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A STUDY ON THE APPLICATION LIGHTING PROJECT OF KILIÇ ALİ PASHA MOSQUE AT TOPHANE DISTRICT*

TOPHANE KILIÇ ALİ PAŞA CAMİİ'NİN AYDINLATMA UYGULAMA PROJESİ'NE DAİR

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Abstract

Lighting is one of the most popular issues in our day among people. We already know that Muslims used to give great importance to this issue. Usage of the word "light" in the Holy Quran has increased the importance attached to the issue. The issue is quite interesting and has become a center of attention for many people. There is an effort to lighten buildings with various colors with an eye to draw attention in this way. While this can be called as lighting play it is also possible to interpret the issue as a trick. Nonetheless, lighting is the duet of space with light. It is observed that lighting is also used in historical buildings with a view to emphasize the importance thereof especially in the last 20 and 30 years. Lighting helps to highlight the relevant parts of historical buildings following the sunset. However, the point I want to draw attention at this stage is that lighting applications to be made to the domes, frames, narthexes, minarets, enclosure walls and courtyard entrances should be made without damaging the foregoing. And accordingly, installation of lighting fixtures should be carried out without drilling, scraping or breaking the walls. This article hereby has been penned based on my request and the reflex to prevent any damage to be given to Kılıç Ali Pasha Mosque during the applications made within the framework of the lighting project. A list of recommendations on issues which should be paid attention to during the said lighting application were tried to be listed prior to realization of the project passed through life. Traditional-artificial lighting means such as lamps, candleholders, candles and chandeliers have been abandoned in our day and technological artificial lighting devices such as lamps, luminaires, spotlights and LEDs have

*This article is neither a written form of the scientific consultancies performed through me and our colleagues from time to time nor the reports written by us converted into an article. This article was penned as an instinctive reaction to avoid any kind of damage to Kılıç Ali Pasha Mosque which is a reminder of Sinan the Architect due to the lighting project when destruction of our historical artifacts is increasing rapidly in our day. I would like to highlight the fact that the purpose of the article is a humble advise to those who will make the project more than a concern that a damage will be caused.

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begun to be utilized. New technologies denoting intervention to historical monuments strengthen the frequency of sensitivity.

Keywords: Lighting, Lighting Of Historical Monuments, Mosques Of Sinan The Architect, Kiliç Ali Pasha Mosque, Tophane

Öz

Aydınlatma, günümüz insanının en popüler konuları arasındadır. Müslümanların konuya büyük önem verdiklerini biliyoruz. Kur'an'da nur kelimesinin geçmesi, konuya verilen önemi artırmıştır. Konu oldukça dikkat çekicidir ve çoğu insanın ilgi odağındadır. Binalar, çeşitli renklerle aydınlatılma çabası içindedir ve bu yolla dikkat çekilmek istenmektedir. Buna ışık oyunu demek mümkün olabileceği gibi aldatmaca şeklinde yorumlamak da olasıdır. Her şeye rağmen aydınlatma, ışıkla mekânın düetidir. Özellikle son 20-30 yıldır, vurgulamak amacıyla, tarihi eserlerin de aydınlatıldığı görülmektedir. Aydınlatma, bir tarihi eserin ilgili bölümlerini güneş battıktan sonra da vurgulanmasına yardımcı olmaktadır. Ancak burada dikkat çekmek istediğim husus, aydınlatma uygulamalarının kubbelere, kasnağa, son cemaat yerine, minareye, çevre duvarına, avlu girişlerine zarar vermeden yapılmasıdır. Bunun için, duvarlarda herhangi bir delme, kazıma, kırma işlemi yapılmaksızın montajlamaya geçilmelidir. İşbu yazı, Kılıç Ali Paşa Camii'nin aydınlatma projesindeki uygulamalar sırasında zarar görmemesi isteği ve refleksi ile kaleme alınmıştır. Proje hayata geçmeden önce, aydınlatma uygulamasında dikkat edilmesi gereken öneriler sıralanmaya çalışılmıştır. Günümüzde, kandil, şamdan, mum ve avize gibi geleneksel-yapay aydınlatma araçlarının kullanımı terkedilerek, lamba, armatür, spot, led gibi teknolojik-yapay aydınlatma araçları kullanılmaya başlanmıştır. Yeni teknolojilerin tarihi eserlere müdahale anlamına gelmesi, hassasiyet frekansını güçlendirmektedir.

Anahtar Kelimeler: Aydınlatma, Tarihi Eser Aydınlatması, Mimar Sinan Camileri, Kılıç Ali Paşa Camii, Tophane

1. INTRODUCTION

Development of lighting technology has led to introduction of concepts such as light art and media architecture into the architecture. Moreover, lighting has begun to be considered as the fourth dimension of architecture. Lighting has gradually begun to enter more and more to individual and social lives of people. While, studies related to this issue increases, numerous symposia, lectures, panels and meetings are organized and exhibitions are made. Addition of artificial light applications to modern architecture since the second half of the 19th century has also spread to religious architecture and has an increasing importance. In our day, airports, train stations, hospitals, factories, municipal service buildings, refineries, private insurance buildings, palaces, shopping centers, hotels, museums, art and culture centers, castles, residences, villas, mansions, offices, bridges, streets, parks, tunnels, club buildings, R & D buildings, various clothing stores, headquarters of telephone companies, mosques, churches, temples, tombs and similar buildings are exhibited by virtue of light art providing various colors from different angles.

Light is controlled by humans and serves your target as to whatever you want to highlight while adding a different dimension to architecture and enabling perception of whatever is unrecognized. Artificial

lighting must show the unit on which it makes reflection close to normal daylight. Professional lighting specialists are required in planning of lighting. Lighting elements - both interior and exterior- should never be at the forefront and should not be felt in the space but importance should be attached only to the light it provides. In this way, it must be ensured that due respect is shown to the religious structures where lighting elements are utilized while the structure must be allowed to explain itself in a better way.

D. Kuban states that mosques of Sinan the Architect, for which big amounts of light are used, are used with a view to highlight the religious and political symbols thereof. Design of walls, with high number of windows, is one of the most important features which separates Ottoman architecture from the Middle Age Anatolian Turkish architecture (Kuban, 1988: 600-601).

The light beam coming through the window makes the environment, into which it enters as if dancing during different hours of the day, active while making such space explicit and integrated. A disorder in the window system gives harm to harmony just like a person's stepping on his/her partner's foot while dancing. Light and space should be in harmony just like singers making duet successfully while singing a popular song.

2. THE AIM

This article has been penned upon the warning that no damage should be given to the mosque during the application of elements such as the armatures and fixing elements to the mosque upon the "Lighting Application Project of Kılıç Ali Pasha Mosque" submitted to Istanbul Regional Conservation Committee for the Protection of 2nd Number Cultural Assets by Urban Design Directorate of Istanbul Metropolitan Municipality nowadays (January 2018) within the scope of Istanbul Lighting Master Plan.

The first issue we want to draw attention in the lighting application project of Kılıç Ali Pasha Mosque is to carry out the lighting applications without damaging the domes, frames, narthexes, minarets, enclosure walls and courtyard entrances. And accordingly, installation should be carried out without drilling, scraping or breaking the walls. Optimum lighting level with minimal intervention has to be achieved. It is expected that protectionism and the sensitivity respect for a historical monument shown in the application to be carried out must be an exemplary approach with highest level. To this end, there is a need for art historians who will observe the level of the intervention and an architect to evaluate the design in addition to electrical engineers and lighting specialists who will make the calculations.

3. INFORMATION ON THE MOSQUE

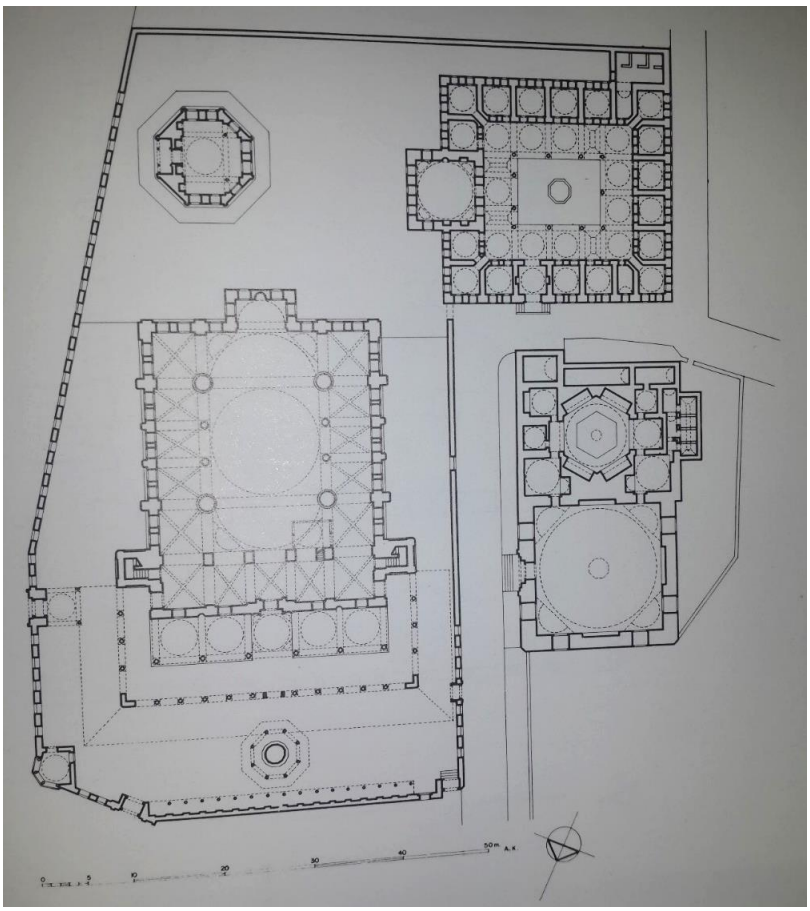
The street address of the mosque located in the Tophane district is as, the province of Istanbul, district of Beyoglu, quarter of Kemankeş neighborhood and Topçular Street. It is registered on map section number 120, city block number 63, plot number 17 and belongs to Kılınç Ali Pasha Foundation. Protection group of the monument located within urban conservation area has been determined as "1" by the decision dated 08.06.2005, number 785 of Istanbul Regional Conservation Committee for the Protection of 1st Number Cultural Assets.

A fire broke out on 11.02.2011 while the restoration of the mosque was ongoing, and it was extinguished before it spread to interior parts. In 1958, Kemeraltı and Meclis-i Mebusan streets were

expanded and the Tophane square was restructured. The north of the courtyard wall was rebuilt and the shops, which existed until then, were not renovated during these works (Kuran, 1986: 209).

The mosque has five entrances as one in the east, two in the north, and two in the west. The mosque, tomb (burial area around it), Turkish bath, public fountain and the madrasah, which was added at the beginning of the 17th century make up an Islamic-Ottoman social complex (Kuran, 1988: 171). Much as it is said in some sources that there was also a primary school within the complex there is no information as to its place and when it was removed (Kuran, 1978: 175). S. Eyice states that the public fountain does not belong to the complex (Eyice, 1989: 172; idem, 2002: 413-414). Indeed, the architectural forms of the public fountain remove the doubt that it was constructed later. And the madrasah (Muslim theological school) most probably belongs to the end of the 16th century since it is not mentioned in the official certificates belonging to Sinan (Kuran, 1978: 175). The complex was built by Kılıç Ali Pasha (d. 1587) (Bostan, 2002: 411-412; idem, 2014: 145-147). Ulvi has said "You name the sky with your sword like that of Ali (Arşa adsın Ali gibi kılıcı)" while Tâlibî "He left this world of mortals through this door (Gitti bu dâr-ı fenâdan kapudan)" and mentioned the date of Kılıç Ali Pasha's death with abjad (a system of notation in which each of the 28 letters of the Arabic alphabet is assigned a numerical value.) technique (Ayvansarâyî, 1985: 183, 304).

Fig. 1. Kılıç Ali Pasha Complex, site plan



(Kuran, 1986: 209)

The Turkish bath and madrasah were kept outside while the mosque and the tomb were included inside the courtyard wall. The courtyard has five entrances, two in the west, two in the north, and one in the east. The entrance in the east opening to the courtyard is in the form of domed baldachin. Return to Hagia Sophia's plan is astonishing in the mosque which is one of Sinan the Architect's works made in his last years (Polatkan, 1999: 69-74). It is possible to agree with the interpretation that the design belongs to one of the foremen of Sinan inasmuch as Sinan the Architect was old in these years. Kuran answers the question of, "How does a talented architect like Sinan, imitate Hagia Sophia?" as "the mosque was built by one of one of Sinan's foremen inasmuch as Sinan the Architect was about 90 years old (Kuran, 1978: 175; idem, 1986: 215). At the center of the deep-seated building in the north-south direction, there is a dome which is based on four pillars. Half a dome was laid to the north and south of this central dome, and quarter domes were added to the corners of the half-dome (Fig. 1-2). Two-storey units consisting of ribbed cross vaults encompass this dome system in the form of "u" from east, west and north. The marble niche (mihrap) with stalactite and the semicircular form (Fig. 3), protrudes outwardly from the body wall the harim (sanctuary) and included within the volume covered with half-dome. There are two projections with symmetrically placed stairs at the north of the eastern and western walls of Harim (sanctuary). On of them is the pulpit of the minaret in the west, and the other is the stairway to the upper floor in the east. The narthex in the north of harim (sanctuary) consists of five domed units. The dome in the middle has oyster shell-shaped trompes passage while the other four have pendent passages. A sequence of two porticos surrounds the narthex (son cemaat yeri) in the form of "u" (Fig. 4).

There are famous art examples of İznik tiles of the 16th century both on the niche wall, in the narthex, and in the upper sections of the east-west lower-side windows. The tiles are usually arranged in the form of panels (39 pieces), while some of them had border tiles (10 pieces) (For more information about the tiles, see. (Tanyolu, 2011: 94-209). Sinan's one of the greatest achievements which is facade with many windows and spacious interior effect has also been applied in the Kılıç Ali Pasha Mosque. The mosque is lightened with a total of 147 windows.

The mosque has two inscriptions in our day one of which is at the northern entrance of the courtyard while the other is at the eastern entrance (Inscriptions- despite the fact that they were already published before- are first dealt published here with fully transcribed text and their adaption to contemporary Turkish language.). The date of the mosque is provided both in numbers and abjad in both inscriptions. Accordingly, the abjad (numerical) values of the verses we provided in the first inscription (as ... ehl-i īmāna 'ibādetgāh olsun bu maḳām/May his place be a place to worship for believers) and the abjad (numerical) values of the verses we provided in the second inscription (as ...oldu â'lā cāmi'iŋ beytü'l-ḥarām/Your mosque became like Kaaba) are "988". Also, the name of the founder is provided in the first inscription as "Kılıç Pasha" and as"Ali Pasha" in the other inscription. Thus, it can be learned that the mosque was built through **Kılıç Ali Pasha** in 988 (Hegira calendar) /**1580** (Gregorian calendar). The year of construction is also given as سنه٩٨٨ (year 988) in two parallel sulus inscriptions at the northern entrance, on the bottom wall of the pointed arches (Fig. 5). Text of the inscription is written in Turkish of Turkey and with Ottoman letters as follows:

All photos were taken from my own archive.

Fig. 2. General from northwest.

Fig. 3. Mihrap.

Fig. 4. Last congregation place.

Fig. 5. Inscription (courtyard northern entrance).

Adaptation to currently spoken Turkish:

1- Kılıç Pasha, the ameer of the sea and the master of the time, (Deniz emîri yani dönemin kaptanı Kılıç Paşa)

May his place be paradise since he had this mosque built (Bu camiyi yaptığı için yeri cennet olsun)

2- Ulvî gave the dated seeing it as a holy call: (Ulvî kutsal çağrı olarak görüp tarihini söyledi:)

May his place be a place to worship for believers (Bu makâm, imân sâhibine ibâdet yeri olsun)

The sulus inscription at the eastern entrance of the courtyard consist of four verses and eight sections (Fig. 6). As is in the inscription at the north entrance سنه 988 (year 988) is written in the middle of the text. The following is written on the inscription:

Fig. 6. Eastern entrance of the courtyard.

Adaptation to currently spoken Turkish:

1- Praise be to Allah that the world had a good (Allah'a hamdolsun dünya düzen buldu)
order thanks to justice of the state of Murâd Khan (Murâd Hân'ın devletinde adalet ile)
2- Every citizen thereof has power and strength (Her kulu kudret ve yüceliktedir)
And our country has become excellent in every aspect (Her bir makâm da mamur olmuştur)
3- The lion of this country named Ali Pasha (Ali Paşa namıyla o meydanın aslanı)
had this beautiful mosque built with great efforts (Büyük gayret sarf ederek bu güzel camiyi yaptı)
4- And lovers told its date: (Gönül ehilleri tarihini söylediler:)
Your holy mosque became like Kaaba (Yüce câmiin Kâbe oldu)

After briefly introducing the mosque, our opinions as regards the lighting application project which will be implemented soon and our recommendations in line with these opinions are listed below.

4. RECOMMENDATIONS AND CONCLUSION

1) As a general rule, the principle which should be taken into consideration in matters concerning installation in the process between design and application such as laying of electrical installations, places where the conduits will pass, placement of the fixtures and places which will reflect the LEDs is the relation of the mosque and its units with the new technology: although the idea of installation seems to be scaring

to a historical monument, care should be taken that the intervention can be removed if necessary and easily turned back to its original. It is essential that perforating, excavating, destructive, drawing and breaking interference should not be made on the walls for installation and chemicals should not be applied directly on the wall surfaces. Selected manufacturing products must be suitable for wall and facade textures and should give the feeling of being one of the units of the mosque (For an evaluation of this issue see. Durukan, 2017: 539-540).

2) Care must be taken that the intensity of light to be reflected in the lighting must have adjustable power according to the surface to be highlighted and specialists of the subject should be able to make serious calculations and measurements in this regard.

3) LED-induced light must not be adjusted with power in a dazzling way.

4) It should be explained in the drawing notes that if the light beams will be from the inside out or vice versa. For example; in the lighting detail of the under the dome or frame windows it is necessary to position the light beams the inside to the outside. Thus, the glare issue of a viewer will be minimized.

5) In addition to mentioning how applications such as installation, commissioning and trial will be done and the technical features of the materials to be procured and the materials in the technical specifications, all applications, sections and plans should be submitted by detailed drawings.

6) It should be described in detail which armatures and LED-based light units are to be placed in which units of the mosque.

7) Armatures must be mounted on wooden wedges as far as possible while cement-based mortar and similar binders must not be used.

8) The source which will feed the entire installation should be described and connections should be shown with drawings.

9) Lighting applications to show the Mosque in the best way should be made and courtyard walls, gates, upper and lower parts of harim (sanctuary), windows and public fountains should be considered separately. Some suggestions are provided below.

10) Courtyard entrances should be highlighted through the lighting elements installed in the existing street lighting poles of the cited entrances. In this way, it will be ensured that the inscription and partly façades are illuminated. For example, armatures to be installed in the existing street lighting poles at the north entrance of the courtyard (Fig. 7) and at the southern end of the western wall of the courtyard which are near the madrasah (Fig. 8) can make this duty.

Fig. 7. North entrance of the courtyard

Fig. 8. Southwest corner of the courtyard.

11) Rectangular windows on the wall surrounding the courtyard should be lightened by virtue of LEDs placed inside the window (Fig. 9).

Fig. 9. Windows on the eastern wall of the courtyard.

12) Lighting of the dome can be provided with armature fixed to the belt tie at the eastern entrance of the courtyard which is domed.

13) Installation should be made in a way that the eastern and western lower parts of the harim (sanctuary) body are shown from bottom to top. The placement of the armature on the ground to catch a certain angle and ensure that this section is fully illuminated should be considered (Fig. 10-11). The number of LEDs to be reflected on the façade, their powers and the distances between them should be determined through the lighting experts.

Fig. 10. Harim eastern façade.

Fig. 11. Harim western façade.

14) An application should be made in order that appropriate light is filtered by virtue of the assembly made to the metal tie of the public fountain (şadırvan) designed as a porch unit (Fig. 12). The preference here should be as placing an armature showing the wall and the courtyard.

Fig. 12. Fountain.

15) A visual effect must be created by the armatures to be assembled to appropriate places of the central dome and north and south half domes (Fig. 13). Here, it must be paid attention that two lighting fixtures placed across each other are positioned in a way to show the surface of the dome completely.

16) The armatures to be placed in the iron ties between the supports (beams) supporting the lower section of the main dome, which is called flying supports, will increase the visual effect of the supports. Light beam must be given to the main dome through the support (Fig. 14).

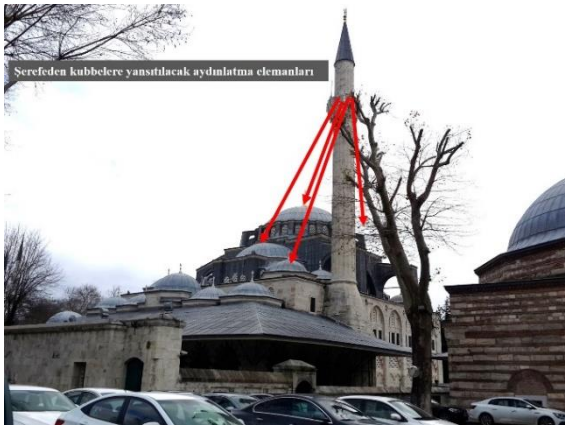
Fig. 13. The central dome and north half dome.

Fig. 14. Southwest buttress.

17) The inside of the small supports in the frame area can be illuminated by armatures with small power to be placed in the lower section of these units. In addition, it can be contributed to illuminate the main dome with the lighting elements in the proper angle and position to the upper sections of these beams (Fig. 15).

Fig. 15. Western façade.

Fig. 16. Minaret.



18) A properly placed lighting element on minaret balcony will be sufficient to lighten the dome center as well as the half and quarter domes (Fig. 16).

19) Lighting of the minaret appropriately must be ensured by armatures placed in the lower part of the minaret and the minaret balcony. There is a need for lighting elements to be placed on the floor for the rostrum and lighting elements to be placed on the the initial part of the body for the body.

20) The inside of narthex (son cemaat yeri) should be illuminated with armatures placed on the metal ties at the place of narthex (Fig. 17). The number of armatures and light power must be calculated by the relevant experts and optimum number of armatures and lighting must be provided. The place where the spotlights

are currently placed must be checked and excessive interfering must be avoided as much as possible by evaluating these assembly areas.

Fig. 17. Last congregation place.

21) Lighting elements to be placed in 24 window frames in the interior part, will leave a highly excellent visible effect by virtue of the filtered light beams when externally observed (Fig. 18).

Fig. 18. Central dome.

22) Lighting in the harim (sanctuary) should be made in way to consider the prayers performed during the day, on Friday, in feasts and holy nights (kandil). A programming should be done on the axis of liturgical elements such as the niche and pulpit (minbar). In this sense, it should not be forgotten that religious buildings are important compared to other civil structures (For a discussion on religious building lighting, see. Kart, 2006: 54-55).

23) If there are any other sections of the mosque which are not lighted outside, it may be preferable to lighten the south and west facades of the mosque especially from the tomb, madrasah and the Turkish bath parts. However, applications which will increase the number of units intervened unnecessarily must be prevented and the project must be completed with minimum intervention.

24) It should be tested whether the desired effect and the correct angle have been achieved after completion of each application listed hereinabove in order that the demounting of fixtures which are fixed in the place can be avoided. This article is written considering the possibility of damage which may occur to the concerned unit during the assembly and dismantling stages.

25) Great care should be taken to ensure that the LED technology to be selected is economical inasmuch as energy demand increases day by day. To achieve savings at the optimum level, lights must be diminished, or lighting elements must be turned off after a certain time of the night (00.00 or 01.00 a.m.).

26) The installation of the fixtures should be well designed, and installation should be made by considering future maintenance costs.

27) Care should be taken to use modern electrical installations and elements of our day, wherever possible and in line with technical possibilities. In this way, the project will be implemented with minimum intervention to the mosque.

28) Care must be taken that the armatures are placed at the appropriate distance and angles so that the angles and distances of armatures to each other allow the surface to be illuminated, show itself. The number of armatures should not be low, however installation of a number of armatures which will interfere the surfaces must also be avoided. To this end, knowledge of expert electrical engineers, art historians and architects should be utilized.

29) Installation and armatures should not be placed in a way to disturb or interfere the appearance of any part of the mosque.

A lighting application to be made in accordance with the recommendations listed hereinabove will hopefully successful to the extent of being an example to artificial lighting applications of other historical monuments.

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