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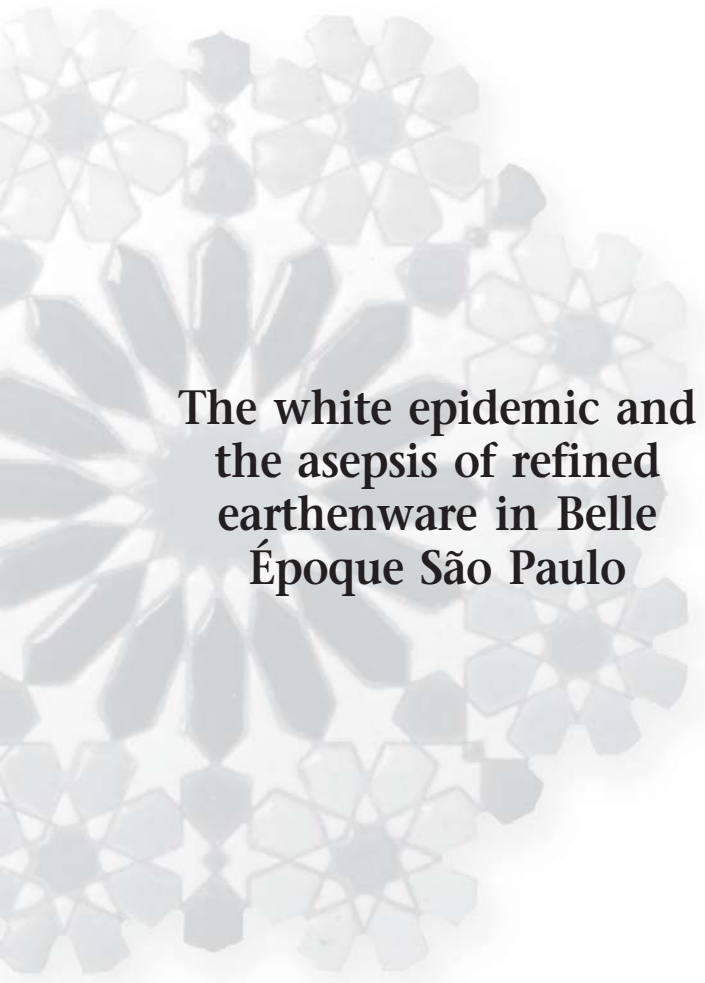
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## The white epidemic and the asepsis of refined earthenware in Belle Époque São Paulo

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Abstract

The article examines Brazilian refined earthenwares known as *faiança fina* (fine faience) and relates ideas about its production to the contextual backdrop of hygienist discourses in the city of São Paulo in the early twentieth century. Based on an analysis of glaze components, moisture expansion processes, and technological aspects of the production of earthenware recovered from the Petybon archeological site, it is suggested that the establishment of factories and the production and consumption of white ceramics in the city of São Paulo were partially a consequence of the vigorous hygienization policies and modernity projects then advocated by São Paulo's elites.

Keywords: historical archeology; *faiança fina*; Brazilian refined earthenware; hygienist discourse

One day a terrible epidemic began to sweep through the Triangle: the white epidemic. "Ripolin," "Chi-Namel," all varieties of white enamel – the frightful microbe! – started wreaking their dreadful havoc. Everything was glazed.

(Guilherme de Almeida, 2004, p.15)<sup>1</sup>

This article offers some reflections on the Brazilian refined earthenwares known as *faiança fina* (fine faience) that are part of the collection gathered from the Petybon archeological site in the neighborhood of Lapa, city of São Paulo, region of Água Branca and Vila Romana. Excavated by the firm Zanettini Arqueologia in 2003, the site partially overlies the grounds of an old factory of *faiança fina*, inaugurated in 1913. Founded during an upsurge of Italian immigration and at a time when industrial development was being funded by coffee money, the Fábrica de Louças Santa Catharina factory – later to become IRFM (Indústrias Reunidas Fábricas Matarazzo) – São Paulo, remained in operation until 1937, having been purchased by the Matarazzo family in 1927. The location is of major importance not only in the context of Brazil's urban archeology but also because it offers a fine example of the early days of Brazilian industrialization and of the history of the production of Brazilian earthenware, a topic that has largely been ignored in the literature, has not been widely recognized, and is rarely identified, despite the frequent appearance of these wares in twentieth-century archeological sites.

The collection comprises 29,740 mostly complete pieces, which have been submitted to analysis and curatorship by Zanettini Arqueologia and also by the University of São Paulo's Museum of Archeology and Ethnology (Museu de Arqueologia e Etnologia da Universidade de São Paulo, MAE/USP). For the purposes of detailed documentation, observations were made of the 1,818 pieces that are part of the collections of the National Institute of Historical and Artistic Heritage (Instituto do Patrimônio Histórico e Artístico Nacional), the Brás Cubas University Archeology Center (Núcleo de Arqueologia da Universidade Brás Cubas), and the MAE/USP, which hold most of the glazed and decorated pieces. Since the Petybon archeological site contained numerous pieces representing different phases of the earthenware production chain, it was possible to reconstruct a good portion of these operations.

The English-language literature generally analyzes earthenwares according to the aesthetic attributes of their glaze, that is, according to the characteristics that result from the artifact's entire behavioral chain, which relates both to its decorative appeal as well as to the vessel's final performance, either because of its techno-functional properties or because its aesthetic attributes (like glazing) are the product of specific surface treatments, which will also enter into a dialogue with the piece's functionality. Taking both emic and etic considerations into account, a classification has been determined based on attributes related to color and chemical components, resulting in the definition of three basic types of earthenware and three basic types of glazes, known as creamware, pearlware, and whiteware (although the characteristics of each type are not clearly defined).<sup>2</sup> An analysis of glazes from the Petybon site permits us not only to question the application of this classification in

identifying twentieth-century earthenwares from Brazilian historical sites – especially in terms of chronological attributes and the provenance of the material – but also to identify both the methods used in glazing as well as a characteristic that is intrinsically related to the glazing process and to the physical and chemical features of the glaze, a characteristic referred to here as crazing.

Developed by Josiah Wedgwood, creamware was very popular until the appearance of pearlware in the early nineteenth century. By the 1810s, creamware had practically disappeared from the market (Tocchetto et al., 2001, p.23), which is not to say that it had been eliminated but had only become less common; in fact, it is still made today (Stelle, 2001). It was produced by European factories and its formula contained lead oxide, replacing the sea salt distinctive of faience glazes, which had lent the ware a yellowish tone, especially visible at crevices or other points of relief on the surface of the wares where the liquid glaze tended to puddle. According to Noel Hume (1978, p.124-158), creamware was produced from the 1760s through the 1820s. For Miller (1980, p.2), its invention marked Britain's conquest of the dinnerware market worldwide.

Pearlware – called *branco pérola* (literally, pearl white) in nineteenth-century Brazil (Symanski, 1998) – was a response to the quest for a lighter, whiter *faiança fina*. Production of this ware began around 1779 and is also credited to Josiah Wedgwood (who dubbed it 'pearl white'). Predominant in the nineteenth century, this glaze incorporated a series of technological changes that began in the English industry at the turn of the century and continued from then on. Since color depended upon the tone of the raw material, it was impossible to make the paste any lighter and efforts therefore focused on lightening the glaze by adding cobalt oxide to the formula. After firing, a higher proportion of the glaze would puddle in crevices and produce a blue tint whose tone depended on the percentage of cobalt in the glaze. Generally, the lighter the blue, the closer a piece can be placed to the end of the nineteenth century (Sussman, 1977, p.105-106).

The trend to whiten and lighten *faiança fina* and lessen this bluish cast yielded what archeology has called whiteware, characterized by a transparent glaze that produces extremely white earthenware. Although we do not know the precise date that whiteware was introduced (Miller, 1991, p.2), it may have appeared around the 1810s and become more prevalent as the end of the nineteenth century approached; its popularity has held steady even today because of its low cost (Tocchetto et al., 2001, p.24). It was cheaper partly because a lower proportion of cobalt was used in the glaze; between 1815 and 1830, it supplanted pearlware on the US market (Stelle, 2001).

It should be pointed out that the term 'whiteware' is purely etic, since factories in England continued to refer to it as 'pearlware,' even though the bluish cast was gone. Furthermore, there is no way of knowing whether the archeological definition of pearlware corresponds to the meaning intended by merchants and potters in nineteenth-century England. Nor does the existence of what is called whiteware imply the ultimate demise of pearlware, or of what was understood as such. Miller (1980), in a classic article, criticizes the archeological view of pearlware as something static, which would serve well for the eighteenth century but not for the nineteenth – or, it can be added, for the twentieth – since pearl white, or pearlware, continued to evolve and change.

The identification of these types of glazes is linked directly to the glazing processes that were analyzed at the Petybon site, that is, to the techniques for applying glaze to the body. This attribute was chosen because one of the methods for identifying *faiiança fina* typology is to examine sherds for the tints and hues that are generally more distinct where the liquid glaze puddles on the piece (Bockol, 1995, p.35). At factories, *faiiança fina* glazes are usually in liquid form and are dissolved in water inside of tanks during the glazing process; the glaze can be applied to ceramic pieces by airbrushing, pouring, brushing, or dipping (Fernandez, 1997; Büchler 2004, p.191); it is the last of these techniques that has been identified in analyzed sherds from the Petybon site. According to Fernandez (1997), dipping and pouring are the easiest ways of applying glaze to ceramic pieces, especially in serial production. Dipping the *faiiança fina* bisque<sup>3</sup> into tanks causes more glaze to puddle in crevices, like the feet, joints between wings and walls, deeper areas of decoration in relief, and sometimes areas that tend to run, close to the rims. Firing accentuates the tone of the glaze, which is reflective of one of its components (lead, cobalt, etc.).

Sherds of creamware would thus display a creamier, more yellowish, or more greenish tone given the characteristics of the lead, while cobalt would lend the pearlware a bluish tint; with whiteware, areas that would ordinarily display sharp coloring when the other two glazes are used instead becomes transparent, that is, colorless. However – and Miller himself (1980, p.2) makes this point – since archeology does not submit glaze components to chemical analysis and since identification is based almost exclusively on human visual perception, the distinction between very light pearlware and whiteware is often quite hazy; the question of just how bluish the glaze has to be before it becomes pearlware is a matter of personal opinion, according to Miller.

Furthermore, it is hard to identify many sherds that are not from parts like feet, rims, and handles, which does nothing to facilitate the diagnosis of glaze typology. The discrete attributes that can be identified macroscopically on small sherds generally are not very clear (Stelle, 2001). Sherds are often classified as whiteware because they are white, but this does not preclude their belonging to the category of pearlware, which can only be identified if, for example, the sherd includes an area where glaze puddles, like a foot. This results in misleading analyses that can alter the data; the absence of attributes that would afford more accurate classification induces the conclusion that a sherd belongs to whiteware. When analyzing a collection, one might therefore state that most of the sherds are from whiteware, whereas, in point of fact, it is not possible to identify them. A very clear example of this ambivalence in the identification of *faiiança fina* is found in pieces decorated with ‘flow blue’, since the blue that spreads in the underglaze hinders identification of the subtle blue or transparent tones in puddle areas. The category ‘not identified’ was often used in analyses of the Petybon site in order to avoid misclassification, especially when dealing with sherds. The fact that a sherd cannot be clearly categorized as pearlware does not mean it should be classified as whiteware but rather that it should be marked ‘not identified.’

The ideas presented so far owe much, if not all, to the classifications of *faiiança fina* earthenware found in the US and British literature. However, the analysis of wares from the Petybon site invalidated some of these classifications, especially in regard to information about chronology and provenance based on sherds from archeological sites. If we were to

accept the distinction between pearlware, creamware, and whiteware, most of the analyzed pieces would be classified as pearlware or pearl white. Yet twentieth-century Brazilian *faiiança fina* with pearlish glazes demonstrates that when it comes to Brazilian wares, what is stated in foreign approaches cannot merely be echoed without question. Nor should these approaches be acritically applied to historical nineteenth- and twentieth-century archeological sites in Brazil.

Nevertheless, the definition of pearlware is relatively clear: it is made with cobalt oxide and was produced in England in the nineteenth century and dawn of the twentieth. Brazilian pearlware would push this chronology into the twentieth century and raise questions about status and forms of consumption. However, some samples of wares from the Petybon site were analyzed by the Nuclear Physics Laboratory (Laboratório de Física Nuclear) at Londrina State University (Universidade Estadual de Londrina) in Paraná, under a project coordinated by physicist Carlos Appoloni. Findings indicated that all of the glazes – color variations aside – are the same, composed mostly of lead (Souza, 2010). This means that despite the puddled blue tones, the glazes on the studied wares contain no cobalt. So what we have here is a different glaze, whose identification indicates that glazes cannot be classified as pearlware simply because they are bluish in puddled areas, since lead can also display these characteristics. What is ultimately forgotten is that both creamware and pearlware were made from lead, which is the element that produces the glaze. Cobalt and materials like copper or tin are coloring agents; it is therefore wrong to say that pearlware (as a specific British-produced glaze from a given era) is a cobalt glaze, when it is actually a glaze of lead ‘with’ cobalt.

A hypothetical archeological site, made up solely of movable material, containing undecorated earthenwares (or even wares decorated with wheat or willow patterns), cannot immediately be assigned to the nineteenth century nor can its wares be classified as English. What attributes is this based on? If Brazil produced large quantities of *faiiança fina* wares that resembled pearlware in aesthetic terms, there is no guarantee that the wares from this hypothetical site are necessarily English or from the nineteenth century. Furthermore, the existence of Brazilian wares in the midst of foreign wares shifts the chronology of settlement towards more recent dates, which would not occur if the Brazilian earthenware were not identified. Without this identification, not only would the chronology recede substantially; additionally, any interpretation involving discussions of the socioeconomic status of the consumers of these products would be compromised, since Brazilian *faiiança fina* was a cheaper product that displaced foreign wares from the market in the early twentieth century.

In addition to the characteristics of the coloring and composition of the glazes, this study encompasses the glazing process itself, as mentioned earlier: the application of glaze by dipping, according to a chain of operations comprising a series of gestures. When the bisque is dipped in the tank, the whole surface is coated by the glaze (except where the worker’s fingers touch a piece); from there, it is placed inside a box or refractory sagger in the oven. If the glaze on the surface of the bisque comes in contact with the surface of the sagger during firing, it will stick to the refractory base and the piece will be lost, because it will ‘catch’ at the end of firing. To keep this from happening, the *faiiança fina* earthenware industry had to devise a series of stratagems, like kiln furniture (called *cerâmica*

*de olaria* in Portuguese), and had to add new gestures and techniques to the end of the chain of operations in the glazing process.

During the analysis of artifacts from the Petybon site, it was noted that the refined earthenware did not display a characteristic observed in similar artifacts from other archeological sites, especially from the nineteenth century: earthenware pieces had no circumference of bare, unglazed bisque around the foot. This led to the establishment of the analytical attribute designated 'glazing process.' After being dipped in liquid glaze, the foot of the *faiança fina* (or any other support surface) can be cleaned with a utensil like a sponge or cloth, leaving an unglazed ring of bare bisque. The purpose of this ring is to keep the glazed wares from sticking to the refractory sagger during the second firing.

Brazilian porcelain factories use this method today. However, except for some producers that still rely on artisanal methods, large producers like Schmidt, Oxford and Pozzani employ machines: "a small machine with a wet foam or rubber belt moving around rollers. The piece passes over it and its foot is quickly cleaned" (Fernandez, 1997, p.XX). The difference is that the circumference of these wares is quite symmetrical, unlike handmade pieces, such as those made by Porcelana Monte Sião, a factory in the state of Minas Gerais that is still in operation. This suggests a possible attribute for determining chronology, since the introduction of machinery to the glazing process has been specifically dated (it is believed to have occurred around World War II or, at the latest, in the 1970s), which would help determine the *terminus post quem*<sup>4</sup> of the settlement of an archeological site. However, most earthenware from the Fábrica Santa Catharina/IRFM – São Paulo does not display this characteristic. The entire surface of the pieces is instead covered with glaze. So what was the glazing process? Why change the process?

### **To avoid crazing**

Research showed that one of the reasons – and perhaps the main one – for changing the glazing process was the effort to avoid crazing. In Brazil, the term *gretamento* ('crazing' in English) comes from the field of materials engineering and refers to the effect that moisture expansion (ME) can have on glazed pieces; "moisture expansion" means the "expansion suffered by ceramic materials when in contact with water in its liquid or vapor form" (Menezes et al., 2006, p.1). The result is the formation of cracks or fissures in the glaze that can often harbor organic residue<sup>5</sup> if the vessel is used for food; the vessel may consequently be discarded<sup>6</sup>, since residue can build up in the spaces between the cracks and darken them, lending the vessel a dirty appearance. In the case of earthenware, crazing only occurs when the bisque of a porous vitrified piece is left bare, that is, in contact with the environment. This is the only way the paste – composed basically of clay and highly plastic China clay – can absorb moisture and thus expand. Glaze has a much lower coefficient of expansion than clay, rather like glass, and as it cannot withstand even the relatively minute expansion of the claybody, it will crack.

As a consequence, earthenware that has no bare bisque around the foot – because of changes in certain aspects of the glazing process – will not craze in response to ME and is less likely to be discarded. Yet we know that other techniques were developed to avoid the

problem and to minimize ME in final products. Fábrica Santa Catharina/IRFM – São Paulo took measures to reduce the possibility that water would come in contact with the inside of the microstructure of the material, with the intent of decreasing ME in its ceramic bodies (Menezes et al., 2006, p.13). The Fábrica apparently tried to solve the problem by devising an entire apparatus for supporting the earthenware inside the refractory saggars during the second firing, that is, the kiln furniture mentioned earlier, which consisted of saddles, thimbles, and stilts, all made from *faiança fina*.

The use of stilts, for example, dispensed with the need to remove glaze from the foot or rim of hollowware, thereby ensuring that no bisque would be left bare, reducing the chances of crazing. This is different, for example, from the process employed today at Porcelana Monte Sião, which uses small unglazed discs – made from the same paste as its earthenware – as stilts for bowls in the saggars that go into the oven. In this process, the glaze is removed from the rim and foot of the bowls (although no crazing occurs since the paste is made of Brazilian porcelain). Ceramicists generally disparage the removal of glaze from the rim, since the ceramic will be left vulnerable to the absorption of food residue, especially liquids. This, according to Bockol (1995), degrades the quality of the earthenware.

In addition to changing glazing processes to avoid crazing, the Fábrica Santa Catharina may have attempted to avert ME by altering the composition of the *faiança fina* paste. Some additives, like calcium and magnesium carbonates, can reduce ME when used in certain quantities in the claybody. Researchers have also observed that adding 15% calcite to the paste practically eliminates the phenomenon; however, using higher percentages (20% and 25%) encourages ME, probably because of the presence of free CaO, which reacts with water, first hydrating and then expanding (Menezes et al., 2006, p.6).

Romeo Ranzini, one of the founders of the factory under study, kept a notebook (part of the Museu Paulista collection) where he recorded data on the production of earthenware and new paste formulas, including notes on many attempts to arrive at innovative compositions; these notes indicate that Ranzini himself added calcite to the pastes. Although his notebook corresponds to the era of the new earthenware factory, which opened in Osasco in the 1940s, it is believed that this knowledge was also used at Santa Catharina/IRFM – São Paulo, because some sherds found at the Petybon site, with bare bisque showing at the site of fractures, are nevertheless not crazed, and this may reflect some change in paste composition. On one page in the notebook we find the following comments about a paste:

washed calci[ned] kaolin	200 fr
[washed kaolin] cm [sic]	500 fr
[washed kaolin] white	f. 300
feldspar ortage [sic]	1400
chrome porcelain	250
quartz	700
brown clay	9.50
black c[lay]	350
calcite	50

Source: Caderneta de anotações, s.d. (Coleção Ranzini, Acervo Museu Paulista/USP)



In another notebook, begun in 1939 and likewise part of the Museu Paulista collection, Ranzini describes his efforts to determine the precise percentage of calcite in the earthenware paste. As mentioned earlier, it is known that calcite decreases ME and, ergo, subsequent crazing as well. In this excerpt, Ranzini wrote *Marca C* (C Mark), perhaps a reference to a mark left on the wares themselves that would allow for their identification post-firing. The following notes appear:

Clay paste with calcite:

I did an experiment on 08/26/46.

Mark 'C'. In 4 kilos of clay (moist clay from the kneader), 200g of calcite, which corresp[onds] roughly to 5%. Result: It's very good, tough, with a wonderful grain, doesn't warp, even though it's tough, it doesn't 'catch' the varnish. Now I will repeat it, but with only 2% calcite in 5 kilos of nearly dry paste.

Source: Caderneta de anotações, s.d. (Coleção Ranzini, Acervo Museu Paulista/USP)

Detected through an analysis of archeological material, the relationship between glazes and crazing raised questions about changes in glazing practices as compared with the 'traditional' glazing – if one can use this expression – of earthenware from other archeological sites, especially those from the nineteenth century or turn of the twentieth.

### **The hygienist context**

These changes, along with the use of kiln furniture to avoid ME and hence crazing, apparently tie in with a broader context: the issue of hygiene. We found that the phenomenon of ME in clay products is originally discussed in the ceramics literature around 1926, although references to the phenomenon in bricks date to 1907 (Menezes et al., 2006, p.3). It was only in 1928 that H.G. Schurecht concluded that crazing was caused by the expansion of the claybody and not by fatigue failure on the part of the glaze. According to Menezes et al. (2006, p.3), from 1926 to 1952, 37 articles on ME in claybodies were published, especially concerned with crazing of earthenware and coatings.

Concern over crazing in refined earthenware intensified in the early twentieth century, although the issue probably first arose in the nineteenth century – if not earlier – as *faiança fina* became more popular. However, it is believed that the problem really began to impact production in the late nineteenth century, when consumers and producers started drawing a link between this issue and new concepts in hygiene as well as product cost. Absent crazing, the product lasts longer and does not look 'dirty,' using the latter term as it came to be understood then.

After all, one of the effects of adding a glaze to the surface of ceramics is precisely to make it easier to clean any residue that might stick to the walls were the ware to be left in porous bisque form. The purpose of a glaze is to leave a hard, impermeable, insoluble surface after firing, which facilitates the removal of dirt and enhances the artifact's mechanical and chemical resistance (Büchler, 2004, p.111). By decreasing permeability, the glaze " like other surface treatment of ceramics, such as burnishing " increases the piece's density and serves as a barrier against penetration (Rice, 1987, p.231). Glaze, according to

Rice (p.232), is the most extreme example of the effort to achieve impermeable ceramics, by blocking the penetration of food residue and facilitating cleaning.

With the establishment of new hygienic behaviors, such as the practice of washing household utensils in water – first in fountains and rivers and later under tap water – a demand was created that white earthenware in the form of *faiança fina* seemed perfectly suited to meet. As hygienization precepts spread and family health garnered greater attention, the signs of a clean house acquired an importance that simply was not there before (Carvalho, 2008, p.191) and changed the ways earthenware and pots and pans were kept clean. Moreover, their white surface made it possible to see ‘dirt’ that would otherwise be overlooked on the dark surfaces of common ceramics. Glaze thus gained an important role as a vector of cleanability<sup>7</sup> in this new climate of concern with asepsis. It should therefore be kept in mind that this change in the glazing process that was applied to wares made by Fábrica Santa Catharina/IRFM – São Paulo was concomitant with scientific concerns over crazing and with the hygienist discourses sweeping the city, all three factors serving to reinforce one another.

The late nineteenth century ushered in a period of hygienist discourses and practices that proposed diagnoses, forms of prophylaxis, and treatments for diseases which had become rampant in the urban centers of Southeast Brazil during an era of great political turmoil, waves of immigration, and the impact of the coffee crisis (Benchimol, 2003, p.250). One striking example was the 1904 eruption of the Vaccine Rebellion, which occurred after a battle against smallpox had been declared in the city of Rio de Janeiro and vaccination and revaccination against the illness was made mandatory throughout Brazil; this was accompanied by the ‘military’ methods of persuasion used by Oswaldo Cruz and other hygienists. The Spanish flu epidemic that struck São Paulo in 1918 also merits mention (Bertucci-Martins, 2003).

As an ideology, hygienism embodied “a set of principles that were intended to lead the country towards ‘truth’ and ‘civilization’, and this implied the depoliticization of historical reality and the a priori legitimization of public policy decisions to be applied to the urban realm” (Chalhoub, 2006, p.35). According to Benchimol (2003), the hygienists were the first to articulate a discourse about living conditions in urban centers and to propose interventions of a more or less drastic nature in order to restore equilibrium to these urban ‘organisms.’ Streets and public spaces, for example, were the sites of a heated battle against filth (since miasmas were free to roam through the air).

The hygienist ideology meshed well with segregating measures meant to foster sanitation and the beautification of cities, which gave rise to many urban reforms; these included the construction of broad avenues, the containment of plantlife, and the reclamation of wet areas and draining of swamps, since the latter were seen as foci and disseminators of the much-feared miasmas, or pestilent gases. Outbreaks of epidemics like Spanish flu or smallpox simply corroborated the theses held by public hygiene physicians, who argued that the causes of these diseases could be traced to people’s “organic predisposition” to them or to the environment itself (Benchimol, 2003, p.238).

In this setting, new conceptions were forged about what was considered ‘dirt’ and a focus of disease proliferation. Social medicine intervened directly in public spaces and in

the population's behavior and customs, defining norms – and deviations from these norms – about what was hygienic and good for the progress of the city and its residents. According to Denise Sant'Anna (2007, p.127), the “first aspect of São Paulo reality as far as sensibilities towards dirt ... is defined by historically produced notions about the danger posed by everything that was considered a focus of miasmas.” The age of the laboratory and of invisible beings, as Marta de Almeida (2003, p.47) has put it, bred an understanding that the focal point of a disease could be anywhere, even in the smallest everyday artifacts, like dishes. The use of glazes and enamels and the decreased use of unglazed pieces responded to the hygienist policy intention of changing habits believed ‘harmful’ within private domestic environments, to which hygienists themselves often had no access.

For São Paulo, the arrival of glazed earthenware probably altered many habits and customs. In a study of eighteenth- and nineteenth-century wares from the archeological sites of Solar da Marquesa, Beco do Pinto, and Casa n.1, Marcos Carvalho (2003, p.85) detected a declining use of ceramics over the course of the nineteenth century, together with increased consumption of earthenware, decreased faiences, and a shifting of these into kitchen spaces. The spread of hygienist discourses apparently boosted demand for glazed ceramics, *faiança fina* wares, and even enameled cast iron, with ideas about impurity often tied to fears about a lack of civilization (Sant'Anna, 2007, p.227). Many objects were thus accused of harboring the invisible beings that transmitted diseases, especially more porous materials affected by humidity, like wood, clay, and unglazed ceramics. In the early decades of the twentieth century, earthenware in São Paulo belonged to the set of “icons of asepsis” (Carvalho, 2008, p.288), which found its way into discourses about the quest to disinfect environments.

For a population that still relied heavily on ceramics, and that only began to consume white wares when their price dropped, thanks to national production, the switch from ‘simple’ ceramics to refined earthenware affected the usual ways of cleaning and caring for these objects, as enamel coatings and glazes greatly facilitated surface cleaning. It was at this time that São Paulo homes began to display a predominant proportion of objects with washable surfaces, reflecting an effort to apply the ideal model of a sterilized, aseptic medical office to homes and to everyday places, like bars (Carvalho, 2008, p.259).

The very design of *faiança fina* earthenware, as well as its surface and color, fit in perfectly with these new needs, which developed in the context of the public's new hygienic behavior. For example, the impression of lightness, brightness, and whiteness that was conveyed by white earthenware was consonant with concerns about the growth of foci of miasmas and the recently discovered microbes, those invisible beings that proliferated amidst organic matter. The cracks in the glazes on *faiança fina* were a prime location for these pestilent creatures, and the white color of the ware would only emphasize the darkened crazing. According to Vânia Carvalho (2008, p.286), the European idea that white was a sign of cleanliness took firmer root in São Paulo from the close of the nineteenth to the start of the twentieth centuries: “white is the cleanliness that you can see.” Still, it should be pointed out that the trend to ‘whiten’ earthenware started in the mid-nineteenth century; by about the 1870s, the vast majority of wares were already white. This ‘precedent,’ in a manner of speaking, influenced both the Brazilian factory option to produce *faiança fina*

and also the public's acceptance of the product. But when the twentieth century arrived, this lightening gained a new weight and meaning. In the context of the advent of microbiology (Sant'Anna, 2007, p.193), bacteriology (Almeida, 2003, p.43), and the identification of the etiological agents of infectious diseases, it was ever more fervently believed that danger lurked literally all around, spurring the development of many methods of immunizing against and fighting vectors and their natural reservoirs (Luca, 1999, p.204). It is therefore possible that the dirty cracks on earthenware glazes were added to the roll of natural reservoirs of disease vectors, thereby creating a growing demand for objects with enameled or glazed surfaces that preferably did not craze. Many Brazilian hygienist physicians, like doctor Bráulio Gomes of the São Paulo Hygiene Commission (Comissão de Higiene de São Paulo) insisted in the early 1890s that earthenware be used instead of copper or wood to manufacture toilet bowls because it was easy to clean (Sant'Anna, 2007, p.192-193). The need for glazed surfaces went beyond ceramics. At the outset of the twentieth century, it was recommended that in the homes of São Paulo's elites the 'hygienic room' – according to manuals on civility – be furnished with a bed, sofa, chair, nightstand, and vanity, which "should be painted with enamel, preferably bluish-white or pink" (Carvalho, 2008, p.160), thus applying hygienist precepts to habits that were deemed 'refined.'

The poet and journalist Guilherme de Almeida, writing under the code name Urbano, offers a tongue-in-cheek documentation of this process. In 1926 and 1927 (the years that the Matarazzo family took over the Fábrica Santa Catharina), Guilherme de Almeida was hired to write the complaints section of the newspaper *Diário Nacional*. On Tuesday, July 21, 1927, the journalist's column featured a 'realistic snapshot' – to borrow the words of Frederico Barros (Almeida, 2004) – of the near paranoia surrounding enamels and whiteness, and the aseptic look it lent material, all pieces in the battle against the microbes and beings that transmitted contagious diseases:

One day a terrible epidemic began to sweep through the Triangle: the white epidemic. "Ripolin,"<sup>8</sup> "Chi-Namel,"<sup>9</sup> all varieties of white enamel – the frightful microbe! – started wreaking their dreadful havoc. Everything was glazed. One of the prime victims – I remember it well – was the very popular café on 15 de Novembro street: the walls, tables, ceiling, lights, cups, and the waiters' faces were all enameled over; even the face and hands of a poor wooden clock, which, hanging over the entrance, marked the good lives of its subjects. Indignant, disgusted with this mockery, the clock stopped.

Suddenly, café owners started to realize they had made an appalling mistake; with everything painted a joyful white, the clientele, in contrast, grew steadily darker and sadder. Overcome by a wild hatred of their own color, they fled in terror from those hospital-like environments... (Almeida, 2004, p.14-15).

This meant that the growing popularity of the paste used in Brazilian *faiança fina* and the cheapening of the product in Brazil coincided precisely with the hygienist drive and the production of aseptic materials, through discourses that reached all strata of the population. As the very history of *faiança fina* wares in Brazil tells us, the early twentieth century witnessed growing demand for white products. It must be remembered that this whitening not only of the glaze but of the paste itself and the smaller area covered by

decorations on the claybody increased from the end of the nineteenth century to the beginning of the twentieth. According to Miller (1980, p.17), the reasons for the gradual whitening of the blue tone in the glazes on *faiança fina* are not very clear, and potters apparently made no distinction between whiteware and pearlware.

However, at least in Brazil, it can be noted that the whitening of earthenware (and the preservation of this whitening) was not tied solely to efforts to lighten the glaze and paste but also to 'clean' the consumer's visual field, decreasing the size of decorations and the area they covered on pieces. For Tania Andrade Lima (1996), the second half of the nineteenth century saw a preference for white tableware, with decoration in discrete relief or with fillets, bands, or ribbons on the rims – something quite common on refined earthenware from the Petybon site and also very common nowadays, especially in restaurant wares. This is what Gosden (2005, p.207) has called a link between the sensory properties of ceramics, particularly color, and other elements of context and landscape.

The lightening of earthenware thus accompanied the hygienist movements in São Paulo at the close of the nineteenth and start of the twentieth centuries, part and parcel of an "epidemic" – to use Guilherme de Almeida's term – that merged the notions of white, light, clean, and aseptic. Against this backdrop, new definitions and understandings of 'dirt' and 'clean' emerged. The relation between these definitions and objects of daily use also changed, as the latter were assigned to the scope of artifacts that could be the focus of new epidemic waves. If cracks in the glaze on Portuguese faiences or the *faiança fina* refined earthenwares imported in the early nineteenth century presented no threat of spreading disease-causing microbes (indeed, the latter hadn't even been discovered yet), by the close of the nineteenth and dawn of the twentieth centuries, the crazing of *faiança fina* may have given the impression that it presented a problematic focus for the proliferation of transmitting bacteria. Brazilian *faiança fina*, then taking its very first steps as an industry, developed in the context of these needs.

Hygienist ideology – as a normative discourse and as a project of modernity for a share of the elite, who often times had ties to industrial sectors, including therein the Fagundes and Matarazzo families, owners of Fábrica Santa Catharina – endeavored to change old habits that were judged 'uncivilized' and colonial and to transform some of the customs practiced by most people in the city of São Paulo in order to promote 'progress.' This extended to taverns and bars, which also consumed earthenware. Let us return once again to Guilherme de Almeida's text, which is a document that evinces the intervention of hygiene policies in a specific bar, located on 15 de Novembro street downtown. According to Sant'Anna (2007, p.134), starting in the 1850s, the press repeatedly published praise of cafés, restaurants, and pastry shops that complied with certain standards of hygiene, like washing floors and objects with soap and water. On the other hand, there were criticisms of taverns and bars that became labeled "pestilent bars, taverns, dives, filthy shameless places given over to vice and decadence" in the first decades of the twentieth century. We can only imagine how the practice of drinking from cups or bowls with black, darkened cracks came to be seen in these places.

Using these disciplinary measures, hygienist discourse also moved into kitchens, where changes were driven by new health concepts; efforts were made to introject concepts of

order and cleanliness (naturally triggering a series of actions and reactions), which were precepts dear to factory ideology and to ways of rationalizing labor. According to Carvalho (2008, p.250), the hygienist approach that sought to disinfect the environment stretched into all rooms of the home, and in order to ‘modernize’ the kitchen, it would be necessary to incorporate the scientific discoveries of medicine. This spawned widespread efforts to tile the kitchens of ‘modern’ houses in white, along with recommendations to give preference to the use of pots and pans made of iron, enamel, or glass, once again underscoring the need to use washable aseptic surfaces like those of white earthenware. Use of white dishes in the kitchen became extremely common then, for example, in the form of serving wares like soup tureens, weaving a web of dialogue between food in the pot, its path to the table, and the consumption of what lay inside.

### Final considerations

According to Tânia de Luca (1999, p.206), “hygiene” made its way into people’s daily lives with “airs of scientificism, inspecting, watching over, and controlling through norms, precautions, and recommendations” about these daily lives, which included eating practices and the objects that held food, that is, earthenware and ceramics. Sharing some of this hygienist ideology, the owners of various factories in São Paulo, who built projects of modernity for the city, incentivized the production of more aseptic utensils. The popularization of Brazilian *faiança fina* and, later, of Brazilian porcelain found a welcoming space that responded to the demand for aseptic, cleanable objects. Why shouldn’t we suggest that the plans to inculcate the use of earthenware among the people of São Paulo, preventing surface cracking through new production methods, and also to stimulate the consumption of glazed and enameled objects, bringing their costs down through national production, were components of a bigger endeavor to fight foci of microbe and bacteria proliferation, of which ceramics were a part?

Employing a glazing process that involved the use of thimbles, stilts, and saddles, the Fábrica Santa Catharina/IRFM – São Paulo attempted to prevent the crazing of *faiança fina* by using a glazing and firing method that would not leave areas of bare bisque. Without bare bisque, the wares did not absorb moisture and the paste did not expand and crack the glaze. In this sense, the Fábrica apparently met a demand of its times, which was for more durable earthenware with glazed, washable, and much more aseptic surfaces, within the hygienist context that forcefully introduced its practices among the public in the city of São Paulo from the 1910s to the 1930s.

### NOTES

<sup>1</sup> In this and other citations of texts from non-English languages, a free translation has been provided.

<sup>2</sup> In Brazil, on the other hand, the system for classifying these categories is based first on their paste and then on classifications related to glazing; this is the case of the category known in Brazilian archeology as *faiança fina* (fine faience), which comprises pearlware along with creamware and whiteware.

<sup>3</sup> Biscuit or bisque (*biscoito* in Brazilian Portuguese) is the term for the earthenware prior to glaze application; it therefore is quite porous, with hard paste.

<sup>4</sup> The expression *terminus post quem* refers to a practice of historical archeology that is used to date the approximate onset of settlement of an area, based on the sherds found there. It takes into account the initial date of production of the oldest artifact present in the sample as the earliest possible date for the beginning of the formation of the archeological deposit.

<sup>5</sup> However, the accumulation of such residue affords archeology the opportunity to analyze the remains of food on earthenware, an aspect that has been little explored owing precisely to the ware's lack of porosity after glazing. Neale (2000, p.58) suggests that many of the marks found between the glaze and the paste, or in crazings, may be the remains of fat that ran underneath the glaze. A more detailed analysis of these marks of use is vital.

<sup>6</sup> This allows us to consider why pieces found in household contexts were discarded. If the glaze on fine faience ware was such that it did not leave bare bisque, the piece had either been discarded because it had chipped somewhere and moisture had then caused crazing, leaving dark (dirty?) cracks (and this may be related to the use of pieces that were damaged but nevertheless not replaced), or the crazing occurred after deposition, if, within the archeological context, the piece was broken and crazing therefore had not been the reason for its being discarded.

<sup>7</sup> I use the term cleanability (*limpabilidade*) based on the studies of ceramic coatings conducted by Timellini and Carani (1997, p.17), according to whom cleanability is "the ease and efficiency with which dirt, spots, or other materials that come in contact with the surface of the bottom or wall may be removed, thus restoring the surface to the functional and aesthetic characteristics displayed prior to sullyng, since [cleanability] cannot be considered an 'intrinsic' property of ceramic coatings but must be measured and characterized."

<sup>8</sup> This is a reference to the Portuguese paint company Ripolin, founded in 1888 in Lisbon and still in existence today; it specializes in enamels, paints, and varnishes.

<sup>9</sup> A type of wood varnish manufactured by Ohio Varnish Co., in the US.

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