RESTORATION OF THE FACADES OF THE VELAZQUEZ PALACE IN MADRID

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BRIEF INTRODUCTION

The operations which for some years have been underway on Spain's Architectural Ceramic Heritage have too often resulted in the removal of the material which it was intended to restore. On numerous occasions the ceramic elements were replaced by more or less faithful reproductions, or else directly eliminated.

For this reason I have considered that it might be of interest to outline a ceramic restoration project such as this one at a Conference dedicated to tile and tilings in order to leave no doubt as to the need to respect and conserve the vestiges of the past, however insignificant these may often seem, because, as history has shown on many occasions, without a past there can be little hope for the future. A matter through which it may be clearly shown that in restoration the use and incorporation of elements produced in the present need not be at odds with a respect for the material expressions of the past, and vice versa.

The variety of criteria adopted, without renouncing the overall unity, in the restoration of the ceramic elements in the Velazquez Palace - tiling and reliefs - occurred to me as an ideal subject matter, not only because spectacular measures were taken in the carrying-out of the work, but because of the possibility offered to us of bringing together and combining criteria without contradiction, and showing how it is possible, even necessary, to have recourse to these criteria, in accordance with requirements, and thus scrupulously respecting our heritage. In the restoration of the Palace large compositions were reinforced in situ; others were removed and fixed on self-supporting panels; certain faults were re-included pictorially; the partial loss of tiles and reliefs was repaired using epoxy resins; and large gaps were restored using ceramic reproductions. This paper is intended to deal with each of these processes.

HISTORICAL BACKGROUND

In 1873, the engineer Juan Navarro Reverter wrote: «Ancient monuments are symbols of the life of a nation; they form its tradition and its history as revealed to posterity. For this reason, each nation and each era has its architecture and its monuments, [...]. Our century no longer writes its life in marble and granite; the Rotunda is its photograph.» These were his reflections after a visit to the Universal Exhibition in Vienna, which he attended as a correspondent sent by the Spanish Government for the *Gaceta de Madrid* although in the end it did not publish any of his chronicles, considering his views to be unsuitable[1].

This is a faithful indicator of the situation of the Arts and Industry in Spain during the last three decades of the nineteenth century, particularly in Madrid which acted as the driving hub of the organization of the State. In intellectual circles there were debates regarding the need to encourage an internal movement to favour the development of industry and the arts, in parallel with that which was occurring in the rest of Europe. Unquestionably, the eyes of all were directed towards the great National, International and above all Universal Exhibitions, as an example of and vehicle for the progress of nations; as dynamic engines in direct and indirect education; as propitiatory exercises yielding the creation and development of training centres and museums; and even as instruments of necessary economic reform.

The need for a great exhibition of Art and Industry in Madrid, of international impact, was reflected in all of the proposals generated through the second half of the 19th century and the two first decades of the 20th; there were a considerable number of these proposals, but they all came to nothing. Under the auspices of these exhibition projects, and within the general debate of the modernist movement in art and industry - and consequently in architecture and other civil works as well - the most suitable types of presentation and representation were considered, with constant reference to the great exhibitions.

Under these precepts, in 1862 the Gaceta de Madrid published the first call for the organization of a **Hispano-American Exhibition**, to be celebrated in the Buen Retiro Gardens, in Madrid. Although the exhibition never took place, it is interesting to note the indications given in the official publication of the international call for projects, in which some superficial guidelines were set out regarding the character of the main pavilion or palace which was to house the exhibition, indicating that «The construction shall be designed on a stone base, without foundations: visible or plastered brickwork in the facades: frame of iron or some other industrial combination, mainly lit from above and giving the entire building the architectural character required of this type of edifice. [...] With regard to the exterior (decoration) an attempt shall be made to emphasise the best elements of industry and, avoiding perishable plaster runs, use shall be made of baked clays, bricks of different shapes and types, tiles, stuccoes, stones from different provinces and permanent colours.»[2]. If we extrapolate these indications to the pavilion constructed twenty-one years later for the Mining Exhibition, we can see that, to a great extent, the design for what is now known as the Velazquez Palace, is no more than a response to that general image of an exhibition hall, although on a rather reduced scale. We may draw the same results from the report issued by the San Fernando Royal Academy of Fine Arts rejecting the project submitted by the architect José López Alegría, considering it «unsuitable to fill the purpose which must be satisfied by a building of this kind , which requires, as well as lightness, a considerable size and quantity of light for the positioning of exhibits, which purpose can only be achieved using iron combined with stonework and brick[3].

In 1871, ten years after the first competition, the question of the Exhibition was taken up again, the projects and settings planned on the previous occasion were reused and it was

decided to hold an exhibition under a wider heading: a **Hispano-Portuguese Exhibition**[4]. This idea was kept alive for just a year; in 1872 it was once again transformed into a more ambitious project, with a planned **Universal Exhibition for 1875**. This too, failed to materialise, despite an attempt to resurrect it during the First Republic.

A new competition was called in 1881[5], on this occasion for the building of a permanent Palace for public exhibitions, which was first destined to house a **General Exhibition of Industry and the Arts**[6], with participation limited to Spain and its Foreign Territories. The Decree recognized that this was a «competition of noble emulation, a copy, albeit on a more modest scale, of the great Exhibitions held to date in other countries»[7]. A substantial change was introduced with this new attempt: the location, which was originally to have been the Buen Retiro Park, as in previous proposals, was changed less than three months later to the Altos del Hipódromo. The question of the location of the exhibition sites is by no means secondary, since what was intended was to form a broad area of attraction for the encouragement of the arts and industry through regular exhibitions of all kinds, on the lines of South Kensington, among others. In this respect, let us take a brief look at what was written by Ramón Bañolas y Perarnau in 1887, to appreciate the similarity of the proposals and the origin thereof: «The English, with their practical spirit, appreciate the value of these exhibitions, and seeking the means of making them permanent, they took down the Crystal Palace and transported it to Sydenham Hill, a barren site which they turned into a magnificent park enriched with railways and every type of means of communication, which was later to become one of the best suburbs of London»[8].

This was really the first occasion on which the proposals looked like bearing fruit, and indeed, the Industry and Arts Palace was eventually built, albeit after an eventful birth which was to be reflected throughout the rest of its history, when it was eventually to become the National Natural Science Museum as it is today, although it scarcely met the project undertakings.[9] This was to be the first great exhibition palace built in accordance with the canons of the time which considered iron, steel and ceramics as unquestionable symbols of progress. However, when the hall was still being built, - the work was not completed until 1887 - it was decided to organize another exhibition, this time in the Buen Retiro Park, which, although under a different name, was to cover the same subject matter; this was the **Exhibition of Mining, Metallurgical Arts, Ceramics, Glasswork and Mineral Waters**. With the holding of this exhibition in 1883, and the Philippines Exhibition of 1887, the Retiro seemed to have won the battle to definitively become the focus of attention for leisure-time education in this meeting point so sought after by the organization of any type of exhibition.[10]. It is interesting to note that compared with the delay and parsimony shown in the earlier projects, the Mining Exhibition project was to come to fruition in a very short space of time, despite a postponement of one year in the opening: in the competition conditions, published in November 1881, it was called for May 1882[11].

THE MINING PAVILION.

Ricardo Velázquez Bosco, architect of the Ministry of Development[12], was the special representative for the organization of this exhibition, which was to bring together some of the most noteworthy examples of industry and industrial art of the time in Spain: those related with mining, metallurgy, ceramics and glass-working. A large number of small installations housing the representatives of the companies represented at the exhibition were grouped around the main building, the Mining Pavilion, which was designed by the same architect. In total, sixteen representatives of ceramic firms participated, most with their own installations. Nine of these came from production centres and the rest from provincial or commercial organizations[13].

The work of Velázquez Bosco may be said to be a compendium of the proposals made previously, developing for the central building the idea of an exhibition pavilion to bring together different idiographic aspects: firstly the traditional elements of Spanish architecture, with important connotations which in simple terms may be called Mudejar, that style so beloved of the progressives and liberals of the time[14]; secondly the iron and glass structures, representing the new era and industrial progress; and finally, ceramics as an image and vehicle of the arts[15]. In the interior, he created a practically diaphanous space only interrupted by cast iron columns which supported the glass canopy, while the outside contained a true repertoire of symbols and references.

References to the participation of the architect Alberto del Palacio Elisague in the design of the Pavilion in conjunction with Velázquez Bosco are still somewhat obscure. It would seem that his work was of great importance in the calculation and design of the iron structure, as was to be the case years later in the Crystal Palace, but his work, presumably carried out in the role of engineer, is not sufficiently documented. Nonetheless, two of the most emblematic works of the time by this little-studied architect would tend to lend credence to the impression of his participation: the main bay of Atocha Station in Madrid (1883-84) and the Vizcaya transporter bridge (design 1883-87, execution 1890-93)[16].

Let us return for a moment to the brief notes in the calling of the competition for the Hispano-American Exhibition published in 1862, in which it was stated that the constructions should be designed with a «framework of iron or any other industrial combination, and shall be principally lit from above». With regard to the exterior, the notes advise that «perishable plaster runs» should be avoided, an instruction which Velázquez Bosco chose to disregard, as the dogs are in plaster, as are the seried reliefs on the cornices, although it should be mentioned that they have proven not to be so perishable, and are still in a reasonable state of conservation. The use of «baked clays, bricks of different shapes and types, tiles, stuccoes, stones from different provinces and permanent colours»[17] was also recommended, and these in general terms were the guidelines followed in construction of the Pavilion.

CERAMICS

In a building nearly all of whose external elements used the play and polychromy of clay, the «facings» could only be of brick; «hard-burnt brick» in the brickwork and «fine pressed Zaragoza» on the visible faces[18], playing with two tones which were combined to create horizontal stripes.

«Baked clays» were used in true profusion, although the part which has been conserved is only a small part of the original. Thus, for example, only photographic documentation of the time remains of the terra cotta cresting which topped the loggias between the towers, with motifs of urns, flanked by cherubim, a typical example of the Plateresque spirit embodied by so many of the Spanish Pavilions at international exhibitions. This cresting must have been removed after the great cyclone which devastated the Buen Retiro Park on 12 May 1886. In photographs of the Philippines Exhibition (1887)[19] what had been the Mining Pavilion appears without the cresting, although in the account by Taviel de Andrade supposedly written in the same year, the cresting is described as if it still existed[20], which would seem to give credit to the idea that it was at the end of 1886 that it was decided to remove the cresting. The case of the balustrade of the upper body and the window openings is similar. These were originally of baked clay, but are now of artificial brick. This circumstance was not confirmed until, during restoration, there appeared, under the coats of paint, various original terra cotta balusters. Both the cresting and the balustrade were the

work of the firm Santigós y Compañía of Madrid, which, as we know, had its own pavilion at the Mining Exhibition.

Before restoration we were not certain either whether the keystones of the arches were of clay, although we suspected this might be the case, given the similarity with those of the Ministry for Development -now the Ministry of Agriculture-, executed in earthenware by Daniel Zuloaga under commission from Velázquez Bosco himself, some years later (1893-1897). The removal of the overlying coats of paint confirmed that the keystones, with a lion's head (a symbol of power and strength) were indeed of clay, as was the moulding - with an ova decoration - which framed the arches and joined them horizontally. The same was not the case with the keystones featuring a representation of Minerva (symbol of progress and protector of the arts) which were all of plaster. The similarities between the two keystones and the ova moulding and those of the Ministry of Agriculture led us to think that these might have been executed in the factory of La Moncloa by the Zuloagas, although once again one must bear in mind the Enrique Taviel's account, which attributes them to the Santigós y Cía factory, although he also indicates that the Minerva keystones were of baked clay[21].

With regard to the recommendation in 1862 that «tiles» be used, the profusion of use and the brilliance of composition can truly be said to be one of the most significant and important elements in the pavilion. Nonetheless, it must be said that probably the most important element of all is their perfect and harmonious incorporation into the overall design of the building, not as an added or superimposed element, but as another part of the indivisible pieces making up the facades.

All the tiling of the Velázquez Palace was executed in the La Moncloa Factory by the Zuloaga brothers: Guillermo, Germán and Daniel, and marked the outset of a fruitful collaboration between Daniel Zuloaga and Ricardo Velázquez Bosco, and by extension between ceramics and architecture[22]. There are a number of reasons why the La Moncloa factory may have been chosen, but it should not be forgotten that the State and the Crown had shareholdings in the «Sociedad de La Moncloa», as did certain people close to Velázquez Bosco, such as Juan de Dios de la Rada y Delgado, who on more than one occasion acted as his patron. Of course, some other aspect must have been of importance, and this was the need to find someone who could create and design, with skill, workmanship and an artistic sense, compositions of such spectacular dimensions as those required, although one cannot ignore the fact that the work of the Zuloaga brothers was almost unknown until that time. At the time of the opening of the Exhibition, a large part of the tiling was still missing, and when, the next year Velázquez Bosco commissioned the reform of the building including conclusion of the planned ceramic panels, he justified commissioning by direct contract of the Zuloaga brothers in the Project Memorandum by arguing that «there is only one factory, which, under the patronage of His Majesty and the Government, is located in La Moncloa, and which is in a position to offer this work at such short notice and in such a way that all the artistic and industrial conditions harmonize with the part already in position on the North and South faces»[23].

The importance acquired and the impact, not only of the ceramics as such, but the incorporation thereof in the facades of the Mining Palace, was considered in very positive terms from there on, not only for its formal but also its intellectual qualities in terms of the recovery of that glorious past which was to be the basis for the prosperity of the future, and therefore a symbol of progress, a keystone in regenerationist thinking. From this viewpoint, the tiles of La Moncloa were appraised as follows: «for the colour, glaze and composition, they are reminiscent of the best works of this genre in Spanish and Italian ceramics. The

idea of applying the glazed clay to the composition of the architectural decoration, which had not been done in Spain since the 16th century, has been taken from the portico of the church of Saint Paula in Seville, and the edifices of Italy, especially in Lombardy, where this type of ornamentation was very widespread in the 16th century.»[24]

I have already mentioned the fact that at the time of the opening of the exhibition, the tiled panels had only been put on the north and south facades, which did not feature the grandiose portico constructions either. A rendering of the elevations in sand-lime mortar in a red ochre colour (red iron oxide) had been favoured, as we found when we removed the tiles during restoration. Since the original plans cannot be found, we still do not know if it was originally intended to expose only the front and rear panels, and that it was only later that it was decided to extend them, or whether it was they were simply not included due to a shortage of time. It seems logical to imagine that the latter was the case, and this may be deduced from the above-mentioned memorandum from Velázquez Bosco the following year, in which he states that the project would basically involve «completing the glazed clay cladding on the facades which have yet to be treated, viz, W. and B. and also the two entrance porticos».[25] In addition, one must consider the suspicious speed in preparation of the ceramic elements: the memorandum is dated 31 March, and the Acceptance Agreement for the project was signed on 15 June.[26] The same would appear to be suggested by the letter sent by Germán Zuloaga to his brother Daniel before the Exhibition, in which he writes: «I have drawn up countless plans. One of them is for the exhibition arches, inside the building, as they want it done in the style of our pavilion.»[27]

Herein, perhaps, lies the key to interpretation of the differences and similarities between the composition of the main access unit and the rear unit, since while the leaded glasswork to the front brings out the texture of the tile bodies, to the rear they are totally covered by an opaque straw-coloured glaze. In addition, the medallions with their allegoric references to painting and sculpture were executed in cobalt on a white background on the front unit, whereas those relating to Architecture and Music on the rear unit are polychromatic. The remaining compositions and figures are extremely similar and marked by a deep sense of modernity with manganese tracings which lend substance to the design. On this basis it may be affirmed that the differences and similarities stem from the fact that the composition of the first unit was actually the composition in the La Moncloa Pavilion, and that in 1884 it was moved to its present location. This is mere speculation, of course, but it could explain why the later composition is visibly damaged on its upper section, despite the fact that the two porticos have the same dimensions, although in this regard one must bear in mind the successive operations through which the building was dragged, which I shall mention at a later point. All the tiles, except those on the porticos, were made using the «hollow» or «ridge» technique, combined at certain points with «cuerda seca».

The rich colouring bestowed on the structure by the alternate materials is based however on plays in the various colours and hues of the clays and terra cotta, real or imitation, with the splendid light and polychromy of the tiling. The value assigned to clay textures sparked off a multi-coloured mimicry masking all the features, which, if they were not actually made of that material, were decorated as if they were; such was the case of the stuccoes on the lower faces of the arches, in imitation of brick pieces; all the linear plaster mouldings; the lion-headed dogs; and Minerva and the keys.[28] It cannot be ruled out that the original intention was to execute them in terra cotta, as in previous projects (see the Development Ministry), and that a number of material reasons forced them to paint clay imitations. Moreover, this was a practice frequently used at that time to imitate the most precious of materials for this type of construction. The intention of mimicry also extended to the base in simulation of bee-hive masonry,[29] but it even seemed to lend the brick a hint

of surface brightness by projecting it in the same colour.[30]

I do not wish to ignore the Pavilion floor tiling, which in the Exhibition was composed «of different sorts of flooring materials from factories in Spain and abroad, trying to use this method as the best way to advertise their wares». Considering it was unsuitable for the Fine Arts Exhibition, the following year Velázquez Bosco suggested retaining the tiling on the larger areas and covering the remaining areas with «another of a similar type», «with so-called «cement-encrusted» tiles (...) fixed in place with best quality plaster[31].

A SUCCESSION OF INTERVENTIONS

One extremely important consideration in the development of the building, which was to have a crucial impact on future conservation, was often echoed in the period during which the Mining Pavilion was envisaged as a temporary structure, perhaps or very possibly because at that time the so-called Palace of Industry and the Arts was under construction, which was very definitely designed as a central exhibition venue. Although this point (the provisional nature of the Pavilion) must be revised and examined at greater length on the basis of fresh documentation which has only just come to light, for the moment we could sum up by saying that the construction delays and management problems of the Palace of Industry and the Arts transform the Velázquez Palace into a stable structure designed to fill the purpose originally intended for the Palace of Industry and the Arts, which it was to share with the Crystal Palace from 1887 on. Indeed, the pavilion's temporary image is a constant feature systematically repeated within every single restoration or extension project planned for it, as can be seen in the almost yearly reams of repairs notes, such as the notes concerning the window pitch which had to be applied before the opening of each exhibition, which contain the reproach that neither the condition nor the size of the Palace met the demands of such events.[32]

It was this lack of space which in 1914 led Ricardo Velázquez Bosco to suggest an extension to the Pavilion, in addition to the project taken on by the Development Ministry to build a new structure between the Crystal Palace and the Mining Pavilion for the 1915 Fine Arts Exhibition. The idea of creating a new pavilion was rejected and an alternative design chosen which would add two wings onto the Mining Pavilion, unconcealed and connected by a gallery, keeping constructed space as the axis and centre and repeating this compositional theme on the facades; «the décor is also a repetition of what today's pavilion has to offer in the way of decoration». For reasons of lack of funding and time, the Board of the Ministry of Public Education decided they «should consider it sufficient for the moment to build one of these side pavilions beside the Mining Edifice». In the end neither this wing nor the free-standing unit were built.[33]

After the plans for extension were finally rejected there were several subsequent projects, all concentrating on the Pavilion's rear extension. Thus in 1934, the architect who had succeeded Velázquez Bosco as the building's curator, Emilio Moya, submitted an extension plan which, although the City Council refused permission for it to be built, was to shape the designs of future projects. Moya suggested «constructing two rear units» with due respect for the central axis, and reproducing the remaining facades, «yet leaving the arches blind and removing the decorative spandrels and tile frieze».[34] It was precisely the last point which least convinced Teodoro de Anasagasti, the city architect encharged with reporting on the project, who reasoned that «it is not advisable to remove from the existing facades the tiles in the current arrangement, whose character is worth preserving. It is a magnificent building at the heart of Madrid's largest communal area, the jewel in its crown (...) and it would not be seemly for the new facades to be unworthy of the old, presenting an

unfavourable contrast among the various parts of the structure and thus damaging it as a coherent whole»[35], words which doubtless echoed the esteem in which the emblematic structure was held at that time.

As we may gather from the architect's report submitted in 1941 by Guillermo Diz Flórez, after the civil war the building must have been a pitiful sight, in a situation of «devastation, the natural result of being used as a barracks by a gang of gun-toting Reds». What they did consider was «removing the ceramic decoration from the rear facade's frieze arrangement», which was deemed essential due to the bad state of repair after bombs had been dropped on that very spot.[36] The following year he submitted an Extension Design based on Moya's, which also came to nothing. This design suggested that the back-to-back gallery be continuous, concealing and cancelling out the central unit.[37]

Diz Flórez's proposal to build an unbroken facade was taken literally by Iñiguez Almech in 1951, who did manage to carry out this task.[38] The surface was clad in two-tone false plaster, dark horizontal bands on a salmon background which hint at the brick composition on the other facades.

However, the ongoing repair work did not cease despite these efforts, and in 1968 Fernando Chueca Goitia was commissioned to supply a fresh design. This aimed to reappraise the structure using a much more positive reading than had been used in previous years.[39] To this end the decision was taken to build the extension as a mimicry of the front galleries, using brick lining and a plaster reproduction of the keys, arches, unbroken mouldings and balustrades of the false stairwells. The dog moulding was not reproduced since this gallery was lower than the rest of the structure. However, the most significant decision was unquestionably to recover the rear access volume, cutting through the continuous nave and creating the open patio as we know it today. The tiled panels removed in 1941 were reinstated, and the entire portico was sheathed with new bricks. As we may see, this is a design which dates back to Moya's idea of 1934.

More work was carried out in 1979, but apparently this amounted basically to tiling and a general facelift. It was possibly at this time that the decision was taken to install scattered tiles among some of the spandrels to the rear, and provide painted ceramic imitations for the remainder, which were in an extremely bad state of repair.

RESTORATION WORK

This brings us to 1988, when the Ministry of Culture decided to take on the rehabilitation and complete restoration of the building. José de la Dehesa took on the job of architect and, between 1988 and 1989, carried out restoration work on the roofs, performed salvage work on the interior and constructed new elements as a first step. The second stage of the process, between 1990 and 1991, focused on restoring the facades. In view of the features of the materials to be used, I was asked to draw up plans and lead the restoration project, evidently and obviously as a Technical Assistant to Management.[40] The job was multi-disciplined at all times in both the search for solutions and the taking of decisions. Federico Prieto joined the team as a quantity surveyor. I believe our final product to be both gratifying and enriching. It was not only a question of solving material problems of sheer technique in the restoration of deteriorated, damaged or changed features, but of planning the overall meaning of the project, considering an appraisal of the structure's language, and in short, a reading of the structure to be conveyed. To this end detailed research was carried out into the historical context which I have attempted to describe; pathologies and

possibilities of working on each part just as it stood, and methodology to be followed in the case of a building which required the full weight of the strictest and most delicate restoration criteria in a number of directions or on specific features. Also treatment of large surfaces and action taken regarding features of a semi-industrial nature, while of course not ignoring the architect's respect for and fulfilment of restoration criteria and technical precision during construction.

Since the aspects of greatest interest here relate to work on tiling, I propose to concentrate on these with brief references to other materials. Moreover, it was precisely these materials which gave rise to the greatest number of decisions and criteria, in a bid to compatibilise and unite the many and varied partial courses of action with overall interpretation of the building. The remaining interventions may be classified as systematic operations of varying degrees of complexity.

• One of the most urgent problems for us was without doubt the state of conservation of the main portico. The bonding mortar was in a state of decomposition as a result of leakage, and water absorption by capillarity posed a real danger to the tiling, whose bodies and glazing were also affected by saline scumming. In fact, some 120 tiles from the composition to the right were practically only held on by an emergency methacrylate panel. This situation must have caused the mysterious disappearance of 50 tiles making up a whole pitcher, and which had been replaced by an oil-painted reintegration on plaster, in a very advanced state of decomposition. The same was true of 8 tiles in the top section to the right. The dirt in general, oil-painted touch-ups and fragments of pieces joined together in irregular fashion with adhesive products, which were coming apart, posed another set of problems, not to mention the appalling condition of the border plaster moulding.

It was becoming inevitable that we would have to take down the entire construction (in some cases we literally had to pick it up off the ground) and take it to the workshop to give it back its stability. For an understanding of just what this involves, we are talking about 1,290 tiles measuring 175 x 175 mm, 15 mm thick with a total surface area 7.02 metres in height and 14.40 metres in length. But the dismantling operation and workshop treatment, involving sealing, desalinisation, bonding, the reintegration of small flaws and so on, was actually more painstaking than complicated.

Since it was necessary to remove the tiles, a plan involving self-supporting panels was devised for relocating them in a bid to isolate them from the face, thus avoiding capillary-transported moisture absorption which could have returned despite the measures taken to eliminate it. Using an Aerolam F-Board panel assembly,[41] which had been tested on tiling during previous work[42], we managed to integrate the composition in its original location without any appreciable visual difference, which also allowed for it to be removed if necessary, without causing further damage. It was secured with Fischer SRS-100 anchors and fastening rings as per the plan enclosed showing the breakdown of panels.

The dimensions of the two gaps, but particularly the larger one which was also just within sight as a flank to two of the entrance doors, convinced us that we should concentrate our efforts on a reintegration scheme consistent with the reproduction of the 50 original tiles using ceramic techniques[43], using as a base the existing reproduction on plaster and the twin composition of the pilaster to the left. To create a subtle differentiation, the colour shades were altered slightly. The remaining small flaws on the tiles were made up with epoxide resin mortar[44], containing a finely powdered marble filling with an epoxide resin coating and using a synthetic pigment formulation for the colouring.

• Another problem we had to solve involved the galleries added to the rear of the building in 1951. When they were attached to the rear facade, this elevation was walled up as a partition to conceal the woodwork, mouldings, keys and other features, with the exception of the tiling, removed and lumped together inside one of the open spaces. This was the structure as I found it in 1989. I requested that it be stored in boxes, and thus one of the first tasks undertaken at that time was classification, identification and cleaning. We presume that the tiles placed on some spandrels of the new elevations (the rest were an imitation painted onto cement) came from this pool, all material then deemed useful for this purpose having been used. On the one hand it was obvious that there were more pieces in a retrievable state than could be reinserted, and on the other we believed that it was more practical and principled to return as many tiles as possible to the building, and thus give back meaning to the tiles. Following this plan, we decided to completely develop the ceramic elements in the spandrels of the rear constructions as these were to have been on the original wall, and this allowed us to recycle a considerable number of the pieces in storage. Naturally, we also used tile and round moulding fragments once these had been restored and recomposed, but even so it was found necessary to complete large areas to maintain the visual unity of the Palace, and to this end we also used ceramic reproductions. All these features were laid with sand-lime mortar.

• The state of repair of the portico tiles also gave cause for concern, in this case owing to the countless broken pieces, terrible reintegration and the many errors made during the fixing procedure. In 1968, the use of cement mortar to secure the tiles and also to reintegrate gaps was doubtless the cause of the failure of many sections due to the brittleness of this mortar. It was also caused by saline scumming, although we noted that this was not a particularly significant cause and would pose no real problem provided the condition of the elevations was monitored and dampness was prevented.

Planning disassembly to remove the cement mortar and carrying out an operation similar to that executed on the main portico was a truly complicated intervention, particularly if it is borne in mind that there was no risk of pieces falling off, and for this reason we decided to work in situ. We thus proceeded to remove the repainted sections[45], superimposed on the original glazing, and reintegrate the cement most carefully so as not to affect adjacent sections. Reintegration was carried out in this case with extra-hard plaster and silicate-bonded earth pigments for easier working and because this was an unexposed area.

• The main problem of the compositions forming the arches of the towers at the ends was created by the decomposition and powdery state of the mortar in some sections, which had caused bulges and swellings that threatened the integrity of the panels, especially the lower section. One of the reasons was doubtless the fact that the tiles had lost their joins, and the deterioration of the composition's side rendering, which had allowed continuous leakages to undermine the mortar. Not only did it cause this effect, but it also contributed to the loss of 38 tiles from the six arches on the four towers[46] (although other causes cannot be ruled out). Part of the losses had been reintegrated by oil-painted work on plaster, which showed great deterioration, and they were thus removed.

We analysed the features of the panels and saw the chance to consolidate them *in situ*, thus avoiding ripping them out, which always involves greater risks. In this way we faithfully maintained the peculiarities of the original arrangement with all its flaws. Consequently, we proceeded to carry out a comprehensive cleansing of all joints and the rear sealing with an epoxide mortar for complete penetration, while keeping it from rising above tile level. At two-tile intervals, small holes were bored and liquid resin injected through the holes for slow penetration. In certain cases it was found necessary to exert a constant uniform pressure

to return the tiles to their original position, and on a couple of occasions some stripping was carried out to relocate them as suitably as possible. The border renderings were completely repaired and sealed against the elements.

With regard to the loss of whole tiles mentioned above, we were able to integrate some of the stored tiles from the rear face, and ceramic reproduction was used for the rest. We followed the same criteria already discussed for partial reintegration work.

• On the terra cotta units, the several layers of acrylic paint hiding the original material also concealed actual problems such as saline scumming, many cracks and fissures, exfoliations which had already reduced the volume of the units, or flaws in facade joins and internal bonding, which caused most of the structural pathology.

Obviously, we decided to restore their original appearance and show the clay textures in all their glory. Thus, the first task involved eliminating polychromy[47] and carrying out the necessary desalinisation operations.[48] After the consolidation[49], all cracks and fissures were sealed, some units carrying out static functions of protection against water were reintegrated, and deteriorated joins were packed for the same purpose.[50] Lastly, all the material was dampproofed.[51]

• We have already mentioned the plaster units.[52] These were originally polychromed as clay imitations, an arrangement which was worlds away from the situation that we encountered of successive layers of paint, no longer identifiable with this colouring. Thus our aims centred on restoring this polychromy once the units had been restored and brought back to a definite state of conservation. The colour toning was obtained from samples taken in various parts of the building and, since the matter of retrieving any possible remains was totally out of the question, we cleaned and removed only those remains of the last applications which were in a state of deterioration or whose excesses concealed the units. Once the plaster was consolidated,[53] some partial reintegration work was carried out so as to proceed to colour toning.[54] Of course, the original polychromy was retained for the stucco on the arch intrados in imitation of the ring course.

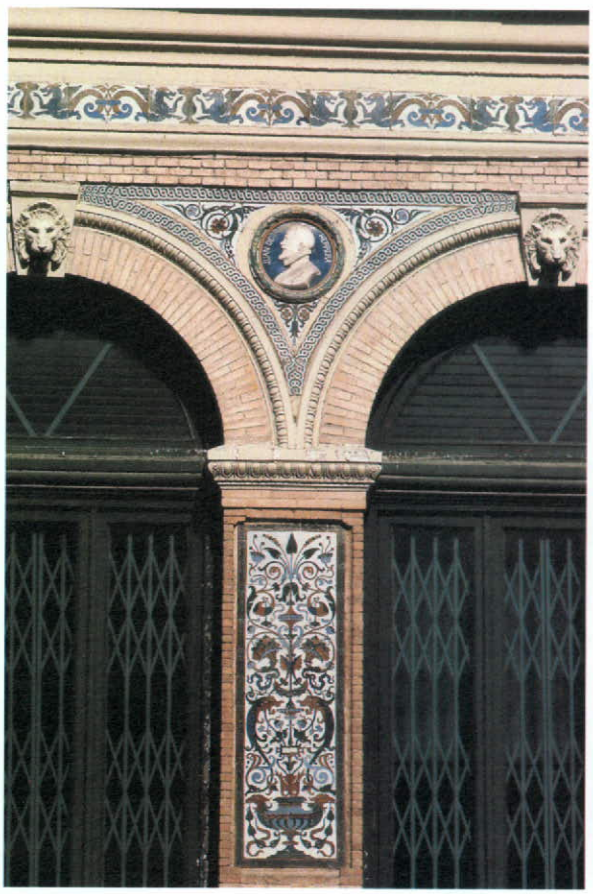
These are some of the operations carried out on the restoration project for the Velázquez Palace, as it is now called, in memory of its creator. We have not mentioned the work involved on the brick elevations, the unbroken skirting, the cast-iron pillars and features such as natural stone and artificial stone sculptures, but I do not believe this is the time to add to what is already a lengthy treatise.

Thus, in conclusion, I should say that our objective in the course of this project, as far as the passage of time permitted, has been to recover as closely as possible, the appearance of the Mining Pavilion's original design, respecting and restoring all the features that had not been completely obliterated, while understanding the building as being the outcome of a process of continual transformation, merging to yield its virtual reality.

2. Main facade of the Mining Pavilion in 1883. Photograph by Laurent.

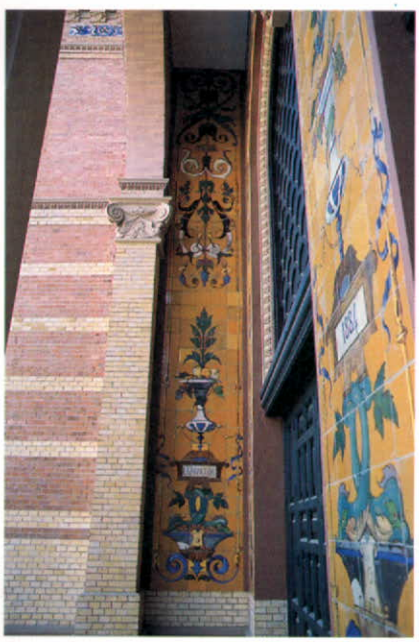
16. Main entrance portico. Loss of 50 tiles reintegrated on plaster prior to the intervention.

17. The same part, reintegrated using new ceramic reproductions.



19. Main facade, side loggia, in 1989.

20. The same part, after the intervention: restored tiles, recovery of the original polychromatic colouring of the plaster mouldings: and texture of the keys and ova mouldings of baked clay.



23. Rear entrance portico, left side. Final appearance after the intervention.

30. Left side of the building, left tower. Appearance after finalising the intervention. Besides the work done on the tiling, the stucco restoration can be observed, imitating brickwork in the arch curve.

41. Main facade of the Velazquez Palace after its restoration.

1. Two years were to pass before he was to publish these reports himself. NAVARRO REVERTER, Juan: Del *Turia al Danubio. Memorias de la Exposición Universal de Viena*, Madrid 1975.

2. *La Gaceta*: «Exposición HispanoAmericana, Concurso para la presentación de Proyectos», Articles 5º and 6º, 17 July 1862.

3. Records of La Real Academia de Bellas Artes de San Fernando, Legajo 424/2, Doc.4. Signed by Juan Bautista Peyronnet on 7 February, 1863.

4. *La Gaceta:*, 7 November 1872.

5. Royal Decree, 6 April 1881.

6. Royal Decree, 7 February 1881.

7. *La Gaceta*. 8 February 1881.

8. BAÑOLAS Y PERARNAU, Ramón: *Palacio de Cristal Español*, Establecimiento Tipográfico a cargo de J.Quesada, p.2, Madrid, 1887.

9. «By giving a permanent nature to the construction of the Exhibition Palace, this shall later serve the needs of a capital as populous as Madrid, which lacks a building of this nature».*La Gaceta*, 8 February 1881.

10. «The area designated as the *Campo Grande* in the old plans of the Buen Retiro, made out during the reign of Philip IV, was so successfully chosen in 1883 for the **Mining Exhibition**, that since then nobody has considered seeking another for the great demonstrations of human thought which it is not possible to enclose within a single building.» FE, Ricardo: *Exposición General de las Islas Filipinas*. Guía, Establc. Tip. de Ricardo Fé, Madrid, 1887.
In this regard, it should be remembered that the pavilions of the Buen Retiro were later joined by the palace of the **Circulo de Bellas Artes** in which important exhibitions were held, such as the First National Exhibition of Decorative Arts in 1911.

11. *Exposición Nacional de Minería, Artes Metalúrgicas Cerámica y Cristal. Al País*, Madrid 5 November, 1881.

12. For an account of the personage and professional career of Velázquez Bosco see; BADELLOU SANTOLARIA, Miguel Angel: *Ricardo Velázquez Bosco*, Dirección General de Bellas Artes y Archivos, Madrid 1990, Exhibition Catalogue, and for an account of his relationship with the world of ceramics, see; PERLA, Antonio: *Cerámica aplicada en la arquitectura Madrileña*, Consejería de Política Territorial, Comunidad de Madrid, Madrid, 1988.

13. In the Conditions of the Exhibition, under the heading of Ceramics and Glassworking, it was established that: «Any matter related to these important industries shall be accepted for the competition». The ceramics firms attending the exhibition were: José Gastaldo, of Valencia; La Moncloa, of Madrid; Herederos de Valariano, of Cartagena; Juan Falcó y Sancho, of Valdemorillo; Santigós y Compañía, of Madrid; Cifuentes, Pola y Cia, of Gijón; Subirá y Vila, of San Salvador de Breda (Barcelona); Hijos de Miguel Nolla, of Valencia; y Francisco Navarro y Díez, of Madrid. The Province of Cáceres presented items of pottery by Arroyo del Puerco, Plasencia y Trujillo, and roof-tiles and bricks by Garrovillas de Alconetar. The Province of León also exhibited pottery ware. The Balearic Islands exhibited pottery by Telanite y Manacor and majolica ware by Ernesto Camit. Toledo exhibited ceramic objects by José Montoya, together with others from Mocejón, Cuerva, Ocaña, Puente del Arzobispo y Talavera.

14. Taviel de Andrade defined his style as «Modern Renaissance with Neo-Greek influences». TAVIEL DE ANDRADE, Enrique: *Historia de la Exposición de Filipinas*, Ulpiano Gómez y Pérez Printers, Madrid, 1887, Vol. II, pp 74 to 76.

15. PERLA, Antonio: «El programa iconográfico del Ministerio de Fomento: Velázquez Bosco y Daniel Zuloaga», *II Jornadas sobre Iconografía, Cuadernos de Iconografía*, Fundación Universitaria, pp.271278, Madrid, 1991.

16. In 1971, the magazine *Nueva Forma* dedicated an entire edition to the figure of Alberto del Palacio Elissague, nº 60/61, January/February, and in 1993 the Town Council of Las Arenas (Bilbao) held an exhibition of his work on the occasion of the centenary of the Transporter Bridge.

17. *La Gaceta:*, 17 July, 1862.

18. TAVIEL DE ANDRADE, Enrique: op cit .

19. LAURENT, J.: *Exposición General de las Islas Filipinas en Madrid, 1887 (A S.M. La Reina Regente Dña. Mª Cristina)*, Photograph Album, Madrid, 1887.

20. «On either side of the central body there is a cloistered gallery, formed by six half-point arches, separated by brick pilasters, and on the cornice-work of this part there is a cresting, with figures and urns, in the Modern style, although the idea and arrangement are taken from that decorating the palaces of Salamanca, built in the 16th century.» TAVIEL DE ANDRADE, Enrique: op cit.

21. «All the ornamentation, in keystones, imposts, archivolts, cornices, and cresting are of baked clay from the factory of Santigós y Compañía of Madrid,...» «The imposts of the pilasters and archivolts of the arches are decorated with ova mouldings, and the head keystones with Minerva, all in baked clay.» TAVIEL DE ANDRADE, Enrique: op cit

22. This collaboration was to produce, among others, the Palacio de Cristal, the School of Mining and the Ministry for Development. See QUESADA MARTIN, Mª Jesús: *Daniel Zuloaga, Ceramista y Pintor*, Universidad Complutense de Madrid, Madrid 1984 and PERLA, Antonio: Cerámica aplicada ... op. cit.

23. VELAZQUEZ BOSCO, Ricardo: *Proyecto de Obras de reforma y decorado en el edificio destinado a Exposición de Bellas Artes*, (2º), Madrid, 31 March 1884. Archivo General de la Administración 8.185, Leg. 89281.

24. TAVIEL DE ANDRADE, Enrique: op cit

25. VELAZQUEZ BOSCO, Ricardo: Proyecto de Obras ... op. cit.

26. «work on the décor of the facades, the skirtings and the roofs has been carried out most carefully in strict adherence to the official design». *Acceptance Agreement of the work carried out for the installation of the Fine Arts Exhibition*, A.G.A.8.182, Leg.8926-1.

27. QUESADA MARTIN, Mª Jesús: Daniel Zuloaga, op. cit., t.2, doc.21, p.37.

28. In the «Accounts concerning the termination by the administration of work for decoration and repairs on the building used for the Mining Exhibition, with a view to using it for the last Fine Arts Exhibition», at a meeting held on 13 January 1885, the «exposed brick painting of the plaster decoration» is mentioned. A.G.A.8182, Leg. 8926-1.

29. «The part of the skirting moulding that is falling to pieces, or threatening to do so, shall be thoroughly cleaned, filling the brick joints, putting nails between stretches, and immediately installing the skirting made of Portland cement mixed with used crushed roof-tiles and quartz sand; immediately thereafter three coats of oil paint are to be applied, one in red lead and two as a beehive imitation, preparing the colour with white lead «. VELAZQUEZ BOSCO, R.: op. cit.

30. «The painting of the exposed brick section shall be carried out with one coat of drying oil, slightly coloured with toasted sienna and red lead». Ibidem.

31. VELAZQUEZ BOSCO, Ricardo: *Proyecto de Obras de reforma y decorado en el edificio destinado a Exposición de Bellas Artes*, (1º), Madrid, 20 February 1884. A.G.A. 8.185, Leg. 89281.

32. The Madrid National Exhibition calls for repair and restoration work to be carried out on exhibition pavilions in the Madrid Park, when this competition is held every two years». Report submitted in August 1932 by Emilio Moya, an architect from the Ministry of Development responsible for services in the city's Retiro district, A.G.A.8.179, Leg. 13.266-3.

33. A.G.A.8.179, Leg 13.266

34. MOYA, Emilio: *Memoria descriptiva de las obras que comprende el presente proyecto de ampliación del Palacio de Exposiciones del Retiro*, 25 March 1934, A.G.A.8.179, Leg 13.266-3.

35. ANASAGASTI, Teodoro: *Proyecto de ampliación del Palacio de Exposiciones del Retiro*, 5 May 1934, A.G.A., Leg 13.258-4.
It was not this report which refused permission but another, dated 19 February 1935, which made reference to the lack of official authorisation to build permanent constructions in the Retiro park.

36. DIZ FLOREZ, Guillermo: Proyecto de obras de reforma en el Palacio de Exposiciones del Retiro, 1941. A.G.A.5.528, Leg 13.693.

37. «The works involved in this project are the ones needed to extend the rear of the palace, with four new rooms and a central area as an unpacking storeroom area with cloakroom facilities for both sexes». DIZ FLOREZ, Guillermo: *Proyecto de Ampliación del Palacio de Exposiciones del Retiro*, July 1942. A.G.A.5.528, Leg 13.693-5.

38. IÑIGUEZ ALMECH, Francisco: *Proyecto de Ampliación del Palacio de Exposiciones del Retiro*, 1951. A.G.A., Leg 14.597-9.

39. CHUECA GOITIA, Fernando: *Proyecto de Reforma del Palacio de Exposiciones del Retiro*, 1968. A.G.A.8.180, Leg. 8.924-6.

40. Restoration work began in December 1990 and finished in June 1992. The project was awarded by public tender to the restoration company Conservación de Bienes Culturales s.a.l. (CORESAL).

41. In this case, and in view of the size, volume and weight of the composition, not forgetting its external location, although protected by the portico, once its reversibility had been proven, it was decided to adhere the tiles to the panel with an epoxide bonding agent.

42. PERLA, A.: «A complex project. Recovering the tile skirting from the La Cartuja de Santa María de las Cuevas de Sevilla Cloister», *Azulejo*, the National Tile Museum's magazine, pp. 74-92, Lisbon 1993. AA.VV.: Rehabilitación de la Cerámica en la Arquitectura, Asociación de Ceramología/Universidad Politécnica de Valencia, Valencia 1995.

43. The reproductions were carried out by a team of lecturers from the Official School of Ceramics in Madrid.

44. Fetadur 63-Fetadit 66.

45. Using organic dissolvents (essence of turpentine, alcohol and acetone) and cotton swabs.

46. There were 3 tiles missing from the right-hand arch on the main facade and 5 missing from the arch on the left. There were none missing from the right-hand arch on the side facade to the right, and 4 missing from the left-hand arch on the same facade. There were 3 tiles missing from the right-hand arch on the left side facade, and 23 missing from its left-hand arch.

47. Using acetone, with cotton swabs and brushing.

48. Using AB-57 adhesive stickers.

49. With ethyl acetate in benzine and alcohol.

50. For this task, we used an epoxide resin mortar with powdered marble aggregate imitating the colour of clay.

51. By spaying low-molar high-penetration organosiloxane.

52. It should be remembered that these were the keys representing Minerva, the dogs with lions' heads and garlands between their jaws, the horizontal mouldings forming cornices and the four allegoric plaques evoking Fine Arts and Mining.
This section includes the artificial stone balustrade, due to the similarity of the work.

53. This was consolidated by means of an injection of pure polyvinyl acetate.

54. A vinyl-acrylic copolymer osmotic sealant was applied.