property have been recorded in Hong Kong. As per an oral communication with the Hong Kong Customs and Excise in 2011, there was one confiscation of cultural property at the border in 2006. There are no recorded prosecutions or convictions in Hong Kong for theft, looting or possession of looted artifacts.

In the following, we investigate high-value artifacts of which the illegality based on Hong Kong laws had been established either through the immediate context or the claims of the trader. We will focus on I.) a group of Han Dynasty grave idols and II.) a golden mask stylistically similar to items of the Sanxingdui culture dating to the second millennium BCE. We first characterize the items and place them in their respective (pre-)historic context, then we proceed to provide the results of analyses and discuss their relevance in the context of archaeological sites and the black market for antiquities.

1 Han Dynasty Pottery Figurines

We were shown four nude pottery figurines with a dark patina (Figure 1). Measuring ca. 540 mm in length, they are standing frontally oriented with the upper body straight and two legs slightly open. Their arms are missing. The circular holes on the shoulders indicate that the arms were made separately and then attached to the torso later. It is likely that the arms were made from organic materials, such as wood, and had already decayed when they were discovered. Each figurine features an oval face that represents eyebrows, eyes, nose, mouth, and ears. Their long black hair is articulated by thin lines, flowing back onto the shoulder, and tied into a knot. The bodies of the figures are slim and columnar. They lack defined anatomical structures, such as joints and muscles, but the breasts are clearly shown.



Figure 1. The Han Dynasty figurines from the Baling Mausoleum are wrapped in plastic film. After they had been illegally exported to Hong Kong in 2001, several remain in the market but are kept outside the antiquities stores.

Similar figurines from Han imperial graves provide the context for these artifacts. Nude figurines are usually found in sacrificial pits of tombs belonging to high-ranking persons. These figurines fall into the mingqi category of grave goods, made for the purpose of serving the deceased in the afterlife. Nude figurines comparable to these were only found in imperial mausoleums and high-ranking tombs of the Han dynasty. A pertinent example are the discoveries from Yangling 陽陵 Mausoleum of Emperor Jing of Han 漢景帝. The Sacrificial Pit No. 1 of Attendant Tomb No. 3 at Yangling Mausoleum uncovered six female terracotta figurines [17]. Comparable to the figurines in Hong Kong, their slender bodies are naked and armless, the facial features are indicated, and their hair is tied. Another group of 90 male figures were discovered during the 1990 archaeological excavation of sacrificial trenches south of the Yangling Mausoleum [18]. The male and female sculptures share a similar art style. Their hairstyles, facial features, and carefully molded sexual organs differentiate them as separate genders. Some of the male Yangling figurines preserved traces of textile upon excavation. Next to the figurines, bronze buckles were found, supporting the hypothesis that they were originally clothed. A similar situation was registered at the Duling Mausoleum of Emperor Xuan, where 31

naked figures were found in the main chamber of the sacrificial pits. These figurines also wear bronze belt buckles, indicating they used to be clad in garments that have decayed [19]. Clay figurines were also found in Changling 長陵 Mausoleum of Emperor Gaozu 高祖, Maoling 茂陵 Mausoleum of Emperor Wu 武帝, Duling Mausoleum 杜陵 of Emperor Xuan 宣帝, and the Tomb of King of Liang 梁王 at Mangshan 芒山, Henan. In addition to the tomb contexts, nude armless figurines have also been discovered in kiln sites. Archaeologists excavated a government-controlled workshop that consisted of 21 kilns in the northwestern section of Xi'an, the capital of the Han dynasty [20]. The figurines from Hong Kong were likely produced in these government-controlled workshops.

All aforementioned Han statues are painted with white and red pigments, whereas the Hong Kong figurines are entirely black. The only known examples of black armless nude figurines appeared in a preview of a Sotheby's auction in 2002 [21]. Investigations revealed that these figurines were looted from a tomb at Jiangcun Village in the eastern suburb of modern-day Xi'an, Shaanxi Province in 2001 [22]. After they changed hands several times, the looted sculptures arrived in New York. Six figurines were pulled from the auction and repatriated to China after the Chinese government made the request to Sotheby's. Scholars from Cultural Relics Conservation and Restoration Center at Xi'an conducted scientific analyses of these figurines and reached the conclusion that the sculptures were made during the Han dynasty and were burnt between 400 (+/- 130) to 800 CE (+/- 175) [23, 24]. The black color is a result from the burning. Traces of red pigment were detected on one sample, indicating the figurines were originally painted in a similar way to other examples known from Han tombs.

In 2021, after decades of research, China's National Administration of Cultural Heritage announced that archaeologists identified the Jiangcun tomb as the Baling Mausoleum 霸陵 of Emperor Wen of Han 漢文帝 (r. 180-157 BCE) [25]. The black figurines from the Sotheby's auction were, therefore, looted from an imperial tomb. The Baling Mausoleum was looted for the first time towards the end of the Western Jin (266–316 CE), during which the tomb was burnt. Considering the near identical condition of the Hong Kong figurines, it can be inferred that they have a shared provenance with the Sotheby's pieces - the Baling Mausoleum of Emperor Wen of Han. This is supported by statements of the convicted smuggler, who claims that 32 figurines were brought to Hong Kong [26]

2 Sanxingdui Gold Mask

The gold mask measures ca. 170 mm in width and 1.5-2.0 mm in thickness (Figure 2). The blockish face features thick eyebrows in low relief and bulging eyes set in sharply defined eye sockets. The nose, which is almost triangular, accentuates the high and angular ridge. The thin lips of the mouth extend horizontally and lift upwards at the corners of the mouth, generating the impression of a smile. The flat and squarish jaw echoes the curve of the mouth. Two disproportionately large ears are attached as separate pieces at the side of the face. The stylistic features are closely related to sculptures excavated from Sanxingdui 三星堆 in Sichuan province. Dating to between the 13th to the 12th century BCE, the site of Sanxingdui is a distinctive Bronze Age culture

in the southwest of China that was remarkably different from the Central Plain. Archaeological excavations carried out in 1986 at the site of Sanxingdui uncovered two sacrificial pits containing thousands of artifacts made of bronze, jade, gold, and ceramics, along with a large quantity of elephant tusks and animal bones [27, 28]. Since 2018, archaeologists identified an additional six pits in the vicinity [29] and the excavation is ongoing. Artefacts deposited in the sacrificial pits bear traces of burning and battering [28: 30-31].



Figure 2. Four views from different angles of the purported Sanxingdui gold mask which according to the trader was illegally excavated and smuggled from Mainland China to Hong Kong.

Up until now, at least 10 gold masks portraying anthropomorphic faces have been excavated from Sanxingdui [27, 30]. Many of them were damaged, but after restoration, they all reveal the distinguishing physiognomy of thick eyebrows, big eyes, sharp nose, extended mouth, and large ears. Close parallels to the Hong Kong mask can be seen in a golden mask recently excavated from Sanxingdui Pit 3 in 2021 [31]. It measures 165mm high, 372mm wide, and weighs ca. 100g. The triangular eyes and thick eyebrows are hollowed. The protruding nose has a high ridge. The elongated lips are extended, almost parallel to the flat jaw. The ears are softly modeled and less angular than on the Hong Kong mask. The golden mask retrieved from Sanxingdui Pit 5 in 2019 is partly damaged [30]. But the remaining half also displays a strong visual affinity to the Hong Kong mask. The

surviving part measures 255 mm high, 278 mm wide, and weighs 280g, making it the largest gold mask excavated from Sanxingdui.

The gold masks with exaggerated facial features were first identified at the site of Sanxingdui, but other though stylistically differing examples are known from the site of Jinsha 金沙[28]. Two gold masks have been excavated from Jinsha, one of them is a miniature. Measuring less than 40mm high and 50mm wide. The larger mask, measuring about 100mm high and 200mm wide, bears more similarities to the Hong Kong mask, showing the characteristic physiognomy of angular eyes, thick eyebrows, high nose, enlarged ears, as well as an elongated flat mouth.

Based on the comparative analysis above, we can conclude that the Hong Kong mask falls into the visual and formal lineage of the gold masks of the Bronze Age Sanxingdui and Jinsha cultures. However, it has to be noted that while the Hong Kong mask shares the facial characteristics with gold masks from known contexts, it has one significant difference from all archaeologically excavated pieces. The gold masks from known contexts all feature hollow eyes, and sometimes hollow eyebrows. They might have served as a face covering that was placed on top of another mask or a head made of bronze. Examples of such bronze sculptures covered by gold foil have been found in Sanxingdui Pit 2. The artifact under investigation here does not show perforation of eyes or eyebrows. It is not attached to a bronze mask and seems to function as a mask on its own. In terms of structure and function, our sample is closer in style to the bronze masks than the gold masks from Sanxingdui. Overall, the corpus of comparative pieces is small and importantly, most of the gold masks have been discovered after the documentation of the Hong Kong mask in 2017.

We obtained a sample of the Hong Kong gold mask as illegal excavation and export had been claimed by the trader (cf. supplementary information). All data collected about the mask and the figurines were made available in the form of a report submitted to the Hong Kong authorities. As the authorities in Hong Kong did not want to deal with this case, we sampled it to prevent a crime in both previously elaborated circumstances (forgery and genuine item). In the case of the illegal export claimed by the trader being correct, they would not have had good title and already committed the crime. In the case of the mask being a forgery, they would have attempted to fraudulently sell a fake artefact. The sample enabled us to consider further actions, which could protect China's heritage or those who would have been subject to a fraudulent sale. The sample was de minimis for export purposes. All actions were intended to protect China's heritage or protect purchasers from fraud.

The chemical composition of the gold mask is shown in Table 1 with the following alloying elements: Au with 85.3 wt.%, Ag with 12 wt.% and Cu with 2.4 wt.% (XRF analyses). Other elements such as Sn, Sb, Te, Pb Bi, Pd, and Pt are present in trace amounts, with Sb and Pb above 200 ppm. Ni, As, and Cd were below the detection limit of both XRF and EDXS.

Table 1. Elementary composition of the purported Sanxingdui gold mask with main components (Au, Ag, Cu) in percent and trace elements in ppm.

MA-Number		Org-ID		Au [%]				Ag [%]		Cu [%]	
		<i>mLoD [ppm]</i>		41.29				0.38		2.18	
MA-223181		GM01		85.30				11.98		2.35	
Ni [ppm]	As [ppm]	Cd [ppm]	Sn [ppm]	Sb [ppm]	Te [ppm]	Pb [ppm]	Bi [ppm]	Pd [ppm]	Pt [ppm]	Pt/Pd	
3.88	3.36	0.12	0.77	1.43	2.30	0.35	0.07	0.04	0.06		
<LoD	<LoD	<LoD	223	3.0	1.7	263	14.2	79.2	8.6	0.11	

A close surface observation with the naked eye (a microscope could not have been used due to obvious reasons, as the mask was not available to be taken to a laboratory) did not reveal any indication of the potential presence of platinum group element (PGE) inclusions in the gold [cf. 33]. This was later confirmed by XRF analyses and the eventual presence of these elements beyond the detection limit of the EDXS. Moreover, SEM-EDXS analysis as well as a metallographic study of the polished surface revealed a homogenous alloy without any visible inclusions or separate phases.

The presence of about 10-12 wt.% Ag in the gold is well within the range of Ag commonly found in natural gold. The amount of about 2 wt.% Cu is high compared to other prehistoric gold objects from China. However, the percentages of Ag and Cu are both within the naturally acceptable range that identify natural gold from China [29, 30]. The trace elements also support the use of natural gold for the manufacture of the mask [34]. Looking at the chemical composition of other gold artefacts from Sanxingdui [30, 35], the analyses of the gold mask presented here are in good agreement for the Au and Ag contents, but less so for Cu. The recently found gold mask from Sanxingdui was analyzed with a portable XRF instrument (Niton XL3t 950) and shows significantly lower amounts of Cu (0.2 wt%) [30] than the Hong Kong mask (2.4 wt%) and consequently higher amounts of Ag (14.1 wt%) [30] than the Hong Kong mask (12 wt%). This suggests different gold sources for these artefacts. Other gold artefacts from the Sanxingdui culture, including three analyses of a gold mask [35], indicate that they were probably also made from gold from a different ore source than the Hong Kong mask: they show a rather unique third element present in the Au-Ag alloy: Barium. The analyses in [35] were carried out by SEM-EDXS. artifacts contain approximately 82.4-86.2 wt% Au, 11-14.8 wt% Ag and 1.2-1.9 wt% Ba. The amounts of Cu, at 0.1-0.8 wt%, are slightly higher than those of the other gold mask presented by [30]. The presence of Ba is explained by the authors of the study through usage of alluvial gold from the Wali gold mine, Yanyuan County, Sichuan Province [35]. However, the presence of high levels of Fe and Al in the measurements suggests that the surface was not perfectly cleaned, as higher levels of aluminum and iron oxides were present in the surrounding soil. The presence of Zn remains unexplained. Furthermore, the error rate for these elements is not given. The geographical origin of the gold used for the production of the

Hong Kong mask could not be determined due to several factors, such as the heterogeneity of trace element levels in both artifactual and natural gold, the lack of suitable generic elemental discriminants in natural gold, the lack of sufficient reference data, as well as the influence of manufacturing (co-smelting of gold from different sources, contamination during processing and working, etc.)[cf. 36]. Nevertheless, the chemical composition of the gold mask, both by the quantities of the main elements (Au, Ag, Cu) as well as the elements present in traces, supports the manufacture from natural Chinese gold deposits rather than the artifact being a forgery made from readily available industrial gold.

Discussion

The visual analysis of the Han dynasty figurines clearly associates them with the Baling Mausoleum of Emperor Wen of Han. The well-established background and the repatriation from a Sotheby's auction in New York allow us to identify these artifacts as illegally exported goods with near certainty. The conversations with various traders showed that the repatriation case of the Baling Mausoleum figurines made the ones remaining in the market unsellable. Other Han dynasty figurines are still displayed in shops, but burnt female figurines have to be kept out of sight, due to the perceived legal risk and the widely publicized case associated with it. Each of the four identified figurines were brought from a non-disclosed storage facility for the authors to visually inspect them. The trader actively advised against an export to Mainland China or the US but indicated that paperwork could be produced for shipping the artifacts to Europe (cf. supplementary information).

The case of the gold mask is less unequivocal. While the chemical composition analysis suggests that the gold stems from a natural source and is not a modern composite, which would indicate a forgery, the stylistic analysis leaves some doubts regarding the authenticity of the artifact. Given that all Sanxingdui culture sites have been discovered after the signing of the UNESCO convention in 1970, and even after the People's Republic of China ratified it in 1985, it is clear to international collectors and traders that all genuine items belonging to this culture are by definition illegally exported from Mainland China and are in conflict with the cultural heritage protection laws of the country. This leaves only a very limited market for such items and a comparatively high legal risk in engaging in the trade of such artefacts. If a Sanxingdui artefact makes it into the market, this contributes to them being either perceived as likely being forgeries or as being untouchable.

Some of the key arguments for the gold mask being genuine are thus circumstantial. Firstly, the mask – like the figurines – was not openly displayed in the shop, suggesting it came from a storage area and the trader was aware of the potential legal issues surrounding such a unique item. Secondly, the mask was shown to the authors in 2017 before the stylistically closest comparative artifacts were discovered, namely the gold masks retrieved from Sanxingdui pits in 2021 [30]. Thirdly, the only published gold composition of Sanxingdui items that would have been available and would have certainly been consulted by a forger aiming to create such an item, contained a significant amount of Barium [35]. This is not the case with the Hong Kong gold mask. Fourthly, some stylistic deviations seem like obvious mistakes that a forger would have had to make. The mask is missing ear holes which show up in the earlobes of the earlier discovered Sanxingdui and Jinsha masks. The

mask does not have hollow eyes, which is the case for all other golden masks from the Sanxingdui culture. This creates a dissonance where an assumed forger would need to be both incredibly careful in selecting or composing the raw materials for the artifact's creation and careless in imitating the style of the known artifacts. The authors consider this an unlikely combination further questioned by the high material value of the artifact. In sum, we cannot be sure that the mask is a genuine artifact, but given the available direct and circumstantial evidence, it appears highly likely. Additionally, the trader told us that the mask had been smuggled out of Mainland China via the Hong Kong China border and that he had friends among the border guards allow free passage of valuable items (cf. supplementary information).

These two high-profile examples and their clear illegality together with the thousands of items that have been observed by the authors throughout the field observations in Hong Kong show that the flow of antiquities across Hong Kong's borders is relatively unimpeded by law enforcement. If unique artifacts from imperial tombs and extremely rare archaeological sites can be exported with relative ease, the effectiveness of the legal and bureaucratic framework for the protection of cultural heritage has to be questioned. The fact that rarely is anyone convicted adds to this. Thousands of additional artifacts are displayed in Hong Kong's shops, and while it is often difficult to tell genuine artifact from forgery even for a trained eye, it is this muddling of the market that creates business opportunity and plausible deniability [37]. Both examples presented here are ultimately impossible to sell on the open market as they have been tainted through association with a repatriation case or are of such uniqueness in the market that buyers will be rife with suspicion. Furthermore, the history of research into the Sanxingdui culture leaves no way how this item - if genuine - could have possibly been legally exported. They remain reserved for a wealthy clientele not seeking immediate resale or further trade. Information about these items is circulated discreetly and often purely orally, divulging the associated legal issues.

While the figurines are indisputably from an important imperial tomb, the origin of the gold mask is less clear. If it is genuine, it opens the intriguing possibility of yet another important undiscovered Sanxingdui site, as the gold composition appears to come from a natural source but different from the gold used in items from the already known sites. Sometimes forgers use antique gold to create a new item. In this case the gold composition is highly likely to be ancient. However, as these items are created with a market audience in mind, it is unlikely that a forger would choose to create an artifact of the Sanxingdui culture – due to the above established fact that Sanxingdui artifacts are essentially unmerchtable.

Our interactions with traders in the illicit antiquities market have shown that sellers are generally aware of the risks associated with the business on an individual artifact basis. Artifacts considered high-risk are not displayed in shops and only available upon request from separate storage areas. The items are then either brought to the shop or a potential trade counterparty is brought to an off-site location for inspection of the goods.

Law enforcement in Hong Kong does have limited qualifications and willingness to engage with the topic. The authors experienced this firsthand, submitting several reports to local law enforcement and then waiting several years before authoring this paper. The potential smuggling routes into Hong Kong are flexible and often based on social networks and contacts [38]. While the antiquities traders are specialized, the transportation of illicit antiquities largely takes place as an occasional business opportunity rather than in a dedicated exclusive manner [39]. It is common to use parcel services and contacts among customs officials to expedite the delivery of illegally excavated items from various parts of Asia (cf. supplementary information). Unfortunately, this means that archaeological heritage from sites that are paramount for our understanding of Asian history and prehistory continue to be destroyed and unless an integrated approach towards illicit antiquities trafficking and cultural heritage protection is found [40], major cultural treasure will continue to be illegally exported and laundered through Hong Kong.

Our research illustrates that the reality of the legal and bureaucratic landscape in Hong Kong allows for valuable artifacts to be easily smuggled and sold. Traders are aware of the risks and adopt various strategies to mitigate potential impact. Additionally, weak law enforcement response and flexible smuggling routes facilitate the continuous flow of artifacts. This situation highlights the urgent need for a more robust and integrated approach to combat illicit antiquities trafficking to protect cultural heritage.

Materials and Methods

As many traders are aware of the legal grey areas they operate in and choose not to talk about their businesses when asked about it in an open research setting, we opted to conduct an undercover investigation of the Hong Kong antiquities market preserving the anonymity of the respondents. An initial background research phase was undertaken to map out shops across Hong Kong. Two authors then adopted a covert identity posing as middlemen for a fictitious rich European collector. This allowed us to engage in deep semi-structured interviews without raising suspicion. Conversations were opened with the specific search for archaeological artifacts coming from the Eurasian steppes. These artifacts are rare in the Hong Kong antiquities market and prompt a deeper engagement of traders with the topic as well as bringing up potential ways to acquire the items. It allowed to delve into questions of provenance documentation, pricing strategies, and artifact origins. Simultaneously, casual conversations with traders aimed to extract tacit knowledge about the market dynamics, trade routes, and attitudes toward legality and authenticity. All interactions were audio-recorded for subsequent analysis. Investigators took care not to show interest in items displayed in the shops and pivot early in the conversation to a discussion about high-value items. Additionally, investigators explicitly stated that the fictitious end customer was not at all interested in items below 10,000 USD. Finally, an emphasis was put on establishing long-term business relationships rather than finalizing a one-time purchase. This set-up helped to narrow the focus of the conversation to exchanging relevant business information as well as securing longer-term communication beyond a singular interaction. Direct offers to purchase an item were deflected by showing limited interest but agreeing to check with the fictitious wealthy collector whether there was an

opportunity to make a sale. While a large quantity of items were screened by the investigators, we chose to only focus on a limited number of high-value items where illegality was established either through the direct context or through statements of a seller. These items are difficult to find in the market, as the illegality of an item is often hard to prove, and traders do not readily remark upon the black-market status of an archaeological artifact as it potentially lowers the purchasing price. Contextualizing anonymized transcripts of our conversations surrounding the artefacts can be found in the supplementary information.

This article presents the results of a covert investigation which entails potential ethical issues and trade-offs. For the field of criminology, covert research has been a topic of intensive debate because ethics surrounding informed consent ultimately limit what data can be collected [41]. An important comparable study example here is the 2004 article by Scheper-Hughes on illegal organ trafficking where the researcher among other roles posed as a kidney buyer [42]. It would not have been possible to gather the crucial information of this study if not for the usage of what the author terms “undercover ethnography” [42]. Similarly, if informed consent would be required, the current study would simply not exist as we would not have been able to gather the data discussed here.

Social science researchers have argued that the governance model on which informed consent ethics are based on is essentially a biomedical model partially ill-suited for social science research [cf. 41, 43, 44, 45]. There is a need for a more flexible approach to research governance in criminology. Many important topics including illicit trade often require covert methods where obtaining informed consent is impractical. While flexibility in ethical governance is necessary, it does not imply that ethical standards should be abandoned, but rather adapted to suit the specific needs of social science research.

Ultimately, we take the stance of Calvey in a 2013 article that states that “covert research should not simply hide away in the closets of criminology or be quietly handed over to journalists, undercover police or security personnel by drift or design [...]. The hypersensitivity around ethics fuels moral panics about institutional accountability and promotes an exaggerated view of the research harm done to participants, who thus need sustained protection.” [43]

In the following, we would thus like to briefly address the question of research harm to our informants. We have done our best to conceal the identities of our informants to avoid any negative consequences to them based on reactions of members of the public. There has been not a single case of illicit antiquities trading which has led to legal action in the jurisdiction in question and it is unlikely that there will be one in the future. We submitted the evidence to the Hong Kong police because Hong Kong's laws require reports of suspected criminal activity. If we had not, we could have been held complicit in suspected crimes or have committed a crime ourselves (for example, Organized and Serious Crimes Ordinance (Cap. 455), section 25A -Disclosure of knowledge or suspicion that property represents proceeds, etc. of an indictable offence). However, despite a clear case, no action has been taken in the past five years. The obligations under Hong Kong law to the jurisdiction and to the individuals concerned have been complied with. There is no interest to obstruct this

business in Hong Kong and therefore no danger to our informants. A future change of the law might be possible, leading to a better protection of archaeological sites in Asia, but new laws are not applied retrospectively in Hong Kong. There has never been a prosecution under mainland law of anyone possessing looted or stolen Chinese artefacts in Hong Kong. The laws in Hong Kong are comparable to most common law jurisdictions. Hong Kong's laws on privacy and data protection have been complied with in the gathering of data and the writing of the article.

Furthermore, we need to not only consider criminological ethics but also the ethical framework of the field of archaeology and conservation where looting and the illicit antiquities market is a main driver of the destruction of cultural resources and scientific knowledge. We need to ask the question whether the individual interests of an anonymized person in conflict with the law outweighs the benefit of a scientific field to understand the dynamics leading to the widespread destruction of scientific evidence and enabling potential future countermeasures. The ethical stance of the field has been clear in that various codes of ethics require not only not supporting illicit trade, but also actively opposing it [e.g. 46]. The ethics guidelines of the European Association of Archaeologists posit that publication of illicit artifacts properly framed, can prevent falsified provenance and help later repatriation as well as “raise public awareness about the irretrievable loss of archaeological context, the dynamics of the art market, and the history of collecting.” [47]

Based on the above argument and carefully balancing the involved ethical guidelines, we conclude that in this case, informed consent by the informants was not necessary.

We are primarily contextualizing artifacts with statements of anonymized informants and the data collection for this article was conducted when neither of the participants of the investigation were affiliated with a research institutions. Therefore obtaining institutional approval was not necessary.

All relevant data are contained within the manuscript and the supplementary information. Data have been fully anonymized.

A ~10 mg sample of the purported Sanxingdui gold mask was obtained from the artifact in the shop after illegal excavation and smuggling to Hong Kong had been claimed by the trader. The gold sample was analyzed using a portable laser ablation (pLA) instrument and, consecutively, with an (LA)-ICP-MS at the Curt-Engelhorn-Centre Archaeometry laboratory in Mannheim, Germany. The portable laser ablation was performed on the freshly polished surfaces of the metallographic sample (measurement parameters: ablation diameter: 120 µm; mass of ablated material: ~10 µg; frequency = 100 Hz; pulse energy of 0.6 mJ). The ablated material was collected by aspiration with a membrane pump and then applied to hydrophilic polycarbonate membrane filters (Merck HTP01300). Aqua regia was used to remove the ablated material from the filters. After a subsequent evaporation step, the sample was taken up in dilute hydrochloric acid and introduced into the inductively coupled plasma mass spectrometer (ICAPQ with collision cell technology (CCT), Thermo Fisher Scientific Inc., MA, USA). Measurement parameters are reported as follows: plasma power: 1400 W;

cooling, auxiliary, and argon gas flows were adjusted to 13.0, 0.7 L/min, and 0.9 L/min, respectively. The elements determined were: Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Ru, Rh, Pd, Ag, Cd, Sn, Sb, Te, Ir, Pt, Au, Pb, Bi. Measurements and quantification closely followed the procedure described in [1]. Further chemical analyses were performed by scanning electron microscopy (SEM) supplemented with a microprobe for semi-quantitative analysis (EDX), using a Leica Cambridge 360 microscope equipped with an Oxford X-Max 20 analyzer (working parameters: EHT 20.0 kV; acceleration voltage: 20 KV; acquisition time: 100 s; probe current: 220 pA; calibration: Co; software: Oxford Aztec, Abingdon, UK). The accuracy of the measurements is estimated to be ± 0.5 wt.% for each alloying element. Element concentrations were delimited as follows: alloyed (wt.% > 1), trace (< 0.1 wt.%) and not detected (n.d.). A cross section of a gold fragment was prepared for metallographic analysis using standard polishing techniques, embedded in cold mounting acrylic resin, ground with abrasive paper (up to 1200 mesh), and polished with diamond paste to 1 μm .

References

- [1] Polk, K. (2000). The antiquities market viewed as a criminal market. *Hong Kong Lawyer*, 82, 2000-2009.
- [2] Mackenzie, S. (2011). The market as criminal and criminals in the market: Reducing opportunities for organised crime in the international antiquities market. In *Crime in the art and antiquities world* (pp. 69-85). Springer, New York, NY.
- [3] Gill, D. W., & Chippindale, C. (1993). Material and intellectual consequences of esteem for Cycladic figures. *American journal of archaeology*, 97(4), 601-659.
- [4] Felch, J., & Frammolino, R. (2011). *Chasing Aphrodite: the hunt for looted antiquities at the world's richest museum*. HMH.
- [5] Gallagher, S. (2017). "Purchased in Hong Kong": Is Hong Kong the best place to buy stolen or looted antiquities?. *International Journal of Cultural Property*, 24(4), 479-496.
- [6] Campbell, P. B. (2013). The illicit antiquities trade as a transnational criminal network: Characterizing and anticipating trafficking of cultural heritage. *International Journal of Cultural Property*, 20(2), 113-153.
- [7] Brodie, N., & Doole, J. (2004). The Asian art affair: US art museum collections of Asian art and archaeology. *Material engagements: Studies in honour of Colin Renfrew*, 83-108.
- [8] Wang, M. A. (2012). *Chinese antiquities: an introduction to the art market*. Ashgate Publishing, Ltd.
- [9] Yates, D., Mackenzie, S., & Smith, E. (2017). The cultural capitalists: Notes on the ongoing reconfiguration of trafficking culture in Asia. *Crime, media, culture*, 13(2), 245-254.
- [10] Antiquities and Monuments Ordinance Cap. 53

- [11] Import and Export Ordinance Cap.60, ss. 15, 17, 18, 18A
- [12] Theft ordinance Cap.210, ss. 24, 28, 30
- [13] Police Force Ordinance, Cap. 232, s. 50(6)
- [14] Criminal Procedure Ordinance, Cap. 221, s. 83X
- [15] Limitation Ordinance Cap. 347, s. 5
- [16] Sale of Goods Ordinance Cap. 26, s. 24
- [17] Shaanxi sheng kaogu yanjiuyuan陕西省考古研究院, Han Jingdi Yangling bowuyuan汉景帝阳陵博物院, “Han Yangling dongqu peizangmu M3 zhi waicangkeng kaogu fajue baogao 汉阳陵东区陪葬墓M3 之外藏坑考古发掘简报,” *Kaogu yu wenwu* 1(2021): 22-39.
- [18] Shaanxi sheng kaogu yanjiuyuan Hanling kaogudui陕西省考古研究所汉陵考古队, “Han Jingdi Yangling nanqu congzangkeng fajue diyihao jianbao 汉景帝阳陵南区从葬坑发掘第一号简报,” *Wenwu* 4(1992): 1-13.
- [19] Zhongguo shehui kexueyuan kaogu yanjiusuo中国社会科学院考古研究所编. Ed. Han Duling ling yuan yi zhi 汉杜陵陵园遗址 (Beijing: Kexue chubanshe, 1993) 86.
- [20] Zhongguo shehui kexueyuan kaogu yanjiusuo Hancheng dui中国社会科学院考古研究所汉城队, “Han Chang’an cheng yaozhi fajue baogao 汉长安城窑址发掘报告”, *Kaogu Xuebao* 1(1994): 99-129.
- [21] Sotheby’s Fine Chinese Ceramics and Works of Art, lot.32, 2002
- [22] Lu Hang陆航, “Tanmi Han Wendi Baling探秘汉文帝霸陵,” *Zhongguo shehui kexue bao*中国社会科学报 December, 17, 2021
- [23] Xi’an Wenwu baohu xiufu zhongxin kexue shiyanshi西安文物保护修复中心科学实验室, “Heise taoyong de kexue fenxi yu jianbie黑色陶俑的科学分析与鉴别”, *Wenbo* 4(2003): 64-68;80.
- [24] Hu Lingui呼林贵, “Heise tuodi hanyong de jian ding 黑色裸体汉俑的鉴定”, *Wenbo* 4(2003): 59-63.
- [25] Pang Le庞乐, “Bailuyuan Jiangcun damu queding wei Han Wendi Baling白鹿原江村大墓确定为汉文帝霸陵”, *Xi’an Daily*, December 15, 2021.
- [26] Beech, H. Spirited Away. Updated October 13, 2003.
<https://content.time.com/time/world/article/0,8599,2056101,00.html>. Accessed October 30, 2023.

- [27] Sichuan sheng wenwu kaogu yanjiu suo 四川省文物考古研究所, ed., Sanxingdui jisikeng三星堆祭祀. Beijing: Wenwu chubanshe, 1999.
- [28] Robert Bagley ed. Ancient Sichuan: Treasures from a Lost Civilization. Seattle Art Museum, Princeton University Press, 2001.
- [29] Li, Y., Qiu, T., Guo, J., & Li, Y. (2023). New discoveries at the Sanxingdui Bronze Age site in south-west China. *Antiquity*, 97(391), e4
- [30] Sichuan sheng wenwu kaogu yanjiuyuan 四川省文物考古研究院 “Sanxingdui yizhi jisiqu wuhaokeng chutu jinmianju 三星堆遗址祭祀区五号坑出土金面具”, *Sichuan Wenwu* 2(2022): 107-118
- [31] Xinhua News, Xinhua Headlines: New finds at Sanxingdui Ruins show creative power of ancient China. Updated September 9, 2021. http://www.news.cn/english/2021-09/09/c_1310178139.htm. Accessed October 30, 2023.
- [32] Chengdu shi wenwu kaogu yanjiusuo 成都文物考古研究所. Jinsha— 21shiji zhonggu kaogu xinfaxian金沙 - 21世纪中国考古新发现. Beijing: Wuzhou chuanbo chubanshe, 2005, 26-27.
- [33] Craddock, P. Scientific Investigation of Copies, Fakes and Forgeries, Oxford, Butterworth-Heinemann, 2009.
- [34] Bobin O., Guegan, H. 2009. A new approach to the authentication of goldwork using combined Scanning Electron Microscopy and External-beam PIXE, *archaeosciences* 33, 341-347, <https://doi.org/10.4000/archeosciences.2431>
- [35] Zeng, Zh. 2004. The analysis of the composition of excavated gold vessels from sacrificial pits at Sanxingdui. *Scientific and Technological Research on Cultural Relics (Volume 2)*:178-183. (In Chinese)
- [36] Standish, C. D. et al., 2022. Archaeological applications of natural gold analyses, Geological Society, London, Special Publications 516 (1), 401. <https://doi.org/10.1144/SP516-2021-59>
- [37] Mackenzie, S., & Yates, D. (2017). What is grey about the “grey market” in antiquities. The architecture of illegal markets: Towards an economic sociology of illegality in the economy, 70-86.
- [38] Vago, J. (1992). The Borders of Crime-Hong Kong-China Cross-Border Criminal Activity. *Brit. J. Criminology*, 32, 310.
- [39] Campbell, P. B. (2013). The illicit antiquities trade as a transnational criminal network: Characterizing and anticipating trafficking of cultural heritage. *International Journal of cultural property*, 20(2), 113-153.

- [40] Zhong, Hui. "Moving towards an integrated approach to fight against illicit trafficking of cultural heritage for the Chinese Mainland, Hong Kong and Macao." *International Journal of Cultural Policy* (2023): 1-14.
- [41] Haggerty, K. D. (2004). Ethics creep: Governing social science research in the name of ethics. *Qualitative sociology*, 27, 391-414.
- [42] Scheper-Hughes, N. (2004). Parts unknown: Undercover ethnography of the organs-trafficking underworld. *Ethnography*, 5(1), 29-73.
- [43] Calvey, D. (2013). Covert ethnography in criminology: a submerged yet creative tradition. *Current issues in criminal justice*, 25(1), 541-550.
- [44] Dingwall, R. (2008). The ethical case against ethical regulation in humanities and social science research. *Twenty-first century society*, 3(1), 1-12.
- [45] Hammersley, M. (2010). Creeping ethical regulation and the strangling of research. *Sociological Research Online*, 15(4), 123-125.
- [46]] European Confederation of Conservator-Restorers' Organisations (2021). Code of Ethics. https://www.ecco-eu.org/wp-content/uploads/2021/03/ECCO_professional_guidelines_II.pdf (Accessed 21.08.2024)
- [47] European Association of Archaeologists (2024). EAA Principles. https://www.e-a-a.org/EAA/About/EAA_Codes/EAA/Navigation_About/EAA_Codes.aspx?hkey=714e8747-495c-4298-ad5d-4c60c2bcbda9 (Accessed 21.08.2024)