

ALESSANDRA ROSADO*

Conservation Science Laboratory (LACICOR)
Center for Conservation and Restoration
of Cultural Movable Properties (CECOR)
School of Fine Arts
Federal University of Minas Gerais, Brazil
alessandra-rosado@eba.ufmg.br

LUIZ A.C. SOUZA

Conservation Science Laboratory (LACICOR)
Center for Conservation and Restoration
of Cultural Movable Properties (CECOR)
School of Fine Arts
Federal University of Minas Gerais, Brazil
luiz-souza@ufmg.br

EDSON MOTTA JR

School of Fine Arts
Federal University of Rio de Janeiro, Brazil
edson.motta@terra.com.br

CLÁUDIO V. TEIXEIRA

Centro de Conservação de Bens Culturais
Rio de Janeiro, Brazil
clthteixeira@infolink.com.br

JOÃO CANDIDO PORTINARI

Pontifícia Universidade Católica
do Rio de Janeiro
Rio de Janeiro, Brazil

portinari@portinari.org.br

ISOLDA C. MENDES

Conservation Science Laboratory (LACICOR)
Center for Conservation and Restoration
of Cultural Movable Properties (CECOR)
School of Fine Arts

Federal University of Minas Gerais, Brazil
isolda.mendes@terra.com.br

*Author for correspondence

CANDIDO PORTINARI: MATERIALS AND TECHNIQUES OF A BRAZILIAN MODERN PAINTER – PART I

Keywords: Brazilian Modernism, materials, techniques, history, Candido Portinari

ABSTRACT

Brazilian Modernism began in the 1920s as both a social and artistic movement, with a valorization of essential aspects of the Brazilian popular and ethnic culture related to the construction of the Brazilian national identity. Within this context, Candido Portinari's paintings reveal particular characteristics of the development of Brazilian identity. His paintings present innovative and pioneering aspects in the formation of a visual repertoire strongly linked to the Brazilian reality. However, the technical and material aspects of his paintings are very consistent with the use of oils and pigments employed in Europe at the time. This paper seeks to deepen the knowledge of Portinari's work in terms of materials and techniques. Through the methods of art technological source research and scientific analysis, it complements the extensive work already published in the *catalogue raisonné* of Candido Portinari.

RÉSUMÉ

Le modernisme brésilien a débuté dans les années 1920 sous la forme d'un mouvement social et artistique, qui mettait en valeur les principaux aspects de la culture populaire et ethnique brésilienne liés à la construction de l'identité nationale brésilienne. Dans ce contexte, les peintures de Candido Portinari révèlent certaines caractéristiques du développement de cette identité. Ses tableaux incluent des aspects innovants et avant-gardistes à travers l'élaboration d'un répertoire visuel fortement lié à la réalité brésilienne. Cependant, les techniques et les matériaux qu'il emploie dans ses tableaux restent très semblables aux huiles et pigments employés à la même époque en Europe. Cet article vise à approfondir la connaissance du travail de

INTRODUCTION

The catalogue raisonné of Candido Portinari was published in 2004 in Brazil. It is the first catalogue raisonné published in the Southern Hemisphere. The catalogue is the product of the inventory project undertaken on the work of the artist by the Portinari Project (<http://www.portinari.org.br>), coordinated by Prof. João Candido Portinari, the painter's son. The project was conceived in the 1980s, after the recognition that knowledge of the work of this important modernist Brazilian painter was disappearing due to the lack of a catalogue of his work, ignorance of the location of Portinari's paintings throughout the world and also the scarcity of published information concerning his life and work. The five volumes of the catalogue comprise more than 5,000 pages dedicated to the work of the painter and are focused on historical, documentary and stylistic aspects.

This paper complements the information made available in the catalogue raisonné by employing technical art history to examine the formal, stylistic and historical evaluation of the artist's use of materials with the physico-chemical analysis of representative works. Materials analysis is in progress; thus, this paper focuses on historical and documentary evidence, including interviews with the artist's assistants. By doing so, it aims to fill a gap which is fundamental for a complete knowledge of the painter's work.

A BRIEF HISTORY OF PORTINARI'S CAREER AND STYLISTIC DEVELOPMENT

Portinari's artistic career spanned a time of sweeping changes in the visual arts – the Muralist Movement, Surrealism, Futurism, Cubism, Abstractionism – and of social, economic and political instability. It was also a period marked by two world wars, often seen as the backdrop for the analysis of Portinari's art (Fabris 1990).

Portinari's early education at the *Liceu de Artes e Ofícios* (Lyceum of Arts and Crafts) and then at the *Escola Nacional de Belas Artes* (ENBA, National School of Fine Arts) started in 1921. Although devoid of support or connections with the ruling class, his background as the son of modest immigrants from the Italian countryside of São Paulo was not an obstacle to the development of his career (Miceli 1996). During his eight years at ENBA there are records of his participations in the annual salons that

Portinari du point de vue des matériaux et des techniques. Grâce aux méthodes de la recherche des sources techniques artistiques et de l'analyse scientifique, il complète le travail complet déjà publié dans le catalogue raisonné de Candido Portinari.

RESUMEN

El modernismo brasileño nació en los años 1920 como un movimiento tanto social como artístico, con una valoración de los aspectos esenciales de la cultura brasileña popular y étnica relacionados con la construcción de la identidad nacional brasileña. Dentro de este contexto, los cuadros de Candido Portinari revelan características particulares del desarrollo de la identidad brasileña. Sus cuadros presentan aspectos innovadores y pioneros en la formación de un repertorio visual fuertemente vinculado a la realidad brasileña. Sin embargo, los aspectos técnicos y materiales de sus cuadros son muy congruentes con el uso de aceites y pigmentos empleados en Europa en aquellos tiempos. Este artículo pretende profundizar en los conocimientos del trabajo de Portinari en relación con los materiales y las técnicas. Los métodos de investigación a partir de fuentes tecnológicas sobre arte y los análisis científicos complementan el extenso trabajo ya publicado en el catálogo razonado de Candido Portinari

earned him honors, medals, cash prizes, media attention and in 1928, the coveted prize, the *Prêmio de Viagem* (Valle 2008).

In order to have his work accepted by the panel of judges of the XXXV General Exhibition of Fine Arts – competing for the *Prêmio Viagem* –, Portinari adopted the academic conventions of ENBA in his realist portrait of the poet Olegário Mariano. It appears that Portinari was quite aware of the rules and academic standards.

During the period that Portinari studied in Rio de Janeiro (1919–1928), his work was labeled as academic by many historians and art critics. However, he was never the kind of student who passively followed ENBA principles; for example, the painting entitled *Baile na Roça* (1923–1924) (Figure 1) was not accepted in the Salon of 1924, as its Brazilian theme broke away from conventional subjects (historical and biblical) dictated by the official institutions of arts education.

Moreover, some of his ENBA professors were not strictly academic, such as his painting professor Batista da Costa (whose landscape compositions were of Brazilian scenes with realistic aspirations) and the professors Rodolfo de Amoedo and Lucilio de Albuquerque (who produced works of Impressionist style) and should therefore be considered pre-modernists.

It appears that the environment in which the artist was trained did influence him; however, there was still room for individual freedom.

The technical virtuosity and creative spirit of Portinari have always been recognized by the authors who wrote about him. Mário de Andrade (1984) described him as ‘the artist who adds to the artisan’. To define Portinari stylistically is not an easy task because, due to his character, open to new experiences and discoveries, the artist goes from one expression to another, making for example, various expressions converge in the same period (Fabris 1990).

In the 1930s, his production concentrated in the portrait genre. Portinari was welcomed by modern critics, especially by Mário de Andrade and Oswald de Andrade, who defined him as an artist at the same time classic and modern due to his expressionist style that is associated with a deep knowledge of academic drawing. In 1935, the work *Café* (Figures 2 and 3) was awarded Honorable Mention in the exhibition at the Carnegie Institute of Pittsburgh in the United States. This award gave Portinari international recognition and also reaffirmed his future as a muralist painter.

The themes associated with Brazilian workers were predominant during the 1940s (when Portinari became renowned in the genre of artistic productions of nationalist approach), and in the 1950s his extensive output was based on social themes and Brazilian culture. During this time, he was also criticized for being a painter who supported the regime after painting two panels entitled *Guerra e Paz*, commissioned by the Brazilian government for the UN headquarters in New York.



Figure 1

Portinari, *Baile na Roça*, 1924, oil on canvas, Portinari Project

In the 1960s, one can observe themes that were more introspective and related to the artist's personal life. In this period, he tried to adapt his techniques and materials (by using less toxic paints, discussed below) due to his physical disabilities that led to his death in 1962.

Portinari was not an artist who produced art simply to serve the Brazilian political system. The themes of his work portray his critical interpretation of Brazilian reality, and do not at all relate to the official self-complacency and ideals. He used paints traditionally used in oil painting to express his unique art and style through his own interpretation of the classic, expressionist, cubist, surrealist and other styles current in Europe, whose material characteristics can be studied through the methodology of technical art history.

METHODS OF STUDY

The methodological approach for the technical study of Portinari's work is as follows:

- careful examination and evaluation of information available in the archives of the Portinari Project and of the files of the *Museu Nacional de Belas Artes*, both in Rio de Janeiro
- interviews with the painter's assistants, Mr. Enrico Bianco (interviewed in July 2010 at the artist's house in Rio de Janeiro), Mr. Luiz Ventura (interviewed on May 17 2010)
- testimonials of the painter's assistants, Rosalina Azevedo Leão, Israel Pedrosa Teresa Nicolao e José Moraes, and of Portinari Project executives, Dr. João Candido Portinari (project director and professor at the Catholic University in Rio de Janeiro) and historian Christina Penna (former coordinator of the Portinari Project), collected in the file of the Portinari Project in July 2010
- study of the artistic and technical training Portinari received at the ENBA in Rio de Janeiro, the aesthetic and technical influences of his teachers and also the influences he received after his study trip to Europe (National Prize in Brazil)
- survey of suppliers of artists' materials in Rio de Janeiro, 1900–1975, especially *Casa Cavalier*
- in situ physico-chemical analysis with a portable X-ray fluorescence spectrometer (EDXRF) of 14 selected paintings available at the collections of the Castro Maya Museums, National Museum of Fine Arts, Rio de Janeiro and of selected works from private collections made available at the studio of conservator Cláudio Valério Teixeira in Niterói (chosen as representative of the painter's style and certain periods of production); complementary analysis of paint samples with Fourier transform infrared spectroscopy (FTIR); Raman spectroscopy; gas-chromatography; polarized light microscopy (PLM) (in progress)



Figure 2

Portinari, *Café*, 1935, oil on canvas, Portinari Project

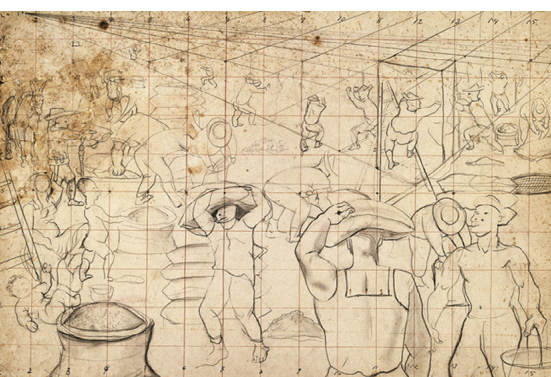


Figure 3

Portinari, *Café*, 1935, drawing in graphite and ink pen on paper, Portinari Project

- digital scientific imaging documentation of the paintings studied, under visible, infrared, UV light and surface USB surface microscopy, as well as by X-radiography.

The 14 paintings studied, with the exception of the landscape *Floresta* (1938), the still lifes *Flores* (1947) and *Sonho* (1958), which are compositions with surrealistic characteristics, can be considered as representative of the central axis of Portinari's iconographic program, as shown in Table 1.

Table 1

Paintings representative of Portinari's iconographic program and stylistic variations

Portinari's Iconographic Program	Representative paintings, dates and techniques (with the weblink to directly access the painting picture at the site Projeto Portinari)	Stylistic variations
Portraits	Retrato de Olegário Mariano, 1928, oil on canvas, 198 × 65.3cm (http://www.portinari.org.br/IMGs/jpgobras/OAa_1192.JPG) Retrato de Maria 1932, oil on canvas, 101 × 82 cm (http://www.portinari.org.br/IMGs/jpgobras/OAa_1193.JPG)	These portraits are based on classical European composition.
Labours	A Barca, 1941, oil on canvas, 200 × 200 cm (http://www.portinari.org.br/IMGs/jpgobras/OAa_1201.JPG)	Composition of cubist inspiration.
	Lavadeiras, 1943, oil on canvas, 55 × 46 cm (http://www.portinari.org.br/IMGs/jpgobras/OAa_1203.JPG)	Composition with impressionist inspiration.
	Café, 1935, oil on canvas, 130 × 195 cm (http://www.portinari.org.br/IMGs/jpgobras/OAa_1191.JPG)	Original Portinari's composition when representing common Brazilian workers, by the use of a expressionist deformation and a substantial relative disproportion of the hands and feet.
Representative scene of the worker's social environment	Baile na Roça, 1924, oil on canvas, 97 × 134 cm (http://www.portinari.org.br/IMGs/jpgobras/OAa_2305.JPG)	Composition chromatically close to impressionist style.
Childhood scenes	Praça de Brodowski, 1939, oil on canvas, 46 × 55 cm (http://www.portinari.org.br/IMGs/jpgobras/OAa_1142.JPG)	Composition with expressionist inspiration.
	Grupo de Meninas, 1940, oil on canvas, 100 × 80 cm (http://www.portinari.org.br/IMGs/jpgobras/OAa_1202.JPG)	Composition with expressionist inspiration.
	Menino com Pião, 1947, oil on canvas, 65 × 54 cm (http://www.portinari.org.br/IMGs/jpgobras/OAa_1204.JPG)	The three compositions representing the kid explore some stylistic tools from the cubism spatial distribution, but with another aim, practically transforming the cubist effects into a decorative aspect at the painting.
	Menino com chapéu de papel, 1951, oil on canvas, 48 × 38 cm (http://www.portinari.org.br/IMGs/jpgobras/OAa_1194.JPG)	
	Menino com carneiro, 1953, oil on canvas, 46 × 26 cm (http://www.portinari.org.br/IMGs/jpgobras/OAa_1206.JPG)	

The paintings chosen for this study represent a mosaic of Portinari's technical experiences which are not necessarily chronologically related, since his several plastic interpretations and expressions sometimes happen at the same time. The classification of Portinari's work based on his iconographic program facilitates the understanding of his constant technical experimental activities and diversity of stylistic expressions.

EXPERIMENTAL RESULTS

Most of the preliminary experimental results presented here (Table 2) arise from documentary evidence identified and collected in the Portinari Project files, together with oral information obtained through an interview with the artist's assistants, Mr. Enrico Bianco and Luiz Ventura. Some experimental results obtained from the analytical work are already available; however, the focus of this paper in particular relates to the documentary, historic and oral evidence, which provide the fundamental basis for the technical art historical investigations.

Table 2

Results of the historical, documentary and oral interview methods used for the preliminary identification of Portinari's materials and techniques

Information Sources	Painting strata	Results
Archival research and interviews with the painter's assistants and the Project Portinari files	Supports	Linen canvases, linen with hemp or cotton
	Grounds	Calcium carbonate, calcium sulfate, rabbit skin glue
	Paint layer - Pigments	Zinc White, Cadmium Yellow, Cadmium Yellow Orange, Cadmium Red, Cobalt Blue, Ultramarine Blue, Cerulean Blue, Blue Monastral; Phthalocyanine Blue; Phthalocyanine Green, Emerald Green, Cobalt Violet, and Mars Yellow, Red Earth, Siena Burnt and Yellow ochre, <i>Noir d'ivoire</i> ; Minium Orange, Cadmium Yellow Lemon, Antimony Yellow, Naples Yellow.

The supports and grounds

According to Bianco, Portinari (or one of his assistants) used to prepare his canvases, beginning with raw linen and performing the entire process, including stretching, followed by the application of the ground. Portinari's canvas supports for oil painting are mainly linen, linen with hemp or cotton, commercially known as Cretone textiles (the name Cretone comes from the French commercial name given to relatively strong and heavy textiles made of cotton or linen as warp, and hemp as woof). Only occasionally did he use pre-prepared canvases, mostly imported from France. The canvases prepared by Portinari were impregnated with proteinaceous glue before application of the ground layer. The grounds are generally composed of calcium sulfate and/or calcium carbonate, and, in some cases, of lead white and oil. Bianco relates a special occasion when Portinari would have used a mixture of lead white and oil as a ground layer. According to Bianco, he would have learned this from the Japanese artist Foujita (Leonard Tsuguharu Foujita, 1886–1968), having used it for the painting *Retrato de Maria* (1932).

It is important to note that, despite the preponderance of canvas as support for oil painting, Portinari also used cardboard and plywood made of cedar or 'Marine' plywood (the commercial name used in Brazil, given to special plywood plates which are supposedly water resistant), the latter used mainly as support for larger paintings. According to Enrico Bianco, these supports were prepared in a very simple way: a layer of rabbit skin glue was applied with a brush as sizing, followed by the application of

one or two layers of the same glue, further diluted and mixed with calcium carbonate.

Portinari's personal notes describe four types of ground preparation for paintings, which were primarily made of rabbit skin glue, calcium carbonate and water with variations in the proportion of these components. In some of the ground recipes described by the artist in his notes, sand grains, of different sizes, are also described as a ground component. The addition of sand clearly has an effect on the texture of the grounds.

Documentary evidence such as short films, photographs and also preliminary drawings by the artist are a clear demonstration of his painting methods, which made use of the preliminary drawings over the grounds prior to the actual painting.¹

The pigments

Portinari's palette is characterized by a significant amount of expensive and vibrant colors, such as the blues, reds, violets and yellows, as well as by the extensive use of earth colors. The paints he used were imported from The Netherlands, France, Italy, and the UK. Brands such as Grumbacher, Winsor & Newton and Maimeri are mentioned in documents found in the Portinari archives.

In Portinari's personal notes (Inventory number: AP 6311 F 1074 collected in the file of the Portinari Project in February 2010) there is a list containing the names of 25 oil paints with which he comprised his palette: zinc white, cadmium yellow light, cadmium yellow medium, cadmium yellow deep, cadmium yellow lemon, cadmium yellow orange, cadmium red light, cadmium red dark, cadmium red purple, cobalt blue, ultramarine blue, cerulean blue, blue monastral, phthalocyanine blue, phthalocyanine green, emerald green, cobalt violet dark, cobalt violet light, blue-green, bluish Green and Mars yellow, *brun rouge*, burnt Siena ochre and *noir d'ivoire jaune*.

A medical report dated 1962 (Inventory number: TX-164.1: Silveira, Mem Sardinha Xavier da), archived at the Portinari Project, relates the painter's materials to his poor health, which led to his death in 1962. The report states:

the paints – minium orange, cadmium yellow lemon, antimony yellow, naples yellow, are toxic. (...) It was also revealed that the following paints contained small quantities of lead and antimony: cadmium yellow medium, cadmium yellow light and cadmium red light. The pigment called English Green was revealed to be a composite of arsenic and copper. In the others, elements of elevated toxicity were not encountered. It was unnecessary to analyze the whites, owing to the fact that they were all toxic, with the exception of titanium white. Tubes of titanium oxide manufactured unscrupulously can also have toxic substances present, which are additives to improve the physical quality of the paint [translated by Luiz A.C. Souza].

CONCLUSIONS

Portinari preferred traditional oil painting materials and techniques when painting on canvas, despite his pioneering and innovative vision in depicting Brazilian reality, poverty and social stratification. This attitude is expressed in his response to a question posed by Mexican muralist David Alfaro Siqueiros, in a discussion of mural painting techniques. When asked whether he might try a pressurized spray pistol to apply paint, he replied, ‘Well, Siqueiros, what would you prefer, to receive a friend’s poem in handwritten or in printed form?’ (Moreira 1974, 121, translated by Luiz A.C. Souza).

A preference for traditional, foreign-brand oil paints was not, however, a characteristic specific to Portinari. Our preliminary research demonstrates that only after the 1950s did some artists, such as Lygia Clark, began to experiment with acrylic paints (Oliveira 2007). Equally, it is important to note how Portinari, like other fellow artists of the period, was aware that the Brazilian brand oil paints available in the market were not of good quality.² It is necessary to deepen and expand the research concerning the materials used by other Brazilian modernist and contemporary artists in order to clearly verify whether or not the preference was for traditional materials or contemporary ones. Ongoing research projects at the Conservation Science Laboratory (LACICOR), coordinated by one of the authors, L.A.C. Souza, are devoted to these questions.

The interviews with the painter’s assistants who are still alive have played an important role in providing a primary source of information, as they are clearly related to the methods employed in direct interviews with artists in contemporary art conservation. Scientific analysis and documentation are fundamental tools with which the historic and documentary evidence may be controlled. It was confirmed, for instance, through EDXRF analysis of the paintings belonging to the Castro Maya Museums, that zinc white is a main component of the grounds for his oil paintings on canvas – this data was not recorded in the documentary or primary sources. Further research on this topic is still needed, but the presence of zinc white is confirmed.

The most substantial conclusion of this paper relates to the importance of including research in terms of materials and techniques as fundamental tools for the preparation and planning of the production of catalogues raisonnés. At least in Brazil, some other artists such as Lygia Clark (1920–1988) and Iberé Camargo (1914–1994), are the subjects of works in progress for the production of the catalogues raisonnés of their works, and so far the planned works do not rely on research on their materials and techniques. The information about materials and techniques of the artist as part of the whole information published in the catalogue raisonné can be very useful in fighting the illicit traffic of fakes, as well as very helpful in planning conservation and restoration works, in terms of the proper interpretation of the state of conservation and mechanisms of decay. This is the case, for instance, for a special conservation work in progress in Rio de Janeiro on the panels *Guerra e Paz* by Portinari, which show specific conservation

problems that could be easily understood if more information about the materials and techniques of this artist had been available beforehand.

ACKNOWLEDGEMENTS

The authors wish to thank the Projeto Portinari for making this collaboration possible; the *Museu Nacional de Belas Artes* and Castro Maya Museums, in Rio de Janeiro, for opening their doors and allowing access and analysis of the paintings; to the *Pinacoteca do Estado de São Paulo*, for the access to the Castro Maya's paintings when they were in São Paulo; to Nelyane Gonçalves, assistant student granted by *Fundação Fapemig*; to FINEP, of the Ministry of Science and Technology of Brazil, for the investments in equipment which made this research possible; to the National Research Council of Brazil (CNPq) for the grant related to this project; and finally, to Prof. Antonio Sgamellotti and his team at SMAArt, University of Perugia, for the collaboration in progress regarding the analysis of the paints and paint materials.

NOTES

- ¹ Documentary evidence and their respective inventory numbers are available in the archives of the Portinari Project at <http://www.portinari.org.br>.
- ² The history of commercial painting materials industrially produced in Brazil began around 1900, with the foundation of Tintas Hering and also Usina São Cristóvão, by German immigrants. Some other companies which dealt with pigment production were also installed in Brazil at that time. Brazilian oil paint formulations used more by students and young artists in Brazil were those produced by Aguia, founded in 1924, and Corfix founded in 1943 (Telles 1989). In 1952, the Brazilian government imposed high import taxes on foreign painting materials, using the allegation that there were similar national products, without taking in account that these last were of inferior quality. In 1954, these changes in the national market with respect to imported materials led to an artistic movement against the taxation of foreign products, which culminated in the creation of artworks painted exclusively in black and white, purposely produced and exhibited at the National Salon of Modern Art in Rio de Janeiro by the Brazilian artists of the period (Moraes 1955).

REFERENCES

- ANDRADE, M. DE. 1984. Candido Portinari por Mário de Andrade. *Revista do Instituto do Patrimônio Histórico e Artístico Nacional* (20): 64–93.
- BENTO, A. 2003. *Portinari*. Rio de Janeiro: Léo Christiano Editorial.
- FABRIS, A. 1990. *Portinari, pintor social*. São Paulo: Perspectiva Editora da Universidade de São Paulo.
- MICELI, S. 1996. *Imagens negociadas: retratos da elite brasileira*. São Paulo: Companhia das Letras.
- MORAIS, F. 1995. *Cronologia das Artes Plásticas no Rio de Janeiro*. Rio de Janeiro: Topbooks.
- MOREIRA, M. 1974. *Candido Portinari*. São Paulo: Editora Três.
- OLIVEIRA, A.C.H., F. BELIZÁRIO, and L.A.C. SOUZA. Materiais e técnicas pictóricas no Brasil do século XX: o impacto da Semana da Arte Moderna de 1922 e da Segunda Guerra Mundial na produção artística nacional. *Revista Brasileira de Arqueometria, Restauração e Conservação* 1(3): 126–129.

PORTINARI, J.C., and C.S. PENNA. 2004. Cândido Portinari. Catálogo Raisonné. <http://www.portinari.org.br/> (accessed 1 October 2010).

TELLES, C.Q. 1989. *A indústria de tintas no Brasil: cem anos de cor e história*. São Paulo: CLA – Comunicações.

VALLE, A. 2008. Pensionistas da Escola Nacional de Belas Artes na Academia Julian (Paris) durante a Primeira República (1890–1930). *19&20, Novembro 2006* I (3). http://www.dezenovevinte.net/ensino_artistico/academia_julian.htm (accessed 03 March 2009).