Abstract

Slides de Cavalete (1978-1979) is a slide-based artwork by the Portuguese artist Ângelo de Sousa (1938-2011). This paper explores issues related to the exhibition of *Slides de Cavalete* through the view of a conservator. In the absence of the artist, the display history of this work was traced with the aim of providing a base to substantiate the decision-making process of its exhibition and preservation. Published and unpublished documentation related to the exhibitions was consulted and personalities who could have witnessed the presentation of the artwork were interviewed. During this study it was understood that Ângelo de Sousa first presented the work projected on a canvas over an easel, for the exhibition *A Fotografia como Arte/A Arte como Fotografia* in 1979. In the two exhibitions carried out in 2017, the work was presented as a digital projection without the use of canvas and easel. This detachment from the first presentation, might have led to a misunderstanding of the work. Based on the conducted research and following the current procedures, display options for the exhibition of *Slides de Cavalete* are discussed. ●

Resumo

Slides de Cavalete (1978-1979) é uma obra de arte em suporte de diapositivos do artista português Ângelo de Sousa (1938-2011). Este texto explora questões relacionadas com a exposição de *Slides de Cavalete* através da perspetiva da conservação. Perante a ausência do artista, o presente artigo traça a história da exposição deste trabalho com o objetivo de fornecer uma base que possa auxiliar futuros processos de decisão, tanto em termos de montagem como de preservação da obra. Para tal, entrevistaram-se personalidades que testemunharam as apresentações anteriores deste trabalho e recorreu-se a documentação, publicada e inédita. Durante o estudo, percebemos que na primeira vez em que Ângelo de Sousa apresentou publicamente a obra, ela foi projetada numa tela sobre um cavalete, durante a exposição *A Fotografia como Arte / A Arte como Fotografia* em 1979. Já nas duas exposições realizadas em 2017, a obra foi apresentada como uma projeção digital sem qualquer recurso a tela ou cavalete. Consideramos que esta discrepância face à primeira apresentação pode conduzir a uma receção equívoca da obra. Com base na investigação desenvolvida, e respeitando procedimentos atualizados, este artigo discute possíveis opções de montagem numa futura apresentação de Slides de Cavalete. ●

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THE PAST AND THE FUTURE

DISPLAY OF THE SLIDE-BASED ARTWORK *SLIDES DE CAVALETE* (1978-1979) BY ÂNGELO DE SOUSA

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[1] Ângelo de Sousa was a professor at the Faculty of Fine Arts, University of Porto.

[2] Bernardo Pinto de Almeida is a professor at the Faculty of Fine Arts, University of Porto, and a connoisseur of the artist's work. Since the 1980s, Almeida has been publishing articles dedicated to the artist's production. He also worked with him on several occasions, especially within the framework of the exhibition *Ângelo: Uma Antológica 1993* (1993).

Introduction

Ângelo de Sousa (1938-2011) is one of the most important Portuguese contemporary artists, who worked[1] and lived in Porto (Portugal). According to Bernardo Pinto de Almeida[2] (2016, 228) "He was a unique, complete artist, like few others. One of the few whose work reached the level of being able to be shown anywhere in the world, coinciding, happily and precisely, with his time in history. He influenced his contemporaries and many others who came after, both formally and through his attitude, even when this was not immediately obvious." From the 1960s until the present day Ângelo de Sousa's work has been widely exhibited, both in Portugal and abroad.

During his life, Ângelo de Sousa was especially recognised for his work in painting, sculpture and drawing. However, he also produced a noteworthy body of pho-

tography and experimental film, which has recently been garnering considerable acclaim. Since the mid-1960s up to his last years of artistic production, he developed a close and daily working relationship with these media and left thousands of unseen works. As explained by Sérgio Mah, a professor and curator who has devoted himself to the study of Ângelo de Sousa's photographic work, "his work in photography and film was not a by-product or occasional distraction from his main creative output; instead, it played a central and propelling role at the heart of his artistic practice and imagination" (Mah 2017, 12). In fact, the artist participated in some of the most iconic exhibitions dedicated to the use of audio-visual supports both by artists and photographers in Portugal at the end of the 1970s and in the 1980s, such as *A Fotografia na Arte Moderna Portuguesa* (1977) at the Centro de Arte Contemporânea at the Museu Soares dos Reis in Porto (CAC-MNSR) and *A Fotografia como Arte/A Arte como Fotografia* (1979) at CAC-MNSR, Edifício Chiado in Coimbra and Fundação Calouste Gulbenkian (FCG) in Lisbon. In 1976, he presented the slide-based artwork *A mão esquerda (1ª série)* (1975) at the *Biennale di Venezia*. In the mid 1980s, Ângelo de Sousa stopped his black-and-white output and started working with colour photography (Sousa 2001, 47). Henceforth, the artist made thousands of colour slides. Of these works, two were defined as diaporamas: *A mão esquerda (1ª serie)*[3] and *Slides de Cavalete* (1978-1979). Slide-based artworks can be categorised as time-based media art[4] since they have duration as a dimension and are dependent on technology (such as video, film, software, etc.). Sara Gordon (2012), a time-based media coordinator at the Hirshhorn Museum and Sculpture Garden of the Smithsonian Institution, describes slide art as unique because, in addition to the equipment necessary to complete the artwork, a specific sequence and time is required to display the medium. From this point of view, slide-based artworks are completely different from film, in which time is expressed in the medium itself (Gordon 2012) and can be considered a hybrid medium, somewhere in between still photography and cinema (Weidner 2012d). Slide-based works only exist when exhibited in a specific/particular space, and therefore have an intangible and temporary nature. These characteristics make slide-based artworks challenging for conservators. As Tina Weidner (2012a) stressed within the framework of her research project at the Tate,[5] the main fragility of slide art comes from its dependence on media technology, which causes problems in terms of its long-term preservation and display. Slide-based artworks are constantly threatened both by the obsolescence of the exhibition copies and the display equipment. Since the original slides should not be displayed due to the aggressive conditions to which they would be subjected (light, heat, dust), the installation of a slide-based artwork is dependent on the ability to replicate 35 mm slides (Weidner 2012a). Exhibition copies might be produced by replicating the technology of the originals (duplicates) or converted into another technology, such as digital. For these reasons, while taking the decisions regarding the installation, the originally used technology is frequently replaced.

[3] A second series of this work was produced in 1977, under the title *A mão esquerda (2ª serie)*.

[4] Time-based media is the terminology commonly used in conservation, mainly in England (led by Tate) and the United States.

[5] The project carried out by Tina Weidner between 2011 and 2012 at the Tate was called *Dying technologies: the end of 35 mm slide transparencies* (Weidner 2012a).

Within contemporary art, in particular time-based media art and other works that lack fixity, the inevitability of change has been widely discussed and is well accepted today, for the sake of the continuity and presentation of the works. The possibility of adapting variable artworks, through collaboration between the artist, curators, conservators and other technicians, is now a current procedure for international cultural institutions (Warton 2016, 33). In this context, as stressed by the conservator Manon D'haenens (2016, 51), the role of the conservator has been the management and transmission of change. But what happens in the absence of the artist and of his guidelines regarding the creation and production of the artwork?

As Ângelo de Sousa is no longer available to interview, the history of his exhibitions became one of the unique sources for the understanding of the artist's intention regarding the display of his artworks. The exhibition of a work in different places and times might provide a reference for future display (Noordegraaf 2013b, 286). Therefore, considering the recent disclosure of the slide-based artwork *Slides de Cavalete*, a comprehensive history of its exhibition was pursued in order to substantiate the decision-making process regarding the display of this work. For such a purpose, published and unpublished sources of information found in the artist's archive and in public Portuguese archives, such as the one from *Fundação Calouste Gulbenkian* (FCG),[6] were studied. Unfortunately, only scarce information remains from those exhibitions, and most of the display options that were undertaken are not documented. Thus, oral testimonies from people who could have witnessed the presentation of the artwork have been collected. As a result of this investigation, this paper discusses and proposes guidelines for the presentation and preservation of *Slides de Cavalete*.

Slides de Cavalete (1978-1979) by Ângelo de Sousa

As an artist who was interested and informed about colour theories and perception, Ângelo de Sousa made several works in which he explored additive and subtractive synthesis as a means of expression. From the 1960s he decided to prioritise primary colours in order to achieve "the maximum effect with minimum resources" (Sousa 1985, 68). A few years after starting his famous 'monochromatic' series of paintings, he produced the slide-based artwork *Slides de Cavalete*, a diaporama composed of one hundred colour slides. As he was used to working with a subtractive synthesis in his drawing and paintings, the artist decided to work with additive synthesis (Sousa 2001, 18), by combining coloured lights.

Slides de Cavalete begins with eight introductory slides: PHOTOGRAPHS | PHOTOGRAPHS (SLIDES) | OF SOME PAINTINGS, IMAGINED AND INEXISTENT | (EXCEPT IN THE SLIDES THEMSELVES,

PROJECTED) | [spacer] | THEY COULD BE CALLED... | ... EASEL SLIDES? | [spacer].[7, 8] This introduction is followed by the images constructed with additive synthesis. This set is composed of two parts: triangles (Part I) and rectangles (Part II) (Fig. 1), both shapes having the same proportions. The coloured images were produced by projecting white light from a slide projector through filters with the additive primary colours, red, green and blue (RGB), and capturing a superimposition of these lights successively, on the same frame. Thus, the artist sought to achieve the *maximum effect* without overexposure. For instance, by successively capturing multiple exposures of R, G and B, projected for the same time, he would obtain a white image. If he played with different proportions of the three filters, which

[7] The two spacers (dark images with texture, without text) introduce a break in the reading of the text.

[8] Translation by the authors. fotografias | fotografias (slides) | de algumas pinturas, imaginadas e inexistentes | (excepto nos próprios slides, projectados) | [spacer] | poderiam ser chamados... | ... slides de cavalete? | [spacer]
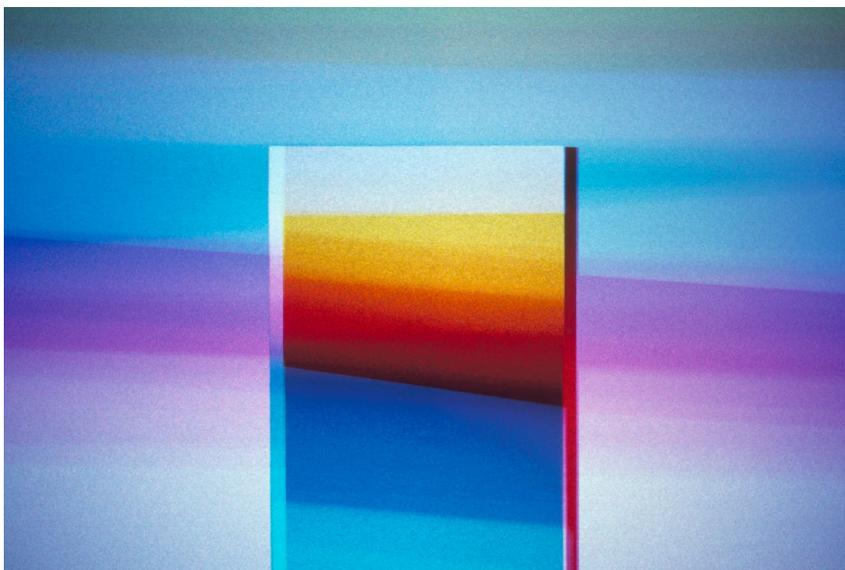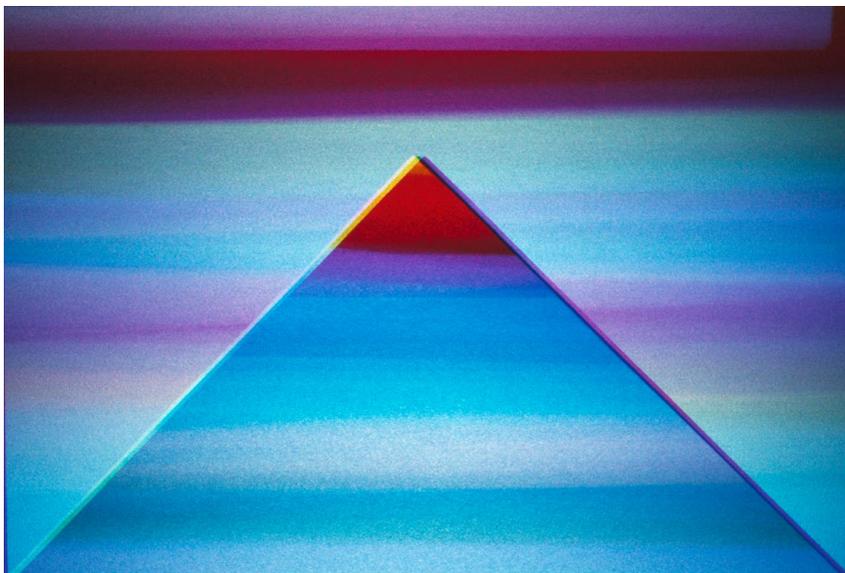

Fig. 1 – Ângelo de Sousa, *Slides de Cavalete* (1978-1979), 35 mm chromogenic reversal films with cellulose acetate base. Top: Example of a slide from Part I; Bottom: Example of a slide from Part II. Artist's collection.

he controlled using opaque masks (hands or objects) to reduce light exposure in certain areas, he would obtain different colours and gradations. By obeying to the principle of additive mixing, he would be able to predict the result of the sum of the primary colours (Sousa 2001, 18-19). Ângelo de Sousa ended the work as he began it, with slides containing typed text: THE END | FOR NOW. | ÂNGELO DE SOUSA 1978-1979.⁹ His unique sense of humour is evident in both the introduction and the conclusion of the work.

The images from *Slides de Cavalete* have clear similarities with his paintings both in their conception and form, in particular with the 'monocromatic' paintings, something to which Ângelo de Sousa may have wanted to allude by calling the work *easel paintings* (Mah 2014, 23). However, this parallelism does not seem to have any intention of reducing photography in relation to painting; on the contrary, it suggests the opposite. As in his 'monochromatic' paintings, he defined a shape and a background, and worked with them as independent pictorial spaces. These spaces acquired different depths depending on their tonal and textural heterogeneity, creating an illusion of perspective or three-dimensionality. Like some of his drawings, the lines of the triangle or rectangle define atmospheric zones, rather than geometric shapes. According to the produced combinations, each image may offer more fluid or more striking, more static or more dynamic, more two-dimensional or more three-dimensional atmospheres. Therefore, the sequence of the projection confers a narrativity of sensations. Like in his 'monochromatic' paintings, the chromatic gradations of *Slides de Cavalete* subtly reveal the chromatic complexity of the image through the creation of rhythms and contrasts created by the overlapped layers.

A thorough record of the production process of the work was found in his archives, with written explanations, schemes, test slides, and so on. Based on this valuable documentation, it can be concluded that the work was the result of extensive planning and experimentation. Sérgio Mah (2014, 23) described the work as one of the most astonishing and prodigious photographic works by Ângelo de Sousa.

As noted by Bernardo Pinto de Almeida (2018), Ângelo de Sousa's protagonism in the evolving Portuguese art scene from the 1960s onwards was possibly related to his use of audio-visual supports and to the plastic solutions adopted by the artist when using these media. Thus, his photographic and film works are important testimonies of the experiences of Portuguese artists in that period, and it can be stated that *Slides de Cavalete* has an important historical character.

The artist sought to explore the materiality of all of the media with which he worked. Materials in general are significant in the artist's works, carrying their own meaning. According to the survey conducted within the framework of this study on the photographic collection, about 89% of the colour photographs by Ângelo de Sousa are made of chromogenic reversal films (slides). Since the artist scarcely used other colour photographic processes, it can be concluded that slide technology is fundamental in his photographic work.

Tracing the display history of *Slides de Cavalete*

Although, as previously mentioned, *Slides de Cavalete* is one of the most ingenious photographic works produced by Ângelo de Sousa, it was only presented in two exhibitions during the artist's lifetime. While reading interviews with the artist, it is possible to understand that during his life he actively participated in his exhibitions' conception (Sousa 2001). As confirmed by Bernardo Pinto de Almeida (2018), the artist attributed the utmost importance to what was presented and how it was presented. He always looked for the most precise conditions to communicate his work. The work was shown for the first time in the exhibition *A Fotografia como Arte/A Arte como Fotografia*[10] in 1979, curated by Floris Neusüss.[11] According to Paula Pinto (2014, 185),[12] *Slides de Cavalete* was conceived to be presented on that occasion. The work was exhibited under the title *Easel Slides: Photographs (slides) of some imagined and non-existent paintings (except in the projected slides themselves).*[13] Ângelo de Sousa reported that Floris Neusüss objected to the inclusion of his work in the exhibition (Sousa 2001, 19). A possibility for the rejection could have been the interpretation of the artwork as a provocation, considering the scope of the exhibition, even though it is a true homage to photography, as a unique and specific artistic medium, which enables the exploitation and recording of light. According to Pinto's interpretation (2014, 185), the direct allusion that the diaporama established with easel painting prevented its comprehension. Despite this, the artwork was displayed, although badly projected and only until the projector ceased to function (Sousa 2001, 19-20). As previously mentioned, the exhibition was held in three different places: CAC-MNSR (Porto), Edifício Chiado (Coimbra) and FCG (Lisbon). The documentation relating to the exhibition at the FCG was accessed in the institution's archives, where a letter from Ângelo de Sousa was found (Fig. 2). According to that letter, the work was not displayed at the exhibition held in Coimbra. The letter describes some of the display setup used in Porto, and the necessary materials for the exhibition of the work in Lisbon. He explained that he used a slide projector, belonging to CAC-MNSR, with a circular tray and capacity for one hundred slides, which broke down during the exhibition. As a result, he asked for a safer automatic projector with a circular tray, suggesting Kodak as the brand. He also mentioned the fact that although the work is composed of one hundred slides, if the capacity of the projector from the museum were smaller, he could adjust the number of slides to be presented. Additionally, he requested an easel (ideally with a 19th-century appearance and a hand crank) and a white canvas (or at least something that resembled it) measuring 120 x 90 cm (or larger if within the same proportions) so that the slides could be projected onto its surface. At the end of the letter, there is a scheme with the display setup.

This discovery gives the title and subtitle used by the artist meaning. The artist possibly wanted to highlight the immaterial and throbbing features of the

[10] This was a travelling exhibition. Artists using photography as a mean of expression and international photographers with recognised work participated in this exhibition. Alberto Carneiro, Ângelo de Sousa, Fernando Calhau, Helena Almeida, and Julião Sarmento were the Portuguese artists shown (Sena 1998, 316).

[11] Floris Neusüss (1937) is a German artist who works with, writes and teaches about photography. In the 1970s he founded Kassel Foto Forum at the University of Arts in Kassel, for the exhibition of the photographic work by students. Neusüss consistently explored the photographic image without the use of a camera, producing numerous series of photograms. His series *Körperfotogramms* from the 1960s comprises examples of this (Squiers 2013, 25). He also works with double-exposures and negative montages, among other experimental practices.

[12] Ângelo de Sousa hired Paula Pinto as an assistant to work with him on his photographic collection.

[13] Translation by the authors. *Slides de Cavalete: Fotografias (slides) de algumas pinturas imaginadas e inexistentes (excepto nos próprios slides projectados).*
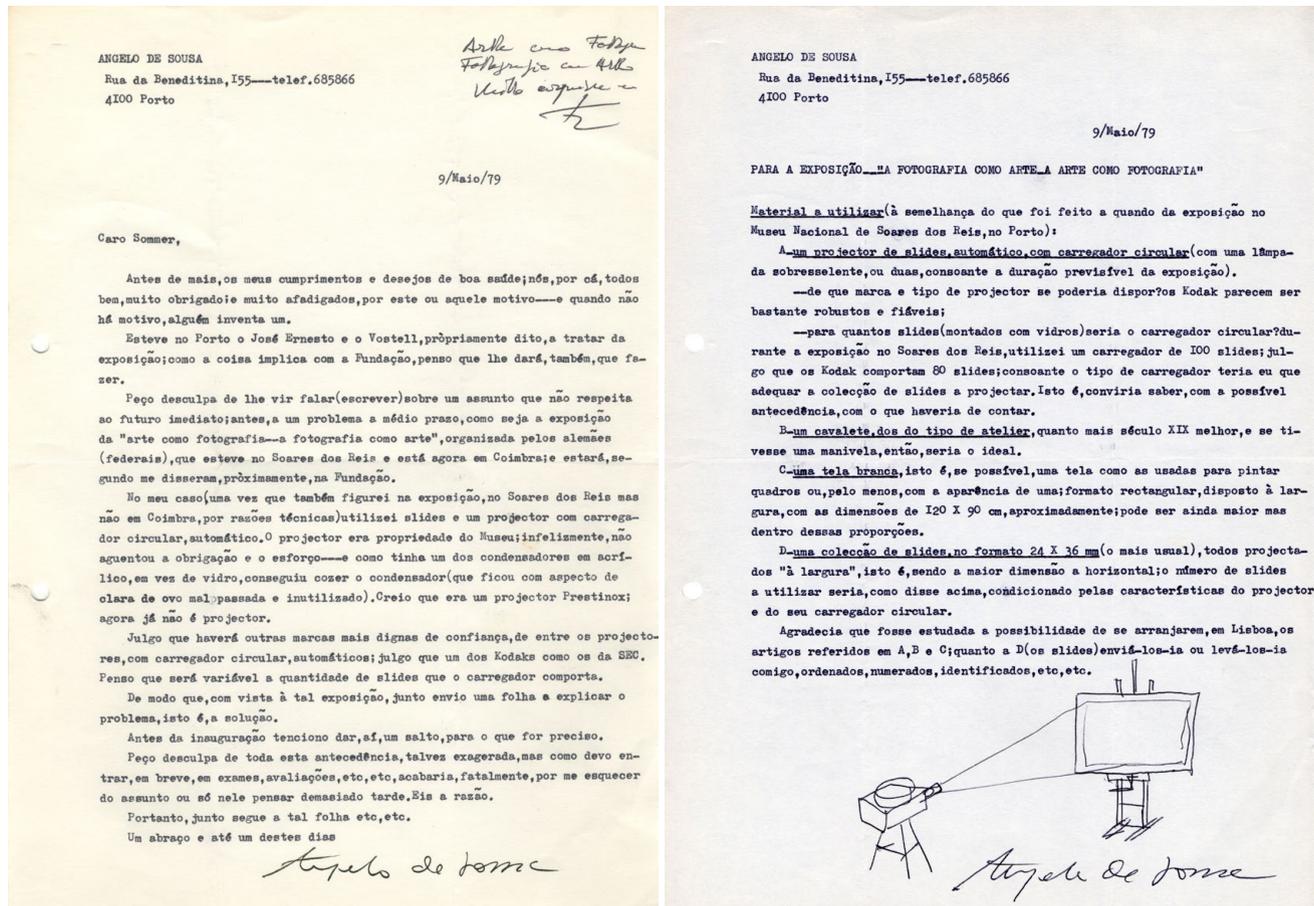
Fig. 2 – Documentation found at Fundação Calouste Gulbenkian's archive related to the exhibition *A Fotografia como Arte/A Arte como Fotografia* (1979). © Fundação Calouste Gulbenkian.

[14] No information relating to the exhibition was found at the MNSR archive. Additionally, none of the valuable information contained in the FCG's letter was described within the exhibition catalogue (*A Fotografia como Arte, A Arte como Fotografia*, ed. Fernando Pernes. 1979. Lisbon: Fundação Calouste Gulbenkian).

[15] This information was provided by Cristina Grande during a phone call (25 October 2017). Although she was part of the exhibition staff, she did not remember that the work under study had been displayed on that occasion.

slide projection. Thus, the projected slides can be seen as 'some imagined and non-existent paintings', which only exist during the projection time. Apparently, the artist wanted to allude to the resemblance between *Slides de Cavalete* and his 'monochromatic' series of paintings, equating the photographic medium with the paintings by placing it over an easel. Moreover, the fact that the artist chose specific devices to be part of the display landscape assigns an important sculptural character to the artwork.

The letter found at the FCG shows that the artist was concerned with the display of the artwork under study, describing, in great detail, all the devices necessary to its proper presentation. No more documentation (published or unpublished sources) relating to the display conditions used in this exhibition has been found.[14]

Slides de Cavalete was only re-exhibited almost ten years later, in *Fotoporto: Mês da Fotografia* (1988). The exhibition was held at the Casa de Serralves (Porto) and curated by Fernando Pernes. No documentation (published or unpublished sources) relating to the exhibition was found at Casa de Serralves,[15] and the catalogue from the exhibition[16] contains very little information. Therefore, with the intention of gathering evidence on how the artwork was presented in the exhibition *Fotoporto:*

Mês da Fotografia, both Manuel Magalhães[17] and Bernardo Pinto de Almeida were interviewed about the display setup of the work on that occasion.[18] Both had been involved in the production of the exhibition. Additionally, the artist Julião Sarmento,[19] who also participated in the exhibition, was questioned. Unfortunately, neither Magalhães, Almeida (Almeida 2018) nor Sarmento, were able to remember how the work was presented. Hence, and given the lack of documentation relating to that exhibition, it was not possible to trace how the work was displayed in 1988. Recently, photographic and film work by Ângelo the Sousa has been gaining notoriety. After the artist's death, *Slides de Cavalete* was presented in three exhibitions: *Encontros com as formas* (2014) at the Fundação EDP (Porto), curated by Sérgio Mah, *La couleur et le grain noir des choses* (2017) at the Fundação Calouste Gulbenkian (Paris), commissioned by Jacinto Lageira, and *Potência e adversidade, Arte da America Latina nas colecções em Portugal* (2017) at the Museu da Cidade (Lisbon), curated by Marta Mestre. Additionally, on the 7 July 2018, the work was presented in a one-day session, within the framework of the *Jornadas Lúcidas 2 – Oporto*. This happening was organised by the Portuguese artist Alexandre Estrela at *Casa dos Marinheiros Mercantes* in Lisbon.

For the exhibition *Encontros com as formas* (2014), Mah made some tests by projecting the work with a digital projector and a slide projector. He concluded that the digital projection allowed for a better accuracy of colour reproduction, although the subtle variation between the colours and their density could be better achieved with the slide projector.[20] He therefore opted to exhibit a copy of the original slides in a slide projector. The one hundred slides were digitised in high definition and the digitised files sent to London,[21] to be shown in a chromogenic reversal film using a film recorder. These were used as exhibition copies.[22] The artwork was displayed in a small, dark room to provide an ideal scenario for the contemplation of the work alone (Fig. 3).[23]
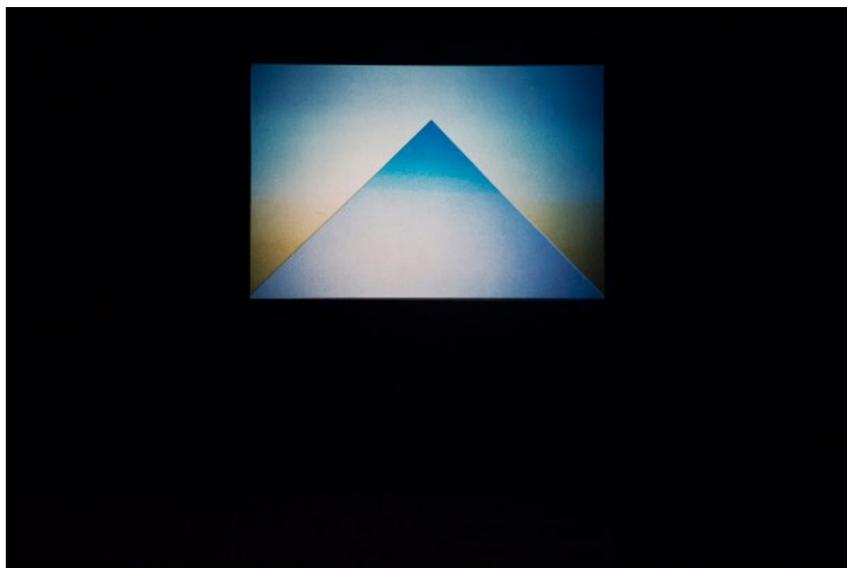
[16] *Fotoporto: Mês da Fotografia*, ed. Fernando Pernes. 1998. Porto: Casa de Serralves.

[17] Manuel Magalhães was interviewed in an informal way (5 May 2018), so the interview was not recorded.

[18] The curator of the exhibition was Fernando Pernes (1936-2010), who left no information.

[19] Julião Sarmento was interviewed in an informal way (17 October 2018), during a phone call.

[20] This information was kindly shared by Sérgio Mah (April 27, 2018).

[21] To the company *Digital Slides*: https://www.digitalslides.co.uk/wp-2013/ (accessed on 18 September 2018).

[22] This information was kindly provided by André Cepeda during a phone call (5 January 2018). Cepeda was the technician responsible for the digitisation of *Slides de Cavalete* and other photographic works by Ângelo de Sousa. The digital images were subjected to colour matching to ensure their approximation to the originals (in the current condition).

[23] This information was kindly shared by Sérgio Mah (27 April 2018). Only scarce documentation from the exhibition setup can be found in the exhibition catalogue and in the few press releases from the time. The dimensions of the projection are unknown.

Fig. 3 – View of the exhibition of the work *Slides de Cavalete* (1978-1979) in *Encontro com as Formas*, 2014.

[24] The dimensions of the projection were neither described nor documented, but they would certainly have been far more than 90 x 120 cm.

[25] This situation was fixed after the inauguration at the request of Miguel de Sousa, owner of the collection. When the exhibition site was visited, the projection was not working and, according to the staff present, the projector had been out of order for almost a month. As such, it was only possible to observe the room painted in black and with a white rectangle (75 x 100 cm) where the images should have been projected. These dimensions were below the 90 x 120 cm described by Ângelo de Sousa in the FCG letter, although within the same proportions.

[26] This option was undertaken, taking into account that the artist had predicted this situation, as described in documentation found

Fig. 4 – The work *Slides de Cavalete* (1978-1979) in the exhibition "Potência e adversidade, Arte da América Latina nas colecções em Portugal". Museu da Cidade, Lisbon, 2017.

Fig. 5 – The work *Slides de Cavalete* (1978-1979) in *Jornadas Lúcidas 2 – Oporto*. Lisbon, 2018.

In the exhibition *La couleur et le grain noir des choses* (2017), the digital copies made for the exhibition in 2014 were presented using a digital projector, placed at the top of the entrance staircase.[24] Likewise, in the most recent exhibition, *Potência e adversidade, Arte da América Latina nas colecções em Portugal*, similar options were undertaken. A DVD was made with three films and the work *Slides de Cavalete*, in order to be presented in a digital projector as a slideshow in a dark room (Fig. 4). According to the artist's son, Miguel de Sousa, the slides passed too fast because of an incorrect DVD *montage*.[25]

At *Jornadas Lúcidas 2 – Oporto* (Fig. 5), the work *Nobody Here* (2009) by Daniel Lopatin was exhibited along with the artwork under study, in a session dedicated to additive light. The exhibition copies used were produced following the same methodology and using the same suppliers as for the exhibition *Encontros com as Formas*. The work was projected using a slide projector on a 4m width screen. The projector only had the capacity for eighty slides, so a selection of the images to be presented had to be made.[26] Although some changes to the original presentation of the work were undertaken, the organisation made available to the public a handout in which the variations were described, and the curatorial options justified. After Ângelo de Sousa's death, different display options from those undertaken by the artist in the past were made, and it is possible to observe a gradual deviation from the first presentation of the artwork. Over time, *Slides de Cavalete* [easel slides] lost the easel and also the slides. As specialists in this field maintain, the reception of a work is highly dependent on the way it is presented (Szmelter 2011, 121). The public who saw the artwork at the last exhibitions, subsequently with interpretative new elements, might have experienced a different version of the work. Additionally, with the exception of the last exhibition, none of the curatorial options

was explained to the visitor. As claimed by the conservator Sanneke Stiger (2016, 169), the clear communication of the material structure of the original artwork and its reinterpretation is fundamental for a proper experience.

Display options undertaken by Ângelo de Sousa

According to the investigation that was conducted, Ângelo de Sousa took different options over time concerning the display of his slide-based artworks in general. His slides were presented either in projections[27] or printed, using silver dye bleach (Cibachrome) or digital technology. It is also possible to observe different choices for the presentation of the same artwork. For instance, the work *A mão esquerda (2ª série)* (1977) was first projected in the exhibition *A fotografia na arte moderna Portuguesa* (1977), and then, since 1978, printed in Cibachrome. The sizes of the prints also changed: first the work was presented in a 18 x 24 cm format, but subsequently, since the exhibition *Fotografia* (2000), they measured 60 x 90 cm. In 2003, he decided to project the work again in the exhibition *Sem Limites*. Thus, although Ângelo de Sousa worked a great deal with slide technology and chose to specifically exhibit some of his works using slide projectors, he also displayed slide-based artworks (sometimes even the same work) as printed photographs framed and hung on the gallery wall. For instance, in the exhibition *Sem Prata* (2001), about half of the slide-based works were presented in projection (the originals), and the other half in digital prints (inkjet prints), showing his openness to vary the medium. Bernardo Pinto de Almeida thinks that the reason for these differences might simply be linked to the aesthetic character of the image (Almeida 2018). If in one case a slide could be displayed by projection, in others it could be presented printed with a specific technology. Therefore, if one artwork was firstly displayed with one technology, it could later be transferred to another one, more recent, where the image 'fits' as well (or even better) (Almeida 2018). Additionally, as Ângelo de Sousa was very cautious with materials (Ferreira 2011, 133), he could have been concerned with the durability of the artworks after successive projections, and so opted to print them.

When questioned about how he arrived at the idea of replacing the original photographic and film processes with digital printing for the exhibition *Sem Prata*, Ângelo de Sousa noted that the essential advantage of digital printing was the time and effort saved (Sousa 2001, 14). During the interview *"A Felicidade no gatilho": entrevista a Ângelo de Sousa* (Sousa 2001, 14), the curators made him see that the digital format was also a useful tool for image correction, such as abrasion and staining (negatives) and colour adjustments (slides), that otherwise, according to him, could not have been displayed (Sousa 2001, 14-15). Similarly, several of his

at the Fundação Calouste Gulbenkian's archive relating to the exhibition *A Fotografia como Arte/A Arte como Fotografia* (1979).

[27] As far as it can be understood from the information contained in the catalogues and according to Bernardo Pinto de Almeida (Almeida 2018), it was contemporaneous procedure to display original slides in the exhibitions until recently.

films were transcribed onto VHS and converted to digital for display in the same exhibition. These options were made both for financial and practical reasons, due to the great number of selected films for the exhibition and long duration of the exhibition (four months). When asked if he was sorry about the films not being displayed in the original format, Ângelo de Sousa explained that although the difference between video and 8mm chromogenic reversal film was significant, Super 8 projectors have the disadvantage of creating a small image projection, besides the difficulty of producing a duplication with good colour reproduction (Sousa 2001, 16). Thus, it seems that Ângelo de Sousa was, at least in 2001, quite open to the idea of migrating the original audio-visual supports to another support, since it was, to his knowledge, the most reliable way to do it. Nevertheless, he did not affirm that they should all be converted into recent technologies.

As the curator D. H. van Wegen (2005, 206-207) argues, an artwork is an historical object, in some sense independent of the artist, and the interpretation of contemporary art is not the artist's job. According to the conservator Barbara Sommermeyer (2011, 143-144) "The conservator is responsible for the maintenance of the historicity and the zeitgeist of the work". Within the practice of conservation of contemporary art, the artist is called to participate in the decision-making process and constitute a source of information about the work and the creative process. However, as stated by Sommermeyer (2011, 150), the artwork itself should be the central source of information. The artist often wishes to update the artwork, which is a controversial option that can go against the conservator's point of view. Furthermore, it might be difficult for an artist to develop a rational distance from a work made years ago (Sommermeyer 2011, 146). As noted by the conservator Cristina Oliveira (2016, 219) during her investigation on the conservation of installation art, the artist's intention is not permanent. Frequently, the participation of the artist in the re-installation of the artwork might lead to significant alterations. This is why the opinion of the artist about a work made in the past should be discerned from his supposed original intent (Stigter 2016, 174). Additionally, the concept of the work can sometimes be better understood by the audience when displayed with its original materials, helping to place the work back in its time (Stigter 2016, 175). To quote Sanneke Stigter: "not only a change in the physical artwork causes shift in experience, the change in time does too, having ushered in a complete new visual culture" (2016, 175). Finally, in the opinion of Pip Laurenson (2005, 2), head of the Collection Care Research Department at the Tate, the role of a conservator is to understand what might constitute an authentic installation and ensure that this demanding goal is achieved. This is especially true in the absence of the artist. Therefore, the conservator (along with other heritage professionals and individuals responsible for the works) is responsible for the identification and maintenance of the significance of the artworks, so that future generations can enjoy them to the full.

Although updating the slide projector for digital technology might be tempting, it entails some problems. It apparently streamlines the exhibition of the works,
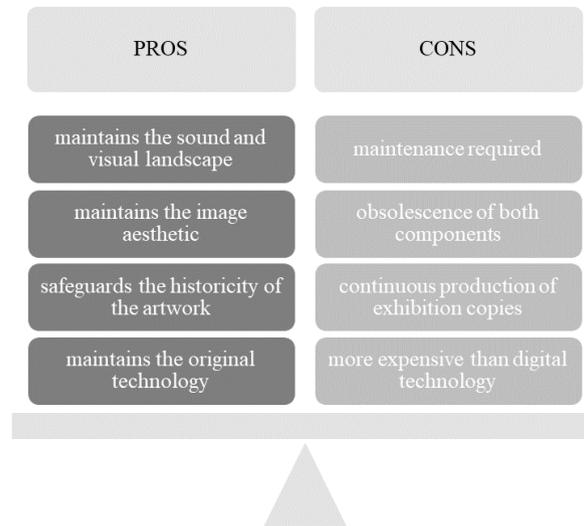
namely by reducing the costs and maintenance associated with slide exhibition copies (Weidner 2012a).[28] Despite the technical difficulties of maintaining the original display equipment, its substitution with a digital projector might modify the landscape, and consequently the experience of the artwork. First, the physical/sculptural effect of analogue and digital projectors is different (Lavezzo et al. 2015, 170-171). Moreover, the digital projector suppresses the sound experience of the slide projector mechanism passing the slides. Although it is possible to simulate the sound of the projector, this option would probably be too farfetched, considering the artist in question. Additionally, digital projectors are often launched with better resolutions, changing the visual appearance (dimension and quality of the projection) of the projected images (Monteiro 2015, 175). According to Bernardo Pinto de Almeida (2018), Ângelo de Sousa appreciated the performative character that the slide projector conferred to an exhibition, since it would allow for the phenomena of appearance and disappearance of images. Unfortunately, the digital projector also obliterates this characteristic transition effect between images (Monteiro 2015, 175). As pointed out by Barbara Sommermeyer and Claartje van Haaften (2016, 225), the light being projected through a chromogenic reversal film has a different appearance to a digital projection. There is an atmosphere of imperfection produced by the analogue equipment, and this aesthetic character should also be offered to the public (Monteiro 2015, 175).

As in the case of updating the display equipment, generating digital images instead of producing exhibition copies might be advantageous. After the discontinuation of duplication slides in 2010, the continuity of exhibition copies was under threat. Nowadays, the available films for duplication do not have the ideal emulsions for copying, unlike in the past (low-contrast film and very fine grain/very low ISO to capture detail), making it difficult to produce accurate duplications (Weidner 2012b). Nevertheless, by using chromogenic reversal films for the replication of works, it is possible to maintain the image characteristics and the aesthetic content of the original work. Instead of analogue duplication, digital duplication can also be considered as a solution. This means digitising the slides and flash for the digital files into chromogenic reversal films (Depocas n.d.). Generating digital intermediates might be advantageous, since it can be more easily manipulated. For instance, colour adjustments can be applied to the digital image before printing, simplifying the colour correction process. However, a digital image is an image electronically captured using light and converted into a numeric representation, so when using a digital copy, certain aspects of the original appearance of the work might be lost (Saba 2013, 101). Nevertheless, digital duplication allows for the maintenance of the original physical support (Weidner 2012c). According to the study conducted by Haida Liang, Pip Laurenson and David Saunders (2004), digital duplication has led to accurate copies.

A summary of the possible advantages and disadvantages of maintaining the original slide-based technology is presented in Figure 6.

[28] One way of assuring the availability of the slide projector is to acquire and accumulate projectors for future presentations (Depocas n.d.).

Fig. 6 – Summary of possible pros and cons of maintaining the original slide-based technology.

PROS	CONS
maintains the sound and visual landscape	maintenance required
maintains the image aesthetic	obsolescence of both components
safeguards the historicity of the artwork	continuous production of exhibition copies
maintains the original technology	more expensive than digital technology

Proposal of guidelines for the exhibition of *Slides de Cavalete*

Based on the results from the research conducted so far and considering the absence of the artist in the decision-making process about the exhibition of *Slides de Cavalete*, we propose that the work should be displayed according to its first public presentation in 1979. To the best of our knowledge, the letter found at the FCG and written by Ângelo de Sousa within the context of the exhibition *A Fotografia como Arte/A Arte como Fotografia* represents the only instructions left by the artist regarding the display of *Slides de Cavalete*. Additionally, this approach ensures the maintenance of both the aesthetic characteristics and historicity of the work, which were considered part of its significance. The visitor may thus experience how the artwork was presented at the time of its conception. To do so, the following materials would be necessary (Fig. 7):

i) Number of necessary exhibition copy sets (according to the duration of the exhibition);
The generation of copies made with the original technology (chromogenic reversal films) should be performed via either analogue or digital duplication to ensure the continuity of the aesthetic characteristics of the work.

ii) Automatic analogue carousel slide projector with capacity for 100 slides; projectors are mass-produced equipment, and thus are not valued for their uniqueness. As such, they can be replaced by an equivalent with negligible impact (Laurenson 2005, 2; Wijers 2013, 238). Nevertheless, proper equipment is crucial for the success of the display. Different equipment can produce different images; not only the projector itself but also its parts, such as lamps and lenses (Warda and Munson 2012). According to the letter found

120 cm

90 cm
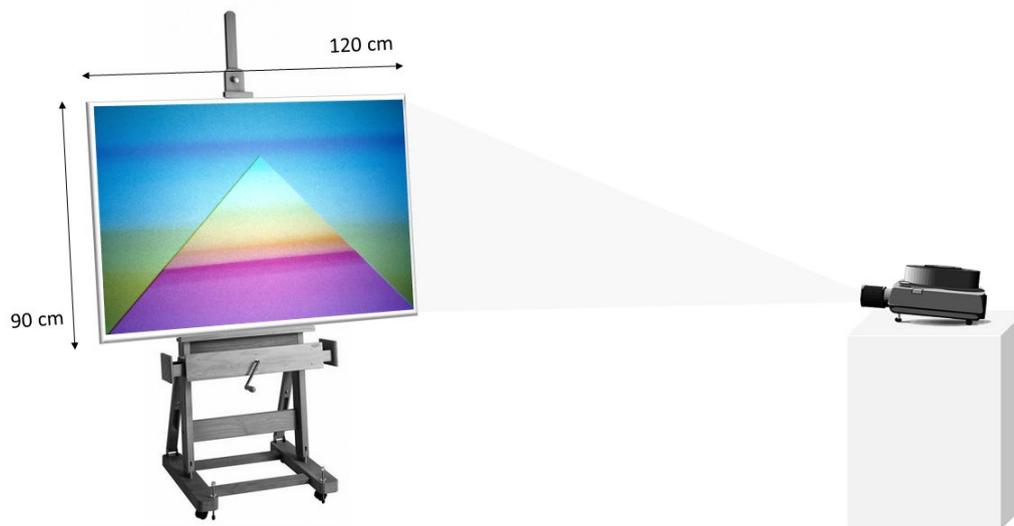
at the FCG archives, Ângelo de Sousa was not particularly set on using a specific projector. He refers only to Kodak as a reliable brand. Nevertheless, according to the scheme presented in the same letter, the projector is part of the scene. In the documentation relating to the production process for the artwork found in the artist's archive, he mentions a quartz lamp. The same type of lamp (or with equivalent spectral emission) could be used in the projection to avoid any interference with the colour of the images.

Although carousels with capacity for 80 slides might be easier to find than those with capacity for 100, the latter should be pursued (even if the artist acknowledged the possibility of adapting the artwork to the capacity of the carousel). Since Ângelo de Sousa is no longer available to carry out a selection of slides to be displayed, and did not leave any instructions regarding that matter, this task might raise issues relating to the identity of the artwork, as it would allow the production of multiple versions of the work.

iii)   Bench/small table as support for the projector;

iv)   Easel with a 19th-century appearance and a hand crank;

v)   White canvas measuring 120 x 90 cm (or larger if within the same proportions);

vi)   Slightly darkened room.

When a slide-based artwork is installed at the exhibition site, it must be adapted to the space (Philips 2015, 169). Different factors such as room size and illumination may influence its perception. Although no documentation was found referring to this issue, it was assumed that the room should not be completely dark so that the easel and canvas can be slightly visible. However, the levels of luminosity should not be very high, as otherwise the colours of the slides might not be correctly perceived. Moreover, although the work has been displayed in a single room lately, nothing leads us to believe that this was the artist's choice. Although no graphic information was found regarding the display of *Slides de Cavalete* in 1979, based on the photographic documentation consulted at the FCG's archive, the exhibition space was shared with the work of other artists.

vii)   One final issue to be considered is the projection duration of each slide. Since no references were found relating to this matter, some tests have been carried out in order to define a frame time. Based on those tests, it is recommended to project each slide for a period of 8 to 12 seconds, which seems the appropriate time to fully appreciate each image.

Conclusions

During the current investigation, it was understood that after Ângelo de Sousa's death, the slide-based artwork *Slides de Cavalete* (1978-1979) was exhibited following a different display setup to that of its first presentation in 1979. At that time, the work was presented by projecting the slides onto a canvas over an easel. After the artist's death, the canvas and the easel were removed, and more recently the slide projection has been substituted by a digital projection. Additionally, the curatorial options were neither documented nor communicated to the audience. For that reason, the gradual subtraction of the initial components composing the work might have led to its misunderstanding.

This paper therefore highlights the importance of revisiting the exhibition history for the decision-making process about the display and preservation of variable media such as slide-based artworks, especially in the absence of the artist. Based on the conducted research, guidelines for the presentation of *Slides de Cavalete* are proposed, aimed at making it possible for future generations to enjoy the artwork as it was designed by the artist at the time of its conception.

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