

# TRIANON: ARCHAEOLOGICAL INVESTIGATIONS OF AN INDENTURED BARRACK

THE 2010 FIELD SEASONS: EXCAVATION, RESULTS AND INTERPRETATION

Report commissioned by and prepared for the Aapravasi Ghat Trust Fund, Port Louis, Mauritius.

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## SUMMARY

This report centres on the field survey undertaken between the 5<sup>th</sup> and 16<sup>th</sup> of July 2010. It also briefly presents results from a short field season undertaken between the 7<sup>th</sup> and 15<sup>th</sup> of May of the same year to perform a ground penetrating radar (GPR) scan of the site. This initial survey provided the foundation, along with magnetometry survey carried out in 2009, upon which we based our excavations. Our principle aim was to better understand the organisation and layout of subsoil structures, particularly as they relate to the standing barracks. Furthermore, Trianon presented an ideal option for field training. As part of our commitment to providing training, the July season also served as an international field academy with students participating and collaborating from both the UK and Mauritius.

Both the field training and excavational aspects of this season were extremely successful. Both sets of students interacted effectively and ostensibly gained a great deal from the experience. A number were even able to join a subsequent excavation that took place on a cemetery site in Le Morne. Their newly learnt skills were very useful for this subsequent dig. With regard to the excavation outcomes for Trianon itself, our expectations were more than exceeded. While the geophysical survey, particularly the GPR results, had provided a clue as to the nature of the sub-soil features, we could not have anticipated the extent and nature of the structure uncovered. The foundations of a very large structure (evidently at least 20 meters in length based on the GPR results) were discovered; crucially, these foundations evidenced a completely different mode of construction compared to that of the near-by barracks.

It is apparent that the structure that lay upon the foundations we have uncovered is in some way connected to the barracks. Its proximity is an obvious link, and it would appear to have been contemporaneous in terms of period of use with the barracks. Far more interesting is the fact that it may well have been constructed, perhaps even 'designed', by the labourers, for their purposes. While it is difficult, following one short season of work, to comment further at this stage, it would appear that these finds, along with the apparent drainage feature also uncovered during the 2010 campaign, are the remains of either a single large storage shed or animal shed. The sheer effort of construction for this building is intriguing and suggests that the foundations represent a building of some substance and value to the labourers. What is clear is that despite its seemingly commonplace location i.e. a sugarcane field, this site has relinquished a hidden gem of great significance. It is absolutely essential that further work be undertaken to gain a better understanding of these finds, their relation to the standing barracks, and indeed, their significance and role within the lives of the indentured workers.

## ACKNOWLEDGEMENTS

We gratefully acknowledge the support of members of the AGTF administrative and technical teams. Particularly, we thank Dr Vijaya Teelock and Mr Raju Mohit for their continued and unremitting support and assistance through our collaborative work. We are also very grateful to Corinne Forest and her technical staff who have provided invaluable assistance on many levels. Our work would not be possible without the generous backing, aid and support of the AGTF.

## FUNDING

Funding for this seasons' work has been generously provided by, and gratefully received from, the Aapravai Ghat Trust Fund, who continue to support this valuable archaeological work both financially and technically. We are extremely grateful for this support.

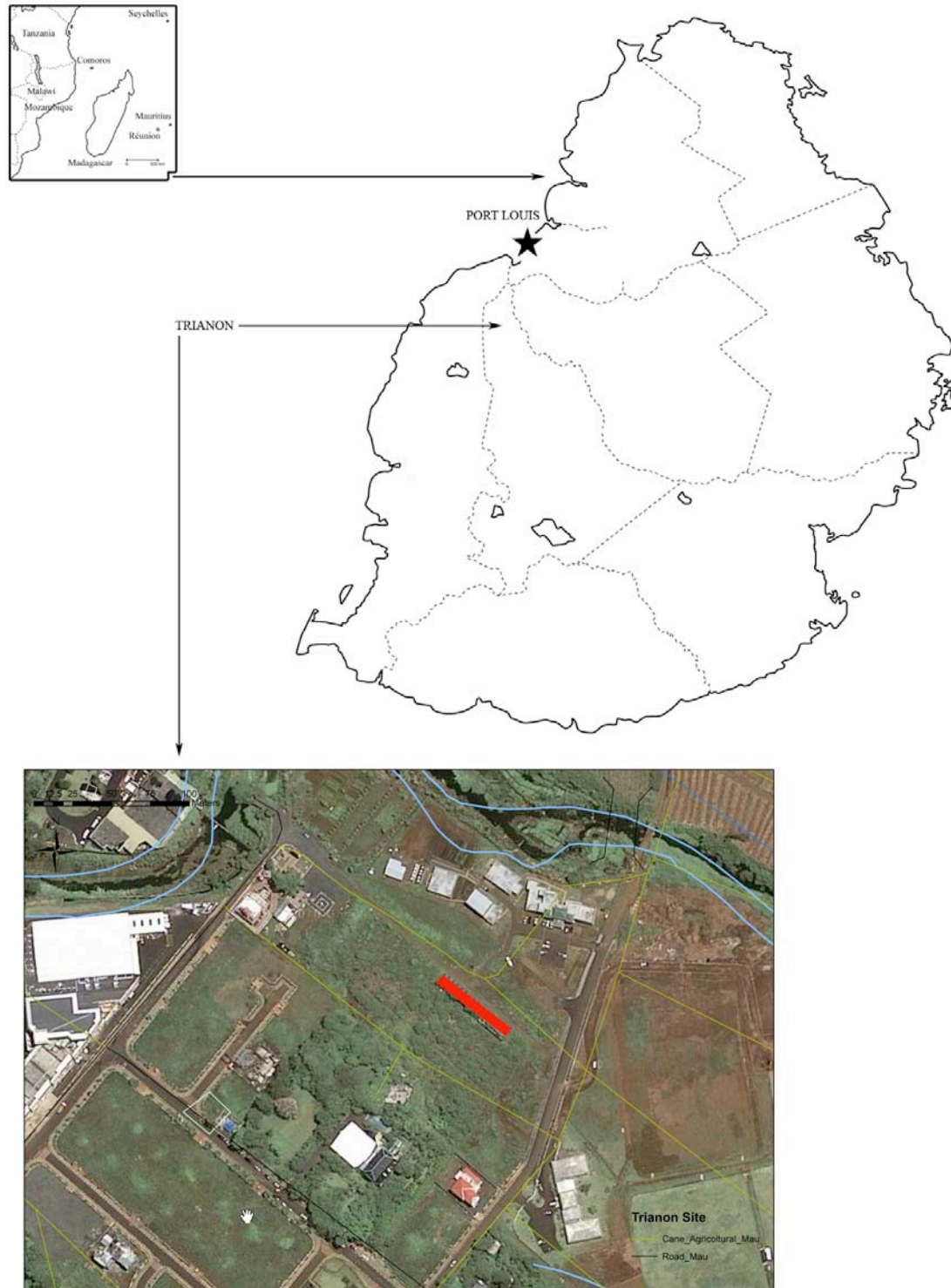
## RECOMMENDATIONS

1. Two key areas of value are potentially available from this site. The first relates to its prospective importance in terms of landscape research, which is made even more important by the impending development work in the area. Although these developments would preserve the barracks as a monument, and the small area around it, they would destroy the archaeological landscape, and with that, our ability to understand the details of the estates history. The structures already uncovered indicate the very real significance this site has for adding important dimensions to the historical evidence.
2. Tied into the above is the huge importance of this site for informing on the daily lives of the indentured labourers. While sites such as the Immigration Depot have obvious significance with regard to the initial influx of indentured labourers, the potential of a settlement site such as the barracks is equally valuable, if more subtle. Future work should concentrate on developing a fuller appraisal of a wider range of artefactual evidence, in particular from food wastes and from environmental samples. Food is an extremely important aspect of identity; with limited material evidence from other sources, food wastes may be the most important marker of cultural affiliation. Furthermore, this type of evidence not only gives clues as to cultural memory, i.e. in relation to cuisine, but also links to ancestral populations from overseas. It also demonstrates the adaptive quality of the peoples under investigation i.e. how they coped in a different environment and how they manipulated local resources to meet their needs.
3. Both field walking, and potentially additional geophysical survey employing GPR, should be carried out on a wider scale to further investigate the relationship between the barracks and the landscape around them. The region covered by GPR to date already tentatively points to extension of the features uncovered during excavation. While we may not be able to physically dig beyond the confines of the current land plot, we would nonetheless have valuable evidence of the sub-soil archaeology. This data needs to be tied into GIS where it can be compared with cartography on a much larger scale and tied into land records.
4. As highlighted in the 2009 survey report, the area around the barracks needs to be explored more fully, to establish their archaeological context, and to learn more about the Trianon estate as a whole. It is possible to see suggestions of building remains and a track-way on satellite images. This needs to be developed, with a more complete examination of aerial imagery. This would help focus survey work and excavation.
5. Finally, and again as originally suggested in 2009, it is recommended that this site be viewed not as an isolated monument, but as part of a dynamic landscape that needs to be explored on a large scale, using integrated methodologies in order to be properly understood the scale of the 'settlement' and its place within a 'sugar plantation landscape'.

## 1.0. INTRODUCTION

The following report details the 2010 campaign of archaeological investigations undertaken at the Trianon Barrack, Mauritius (fig. 1). In collaboration with the Aapravasi Ghat Trust Fund our team has undertaken three seasons of work, culminating in excavations undertaken at the site between the 5<sup>th</sup> to 16<sup>th</sup> of July 2010. This has been preceded by a ground penetrating radar (GPR) scan of the site undertaken between the 7<sup>th</sup> and 15<sup>th</sup> of May 2010.

**Fig. 1: Map of Mauritius (capital starred) and site location, (Google Earth©) barracks in red.**



### 1.1. Description of the site and Standing Barracks

These standing barracks are the old labourers' quarters, which were in use from the mid-nineteenth century right up to the 1970's. At the time of their construction, most plantations provided workers and their families with living quarters, and these buildings stand as evidence to that trend. They are constructed from basalt blocks, and use sugarcane syrup and pebbles to form a vaulted roof. They are well built, with some fine details of design, especially visible around the front doors. In 1974 the buildings were decreed a national monument on the basis of what they can tell us of the plight of indentured workers, and on their relative preservation. However, despite this, the buildings have been neglected, and the area around them has become overgrown. It was therefore of even greater significance to assess this site in order to make recommendations for future research and preservation.

Archaeological study commenced with a field survey, followed by geophysical works in 2009. This produced a corpus of non-destructive sampling data that was complemented in 2010 with a GPR scan of the site immediately surrounding the barracks. Photogrammetry (Fig 2) was also undertaken to gain a visual representation of the structural archaeology and as a geometric referencing system for future extrapolation.

**Fig. 2: The Barracks.**



## 2. FIELDWORK PROCEDURE

The excavation procedure followed a basic hierarchical system. Individual stratigraphic units were defined as 'contexts'; a collection of associated contexts or artifacts were defined as 'features', and groups of features were defined as 'structures'. For the purposes of clarity and to facilitate recording and accession, each context was provided with a unique identifying index number (i.e. context number).

A select quantity of fill contexts were subject to 100% coarse dry-sieving, firstly through a 5mm mesh and then subsequently through a 3mm mesh. Flotation for general biological analysis was undertaken, particularly from fills derived from the 'drainage feature' unearthed in Trench 2. All finds were hand-collected.

### 2.1 Excavation Procedure

The excavations were preceded by a concerted effort to collect surface finds through field walking. Figure 3 demonstrates the extent of the work undertaken, showing the gridded area to the rear of the site. Field walking is particularly important for sites of this period, as it is a low-tech method that can potentially provide much needed evidence of variations in site occupation. With much evidence of ground disturbance it is crucial to gain some understanding of the process of substrate admixture that may be an indicator of site clearance, or the introduction of soil from external sources (usually containing finds). It is essential that artefacts from added soils can be separated from recovered artefacts from the site itself.

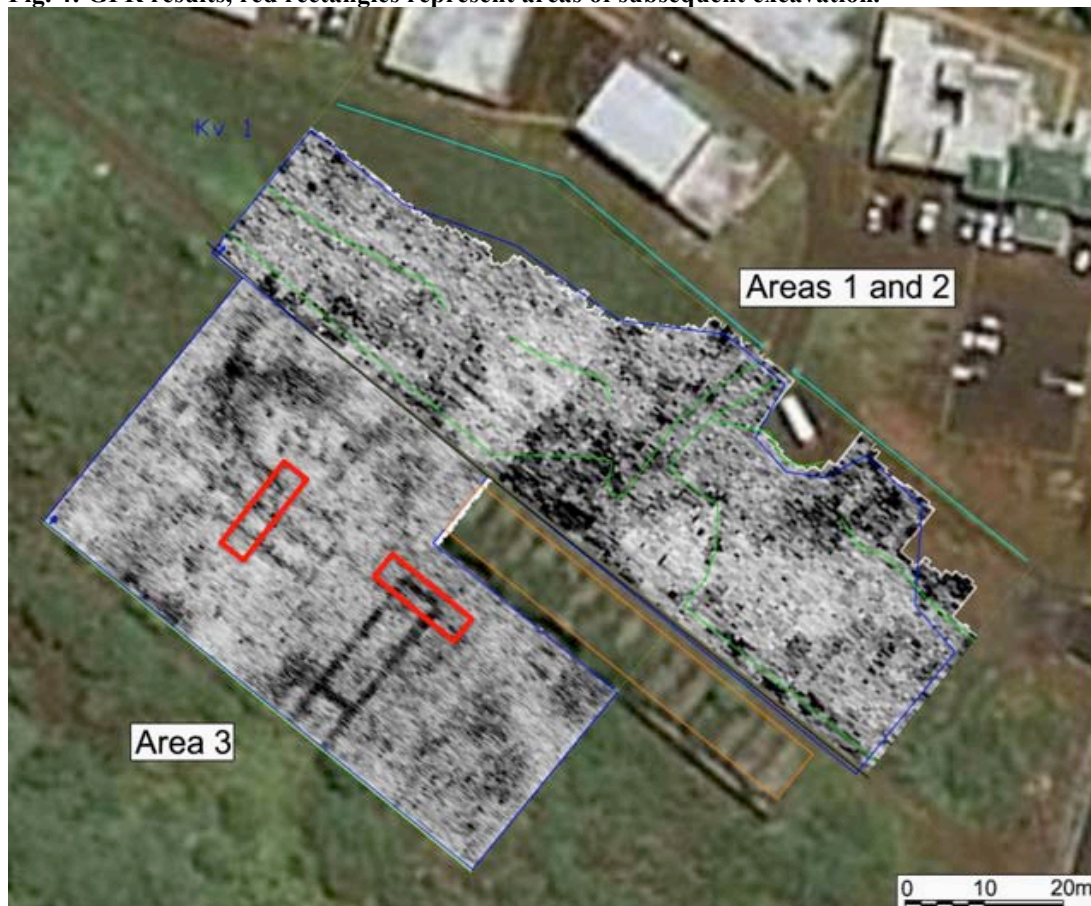


**Fig. 3: Site – field walking grid survey prior to excavation.**



As mentioned, GPR survey was undertaken in May 2010 and brief results are presented in Fig. 4. These highly informative descriptive outcomes formed the basis for our excavations in July. The main regions focused on are outlined in red on Fig. 4; these pick out the features of greatest signal strength and led to the discovery of numerous important archaeological features.

**Fig. 4: GPR results, red rectangles represent areas of subsequent excavation.**





Fieldwork was undertaken with the assistance of students from the UoM, led by Dr Anwar Janoo, with additional support from technical staff and workers from AGTF. Initially, three trenches were opened to investigate the subsoil features identified from the GPR scan. An additional trench, serendipitously opened by AGTF staff during restoration works of the barracks, was excavated directly adjacent to the standing barracks. This allowed for an appraisal of the construction method of the barrack foundations, which was consequently contrasted with those of the structure (the foundation) uncovered in Trench 1 of our excavations.

The first Trench to be opened (red block closest to the barracks in Fig. 4) focused on the clear signal indicating a long rectangular structure perpendicular to the standing barracks. The second Trench encapsulated the more ephemeral signal to the right of the Trench 1. A third Trench was subsequently opened some 10 meters further away from the barracks, but along the same plane as Trench 1.

### 3. FIELDWORK RESULTS

Soil micro-structure analysis (geoarchaeology), was undertaken by Dr Charly French; the full technical report is presented in Appendix 1. The following briefly presents details of the main features from each trench, followed by a short account of the field walking survey.

#### 3.1 Archaeological interpretation: Trenches 1, 2, 3 & 4.

Trench 1 (Fig. 5) was situated five meters south and parallel to the first room of the barracks. Initially, the Trench was 1 x 5m, but was later enlarged to dimensions of 2 x 6m. Natural bedrock was reached at a depth of 70cm. Stratigraphic excavation of T1 exposed 59 units – contexts corresponded to 19 pits and post holes, four channels, two wide stone structures (the foundations of a building) and nine layers of soil. During the excavation 11 environmental samples were taken: eight for C14 dating and three for soil slides.

##### Interpretation of the archaeological features (structures) of the T1:

According to the GPR results we could expect previously unknown rectangular structure, which were indeed discovered. A north-western foundation corner of a large building was revealed, with traces of later use of the area. Most recently this region was used for sugarcane plantation, with six plough marks left on the stone-built foundation. Previous to that, from the time when the large building was still standing, channels and postholes testify that this part was potentially used for habitation. The smaller postholes are rectangular, while others, usually larger, are circular. The difference in the shape and size can be explained with their use: smaller postholes were made to elevate static furniture, for example workbenches, or were inner divisions of the building; the larger ones were part of the porch, which used the northern wall of the building as a support. Four oval postholes next to the northern face of the foundation were vestiges of the scaffolding in use at the time of construction of building. Next to the wall the remains of a fireplace were discovered as well as two small channels, leading away from the building. We interpret them as the channels for draining small amount of water or other liquids away from a possible kitchen area.

**Fig. 5: Trench 1 – foundations structure.**



The second trench to be opened, Trench 2 (Fig. 6), with dimensions 1 x 5m, was placed about 30m southwest of the barracks and situated perpendicular to the main access road. Natural bedrock was reached at a depth of 62 cm. Stratigraphic excavation of T2. Alongside the general finds, such as pottery, glass and metal finds, seven special small finds were also obtained, amongst which two are of greater importance: a ¼ Indian rupee coin, manufactured in the year 1862 (Fig 12) and a fragment of a thick graphite bowl, probably used for smelting.

Interpretation of the archaeological features (structures) from T2:

Excavated structures at the top bear traces of historically documented occupation of the area. The top two layers were mixed with archaeological finds from a wide period, covering 150 years of occupation. On the larger basalt blocks plough marks were clearly visible, supporting what is known historically about the use of the site as a sugarcane field. Before that the area had a different function. The channel and pits, which were all identified underneath the top two layers, composed of a drainage system that ran from behind the barracks towards the temple.

**Fig. 6: Trench 2 – Drainage feature.**





Thanks to restorative works undertaken by members of the AGTF, a third Trench, of the following dimensions: 2 x 1.5m was opened directly adjacent to the western face of the first Barrack (Fig. 7). This Trench was opened purely as an investigative ‘keyhole’ trench to sufficiently expose an area of the foundations of the barracks for investigation of their mode of construction. Seven contexts were recorded, and the excavation revealed that the foundations started at 75cm below the present day topsoil level.

**Fig. 7: Trench 3 – Exposure of Barrack footing.**



Finally, a small area was opened 20 meters perpendicular to Trench 1 in a southerly direction. This was performed to investigate that portion of the site primarily to see if further evidence of the foundation structure could be recovered. Unfortunately, time constraints did not allow us to excavate to a depth suitable for meeting this aim. The trench, T4 (Fig. 8), was 1 x 2m, with 25 contexts noted. The main features recovered indicated 10 postholes, although at this stage no further interpretation can be offered.

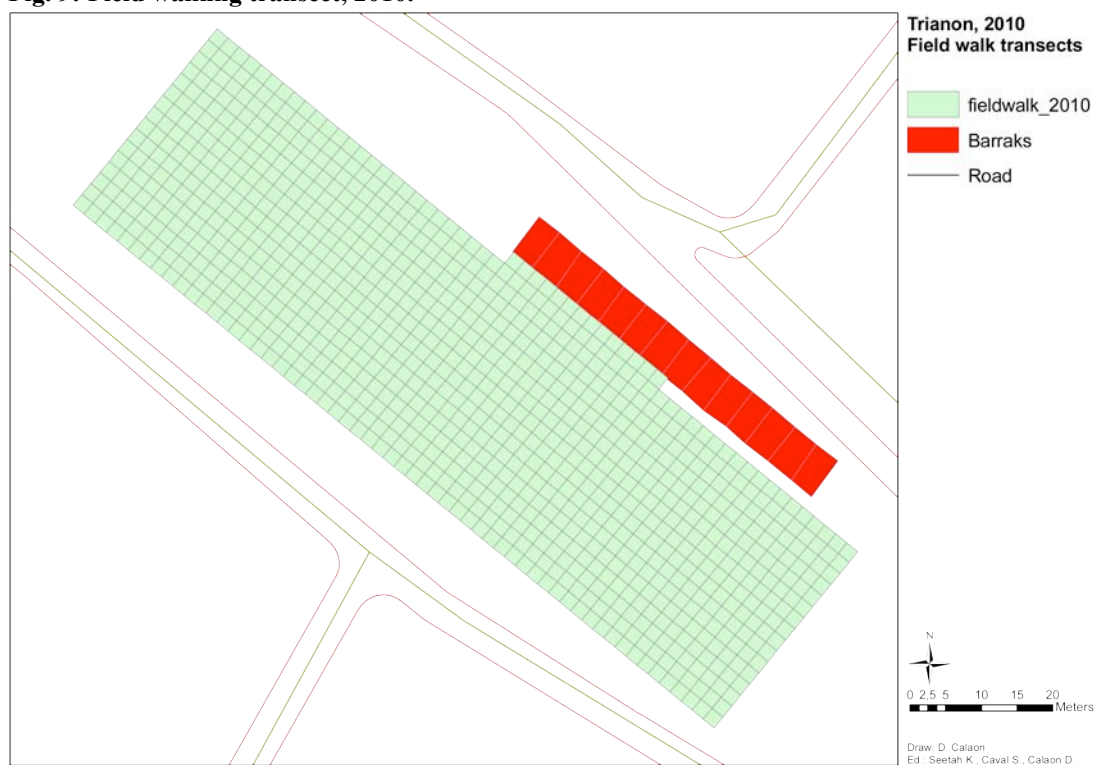
**Fig. 8: Trench 4 – secondary exploratory sondage.**



### 3.2 Field-walking survey

Two seasons of field walking surveys were undertaken, in 2009 and then again, prior to excavation, in 2010. The representational grid for 2010 is seen in Fig. 9.

**Fig. 9: Field walking transect, 2010.**



Due to time constraints, the cluster of artifacts collected during field walking has not yet been completely studied (washed, photographed, measured); however, the following brief description depicts both the nature of finds to date, and what we expect to find during subsequent archaeological campaigns:

#### Glass:

A large number of glass fragments was collected. The majority was modern glassware: i.e. small barrel shaped industrial tumblers decorated *in intaglio*, bottles (rum bottles, sauce bottles, small ointment bottles) and drinking vessels. A small number of window glass fragments were recovered, most of which probably dates to the 20th century.

#### Iron:

The absence of iron manufacture in Mauritius during the period of British rule probably accounts for the large quantity of the metal artifact presents in the soils: there was no particular incentive to collect metal objects for re-use. Field walking recovered nails, metal bars, lamina and screws.

#### Ceramic:

It is important to remember that ceramic finds within post-medieval colonial contexts do not offer a precise correlation between the 'quality' of the material culture and the group that used them. Different social groups do not, by definition, necessarily have different material cultures. This was clearly recognisable from the sites such as the BRIC Warehouse (BRIC 2010 Report). The presence of a global European market serves in some way to standardise the quality of the material culture present, whether this is in cities and in rural contexts.



#### List of the main ceramics types found:

##### 1. Salt-glazed stoneware

A small number of fragments were of salt-glazed stoneware, including fragments of small bottles and jugs.

##### 2. White ware, Pearl ware, Sponged ware and Transfer ware

The field walking recovered a number of pearlware fragments: shell-edged dishes, cups, bowls, a few underglaze blue on white spongeware fragments and very few fragments of transfer printed ware (dishes). The small quantity of this type of material can be attributed, not surprisingly, to a very low presence of “European” tableware on this Indentured site.

##### 3. Earthenware

A few fragments of wheelmade earthenware were recovered. These included cooking pots and dishes. These products are likely to have been Indian vessels, but a more precise comparison is needed.

##### 4. Porcelain

A small number of fragmentary porcelain bowls were recovered; made in China and Europe.

#### 4. DISCUSSION

While it would be a mistake to over-interpret the results gained so far, a few key features do merit further discussion.

The distribution of the artifacts collected during the field walking survey of Trianon has allowed us to formulate some hypotheses about the quality and the quantity of the material culture from the site.

The 2009 ceramic distribution clearly demonstrates that the majority of sherds were collected towards the rear of the barracks, with a higher concentration on the west side. The presence of many ceramic sherds at the rear of the barracks is linked with the general activity of the kitchens, located as a single unit in this area. The low quantity of animal bones is almost certainly indicative of domestic rubbish being deposited in specific places (waste areas or middens). Only a small quota of the “broken ceramics” and food wastes, which constituted the remains of the labourer’s meals, were retrieved during the field walking activities.

The distribution of the metal artifacts is more uniform than that of ceramic finds, which may relate to the quality of these artifacts. The majority of objects (if we exclude modern food and drink cans) are not linked with the “waste” from the living area. Nails, metal bars, hooks and studs were recovered: all objects probably linked with agricultural tools or metal used in the buildings.

The study of the artifacts collected in 2010 is not yet completed, although from basic appraisal it is possible to state that the majority of the artefacts were collected in an area probably linked with the building on a north-south orientation. It seems that the concentration can be associated with the rear facet of the barracks building.

The geomorphological (structural qualities of soils – App. 1)) analysis revealed a high level of disturbance on this site, as one might have expected considering its previous use as a plantation. Furthermore, this pattern is repeated over the regions excavated, again, as might be expected. Given the fact that we have clear, substantiated evidence to show this was a sugar plantation these findings may seem of little value. However, we must not lose sight of

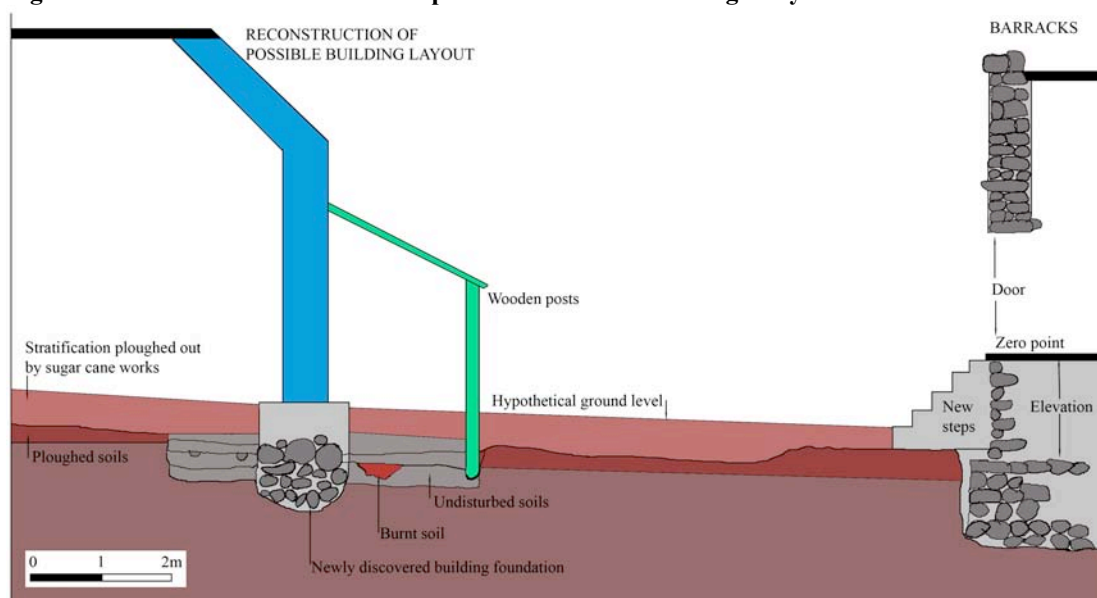
the fact that archaeological work in Mauritius is still, relatively speaking, in its infancy. We desperately need 'standard' soil signatures to inform us as to the nature of *Mauritian sub-soil archaeology*. In other words, we now effectively have an unequivocal and historically supported archaeological 'signature' of sugar production. This geoarchaeological marker of sugar manufacture can be used to investigate other sites, particularly those where the historic context is not so strong. This work is adding dimensions to the archaeo-historic foundation of Mauritius, and Trianon has proved to be very important for furthering this type of agenda. The strong historical record means we can *support* our archaeological conclusions; in reverse, it also means we can be more secure in our archaeological interpretations on sites that do not have such a strong historical framework.

Having made this point regarding the benefits of a historical context, our major find has not, to the best of our collaborative knowledge, been noted in any historical text (Teelock, pers. comm.). The feature uncovered in Trench 1 appears to be the foundations of a large building, spanning over 20 meters in length. Crucially, the GPR results had to be truncated at the boundary of the current plot upon which the barracks stand. Therefore, it is apparent that we have uncovered the foundations of a building with substantial proportions; thus, all the more confusing that it does not appear in any land records or historical texts. At this point I must *caveat* that an exhaustive search of the literature has not been performed. However, Dr Teelock's indications are noteworthy and should prompt a concerted effort to looking into this issue.

The fact that there is, ostensibly, no indications of this structure in the literature leads us to conclude that perhaps it did not serve an important function, or was commonplace on all sugar estates and not considered worthy of being recorded. This latter point seems implausible given the fact that detailed records of sugar estate management exist. Further historical work is needed to clarify whether similar structures have been recorded on other sugar estates; however, the lack of historical reference in this instance may be as informative. The drainage feature from Trench 2 appears to be related to the large foundation from Trench 1; at this stage this is purely speculative, but may serve as a point of departure for further investigation.

Based on the foundations themselves and the associated post-holes our reading of this structure leads us to propose a standing building similar to that depicted in Fig. 10.

**Fig. 10: Reconstructed illustration of possible structure that originally sat on this site.**



What we anticipate is that we are dealing with a building that may have been used for storage, or indeed to house animals. Interestingly, The Report of the Royal Commission of 1875 mentions:

*“The first camp was on the other side of the river from the hospital and over 300 yards from the mill. It originally covered 27 acres and consisted of barracks. At one end of the camp was a ‘solidly-built Hindoo temple’. Between the barracks were vegetable gardens. No animals were permitted and the camp was very clean. Animals were kept in a separate shed 200 yards away. There were 14 cows, 1 calf, 38 goats, 250 pigs”.*

The proximity of the structure to the barracks probably rules out that, *in this instance*, we have uncovered the animal sheds. The structure uncovered in Trench 1 appears to be far too close, being only a few meters rather than 183 meters (200 yards) that are suggested by the Royal Commission Report. As important, the sheer size and proximity of this structure to the barracks suggested that it was constructed to serve a more important function and one that was more intimately linked to the daily lives of the labourers.

Given the chronological context of these finds, we are fortunate in the fact that photographic evidence may provide clues as to the nature of the archaeology. Fig. 11 may provide a visual telling of the type of structure we are dealing with, at least within the context of superficial details. There is much work to be done before we have a clearer picture of this structures place within the settlement, and indeed, the settlement itself.

**Fig. 11: Historic photograph showing details of building design.**



Less monumental, but no less significant, the discovery of a small quarter rupee coin links this ancestral community directly with their nation of origin, and pays testament to everyday facets of life (Fig. 12). The coin typifies the practice of paying indentured labourers with Indian currency to facilitate the process of returning money ‘home’. Though hardly rare in Mauritius, finding such an artefact associated with the barracks, and now this new structure, highlights the relevance and potential of this site.

**Fig. 12: Quarter Rupee coin.**



## 5. CONCLUSION AND FUTURE WORK

These discoveries start the process of giving us a view of life for the indentured labourers living at Trianon. This is perhaps the most important perspective as it is one that cannot be addressed directly from other sources of evidence. Furthermore, archaeological research provides an important insight into the overall relationship between the organisation of the sugar estate and the relationship with the immediate and wider environment; we are given a unique view into the sugar industry; indeed we are addressing the 'archaeology of sugar' from varied facets.

Uncovering this structure highlights the value of corroborating archaeological and historic datasets. What is recorded in antiquity does not always reflect what is of interest to the modern population. Given the fact that 70% of modern Mauritian inhabitants are largely descended from indentured labourers, who were not the authors of history, even relatively simple details regarding the daily lives of these ancestral populations can be captivating.

However, in order to present a clear picture of the past, more work is needed. We simply don't have enough to make substantiated inference; further investigation is essential. The key feature of this site is its ability to inform on the life-ways of indentured labourers. While we now have a small insight into the possible nature and organisation of habitation and daily life, in the absence of a clear material culture for the labourers we lack indications of identity. Considering that this group were unlikely to have much by way of material goods, another avenue to explore this issue is through food. Animal and plant wastes are crucial indicators of food culture and resource exploitation. Animal bone can be invaluable at providing evidence of social status and ethnic affiliation (note the comment re: numbers of animals, and range of species – including pig – from the Royal Commission Report above). The analysis and interpretation of macro-botanical remains (seeds, fruits, roots, etc.) recovered in archaeological sites are vital to understanding foods and foodways in the past. Thus, animal and plant finds can offer information about agriculture and the gathering of wild plants, but also about food consumption and identity of past people. Almost every ethnic group has food rules and food taboos and this make food an important element in the study of cultural identity and ethnicity.

Perhaps uniquely, due to level of preservation of the site of Trianon itself and the Barracks, it offers a most rare opportunity: to excavate *kitchens* and their associated waste sites. This could well offer an as yet unknown dataset providing information on the culture, food and lifestyle of the indentured labourers who lived, worked, ate and slept at the Trianon Barracks. The possibility of retrieving food wastes should be a priority for any future work.



## APPENDIX I: SOIL MICROMORPHOLOGICAL ASSESSMENT OF TRIANON

Prepared and submitted by Charles French, McBurney Geoarchaeology Laboratory, Department of Archaeology, University of Cambridge.

### *Introduction*

Three sets of block soil samples were taken from the topsoil associated with the former indentured labour barracks at Trianon (sample numbers 3, 30 & 38) for micromorphological assessment (after Murphy 1986; Bullock *et al.* 1985; Stoops 2003).

### *Micromorphological descriptions*

The four slides are briefly described here, with full descriptions below.

Three soil blocks were taken from the topsoil at Trianon, and these are all similar in texture and components. The mixed silt and clay fabric is very strongly impregnated with amorphous sesquioxides giving it a dark reddish brown colour. It is organised into either a small sub-angular to irregular blocky ped structure weakly defined by fine channels (Fig. 13) and/or a more porous matrix of small sub-rounded to irregular aggregates. The blocky areas of fabric appear undisturbed; the more aggregated areas are probably disturbed zones and/or discontinuous infills of root channels or small animal burrows. There are abundant fine organic punctuations throughout.

This organic silty clay soil is a topsoil that has been subject to much oxidation and the formation, indeed 'cementation,' with amorphous sesquioxides. The very fine channel/crack structure may suggest some surface compaction. In places, the fabric has been much disturbed by rooting and/or soil animals.

### *Acknowledgements*

I would like to thank Tonko Rajkovaca of the McBurney Geoarchaeology Laboratory, Department of Archaeology, University of Cambridge, for making the thin section slides.

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## Full Technical Micromorphological descriptions by Sample

### Sample 3

*Structure*: 30% with small, sub-angular to irregular blocky, <1cm; 70% irregular to sub-rounded aggregates, <10mm; *Porosity*: blocky structure defined by 5% fine channels, irregular to zig-zag, partly accommodated, <1cm long, <250um wide; aggregate structure

areas with 20-40% interconnected vughs; *Mineral components*: 50% silt; 50% clay, of which 45% dusty clay, moderate birefringence; 5% clay fragments, <100um, sub-angular, yellow (CPL), moderate birefringence; reddish brown to scarlet (PPL/CPL); *Organic components*: 20% punctuations, <100um; rare (2%) fine charcoal fragments, <500um; strong organic pigment throughout groundmass; *Pedofeatures*: *Amorphous*: strong amorphous sesquioxide impregnation throughout groundmass.

### Sample 30

As for sample 3, but <20% blocky structure and >80% aggregated structure.

### Sample 38

As for samples 3 and 30, except upper half blocky to aggregated and lower half of slide with blocky structure.

### **Fig. 13: Photomicrograph of Sample 3.**

Image shows irregular aggregated to blocky silty clay fabric at Trianon, sample 3. (Frame width = 4.5mm; plane polarized light).

