



Architects Architetti

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faCADE 2019

A cura di István Váli (*fac Falerone Art Colony / Faleronei Művésztelep / Colonia Artistica Falerone*)
Presidente della conferenza: István Váli DLA

faCADE - Convegno italo-ungherese, Falerone, Italia, 02 agosto 2019
Salone Comunale di Falerone
Piazza della Concordia, Falerone, Provincia di Fermo, Regione Marche, Italia

Si ringraziano:
Il Comune di Falerone
Sindaco Dott. Armando Altini
Assessore Leonardo Stortoni, assessore alla cultura e turismo
M° Sauro Cecchi

Traduzione:
italiano: Zsuzsanna Ordasi PhD
inglese: Szabolcs Portschy

In copertina: Facciata di un palazzo a Macerata, foto: István Váli

ISBN 978-615-5874-05-5

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Pubblicato in Ungheria da:
Faleronei Művésztelep
VIF Múterem Bt.
2011 Budakalász, Gyümölcs utca 2451/3
Web: Falerone Art Colony - *www.faleroneartcolony.it*

Stampa: Diginyomda, Budapest, Ungheria, *www.diginyomda.hu*, agosto 2019

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La pubblicazione del volume è stata promossa da NKA (Fondo Culturale Nazionale).
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Ideas and Forms

Prize winners of the Conference and Exhibition of Students’ Research Societies (TDK) Art Section 2016-2019

Idea e forma

Lavori premiati nella sezione d'arte della gara nazionale per universitari (TDK) Art Section 2016-2019

Gábor Üveges

Abstract (english)
Introducing fine arts to architecture education has had a strong potential in aiding and inspiring design creativity. Considered as convenient practicing grounds for visual thinking and spatial creation, the various genres of fine arts can lay the groundwork for students’ artistic capabilities. Experiences gained through tapping into fine arts can be efficiently integrated and utilized in their own design efforts. The Department of Graphics Form and Design at the Budapest University of Technology and Economics has had a long tradition of creative work in the related fields of art. This paper focuses, in particular, on a selection of award-winning student entries of the Art Section of the TDK Student Conference, created between 2016 and 2019. The paper briefly introduces the projects’ main theme, conceptual approach and visual implementation, providing a better understanding of how architecture students are able to translate their concepts into spatial objects, and – with the agency of art – manifest their invisible ideas into visible form.

Abstract (italiano)
Nello studio dell’architettura l’arte può offrire valida ispirazione per il lavoro creativo e per quello della ricerca. I vari generi dell’arte possono diventare un’importante base per gli studenti di architettura e costituire esercitazioni per lo sviluppo della creatività, del pensiero nonché della creazione degli spazi. Le esperienze acquistate nel corso dei lavori di creazione e di ricerca nel campo dell’arte si inseriscono negli studi e diventano utili per il loro futuro lavoro di progettazione. Presso il Dipartimento di Disegno e Forma del Politecnico di Budapest con gli studenti di architettura da molti anni svolgiamo lavori di carattere artistico che poi presentiamo nella sezione d’arte della gara nazionale per universitari (TDK). Questo scritto presenta una selezione dei lavori premiati negli anni 2016-2019. Vengono brevemente posti i temi, concetti e la loro visualizzazione. Si mette a fuoco gli studenti di architettura in che modo propongono e trattano i loro concetti, come li collocano nello spazio e, con gli strumenti dell’arte, come rendono l’invisibile l’idea a forma visiva.

Interconnections of art and architecture in the fields of philosophy, art history and visual education

In his essay ‘The Origin of the Work of Art’¹, Martin Heidegger reveals through the parallel analysis of a painting and a build-

ing, the common philosophical denominator between the two notionally and morphologically-structurally remote works of art and the essential identity underlying their artistic nature. The two artworks, Van Gogh’s ‘A Pair of Shoes’ and an ancient Greek temple,

are separated by more than two millennia, thus their ideological context, philosophy and zeitgeist cannot possibly be more distant. Nonetheless, in Heidegger’s artistic interpretation there exists an analogy shared through the artistic provenance, quintessence and the causality of the essence between the two artworks; the same analogy of fundamental essentiality that can be found among all artworks, regardless of their various forms of existence or genre; as eventually, all artworks can be regarded as different forms of poetry.² This equivalence is based on the shared ontological status of artworks and their mutual roles in uncovering the truth. Departing from the traditions, but well in line with Modernist conceptions, Heidegger’s approach to artworks is from the direction of truth rather than aesthetics. In his central theory, artworks (works poetry, paintings or architecture alike), regardless of their spiritual position, forms of expression, age, genre or style, do not tell or interpret truth, but rather truth operates through them.

“Art is the setting-itself-to-work of truth”,³ and art is: “the creating keeping-in-trust of truth in the work.”⁴

In addition to the ever-existing, eventual and essential identity, philosophical interconnection between the two genres of art that the German philosopher emphasized, even closer ties have been forged during the past hundred years. At the beginning of the 20th century – for the first time in their long history –, painting and architecture got so close to each other that similarities reached beyond the above essential identity and manifested in a direct, visible resemblance between the pictorial and architectural structures. Concurring with the unfolding of Modernist architecture, but basically throughout the entire century, these similarities have exceeded the conceptual analogies and reflected both in the artistic attitude and morphology, more directly than ever before. Painting and architecture started to shift towards each other: with painting in certain tendencies becoming architectonic, and architecture borrowing its visual vocabu-



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Fig. 1-4 Vivien Sárkány : Fitamorf, 2016.



fig. 5-7 Balázs Beóka : The short story of a sculpture, 2017.



lary and - in part - its philosophy from this abstracted and architectonic painting.

The compositional rules of the picture comply with architecture, and likewise, the architectonic methodology comply with the imagery. Architecture and painting, the functional, technological and artistic mentality overlap each other. The architecture of the abstract image at the beginning of the century foreshadowed the image of the modern architecture.

The two genres came into interaction and this inspiring interdisciplinary dialogue continued to characterize the entire century. Through its fundamental research, fine art became a laboratory for spatial, morphological and terminological experiments, accumulating an enormous amount of knowledge that has been relevant even to architects. This knowledge proved to stimulate the emerging Modernist architecture in the first half of the 20th century, then again, in the second half for Late and Post-Moderns and Minimalists, both in conceptual, spatial, visual typological and

grammatical realms. To this day, creative and analytical work in architecture education has been greatly inspired by the various forms of fine arts, which have served as ideal practicing ground for creativity, visual thinking and spatial design. The experience architecture students could potentially gain through their experimental creative ventures into the fields of other visual arts, enriches their own professional engagement.

Prize-winning artworks of the TDK Student Conference and Exhibition - Art Section 2016-2019

The Department of Graphics, Form and Design at the Budapest University of Technology and Economics has worked with students of architecture on art projects that have provided them with the opportunity to experiment beyond the gradual training and have lead to accolade at both the academic and the National Conference and Exhibition of Students' Research Societies. During these years a number

of prominent artists and theorists have helped our work, among whom painter Tamás Konok, architecture-philosopher György Kunszt and artist András Mengyán were probably the most important source of inspiration. To this day, András Mengyán has played an inevitable role in the joint work with the students and provided invaluable input into the award-winning works. Exercising tremendous knowledge and energy in his lectures and consultations he inspires students to independent thinking and searching for innovative solutions in both their creative and research work.

In 2016, the initial concept for the creative research project was titled: "Chaos and Order." Vivien Sárkány's concept was based on the idea that while the group of the different amorphous bodies could be narrated as chaotic, assembling them would reflect a harmonic order. Working with interlocking amorphous bodies, she has found a beautiful intimacy of forms. She translated these forms into a sculpture and has also applied the concept to a design project. With her sculpture series, named 'Fitamorf', as well as her couch design, she scored first prize in the Art Section of the academic edition of the 2016 TDK Conference and Exhibition.

Inspired by a childhood memory seen in his father's dental clinic, Balázs Beóka reflected on the disciplined, strictly rational molding of metal, he attempted to 'liberate' the metal and bring the natural attributes of the material into the fore. With the help of his chemist friend Balázs constructed a forge in his own backyard for melting aluminum. Following his own method, he poured the liquid metal into a barrel of water-based solution. A special additive in the solution granted that the molten metal did not immediately submerge to the bottom of the barrel, but would sink slowly, cool down gradually and harden following its own rules, spreading whimsical branches, revealing its inner nature. In the process of creating 'The short story of a sculpture' Balázs Beoka developed a unique method of directed coincidence:

at the moment of getting into contact with the water, the liberated, yet coordinated molten metal transformed into surreal sculptures, poetic, inspiring morphs. His series of sculptures collected third prize in the academic edition of the 2017 Art Section of the TDK Student Conference.

The short film of Enikő Siska aims at grasping the length of a moment. The animator took the medieval definition of moment based on the movement of a shadow on a sundial. The length of this specific moment on average corresponds to one and a half minutes. In that ninety seconds of the animation a dynamic process evolves: first an enormously magnified, extremely sharp vision of ink drops falling into water, then, a swirling spatial calligraphy of ink braids and curves, and finally, as a dramatic ink shower turns the initially clear, sparkling clean water into a dark impassable blackness. Condensed into one moment - namely one and a half minutes - a story unfolds, a spatial painting performance, a metamorphosis from brightness into complete darkness, with a delicate metaphor for the drama of human life itself.

Júlia Pokol examined how much the internal and external features we inherit from our parents or grand-parents determine our own internal and external lineaments. How much we become imprints of these features, determined by the intergenerational experiences, traumas, spiritual orientations, and to what extent are we free. The artist projects the facial features of her parents, grandparents and even her childhood self onto her own face while reciting in a dramatic yet graceful monologue the above questions. With the powerful performance Júlia won first prize in the 2017 Art Section of the TDK Student Conference and Exhibition.

The three-piece artwork of Veronika Boglárka Fehérvári - with which she collected first prize in the 2018 Art Section of the TDK Student Conference - experimented with concepts of visualizing music, converting sounds into an

expressive, energetic art installation. The young artist followed the notes of a sheet music and translated them into the three dimensional space. Each note - replaced by different sized and colored pearls, fixed on stretched fishing lines - contributes to the illustration of the polyphonic musical structure. The first part of the series portrays a monophonic folk song in its vernacular simplicity. The intriguing formation of the shadow of the large pearls virtually reverberates the melody. The second part in the series adapts Leó Weiner's 'Dance of the Fox' with alternating sized and colored pearls in correspondence with the colorful playfulness and dynamics of the music. Following the four tunes of the melody four fishing lines recreate the music's structure in physical form. The final piece of the series visualizes an excerpt from the Lacrimosa movement of Mozart's Requiem. The eleven tunes of the complex musical structure are represented by eleven layers of stretched fishing lines and dozens of small-size grey, matte and shiny black pearls. The lines are installed tightly above and next to each other, resulting in a dense translucent medium that strongly imitates a sort of captivating foggy musical space, in which, the pearls

as notes float in a weightless measure. Following her own inventive concept and constructive method, Veronika transforms musical space into physical space in a suggestive way and makes the musical notes and structures visible. Advancing to the national contest, her entry won third prize at the Art Section of the National Conference and Exhibition of Students' Research Societies in 2019.

In her work 'Sound break' Yang Zhu Quing contemplated the notions emptiness and silence, and examined how to break emptiness and silence with minimal interventions. The pure whiteness of the gypsum surfaces is disrupted only by incidental cracks, rips or debris. Operating with gentle gestures inspired by the Eastern philosophies, she sensitively draws up the boundaries of the aesthetic category of 'almost nothing'⁵. The artwork scored second prize in the Art Section of the academic edition of the 2017 TDK Conference and Exhibition.

Emese Könczöl captured the concurrence of chaos and order in her multimedia installation 'Reflection', which won first prize in the academic edition of the 2018 Art Section of the TDK Student Conference. She project-

ed her film onto triangular glass sheets hanging in a strict order inside a 60 by 60 cm cube. The constant delicate movement of the triangles fractures the image of the film and reflects the pieces onto the walls of the surrounding room. These reflections create an unmonotonous whirl of fragments, resembling the movement of countless little sailboats on an infinite surface of water. With the help of projection and movement, Emese dissolved the strict geometrical order of elements into chaos, softening the rigid static structure and created an ever changing, exciting and vibrant atmosphere.

Zoltán Sági started from an abstract planar composition and found its way to space in the form of a mandala-like crystal structure. The crystal is composed of over a hundred pieces and its construction - similarly to that of a town -, takes time. In this regard - in addition to the inspiration by the principle of quaternity of mandalas - the 'crystalline unfolding of the formation'⁶ registers time itself. His sculpture 'Geocity' is not a real functional city in any way, but a spiritual gesture. It is a spatial transformation of a similar order that organizes the structure of mandalas and the presentation of that order in architectonic context. The art-

work won second prize in the academic edition of the 2018 Art Section of the TDK Student Conference and Exhibition.

The art installation 'Visual delusion' by Eszter Gulyás - which collected first prize in the 2017 Art Section of the TDK Student Conference and Exhibition - delivers a very high artistic standard. It has probably been the most outstanding creative effort in recent years of the Conference.

The project, which is the result of years long development and an enormous amount of time and energy, tries to recreate the structure of dreams through hanging layers of handwritten fragments and drawings and projected onto them, all capturing her dreams. At times - along with the alternating projected 'dream-drawings' - certain layers of the fragments hanging in the pure white space emerge, while others cast shadow. Individual words begin to glare by the glow of the projected image, and thus obtain a special meaning, then fade as other layers of the dream come into the light, only to disappear again in this visually transparent installation. The unique power of the artwork lies in its ability to organize the intangible and chaotic world of images and word

Fig. 8 Veronika Bogárka Fehérvári:
Folk song visualization, 2018
fig. 9 Veronika Bogárka Fehérvári: Leo
Weiner - Fox Dance - visualization,
2018

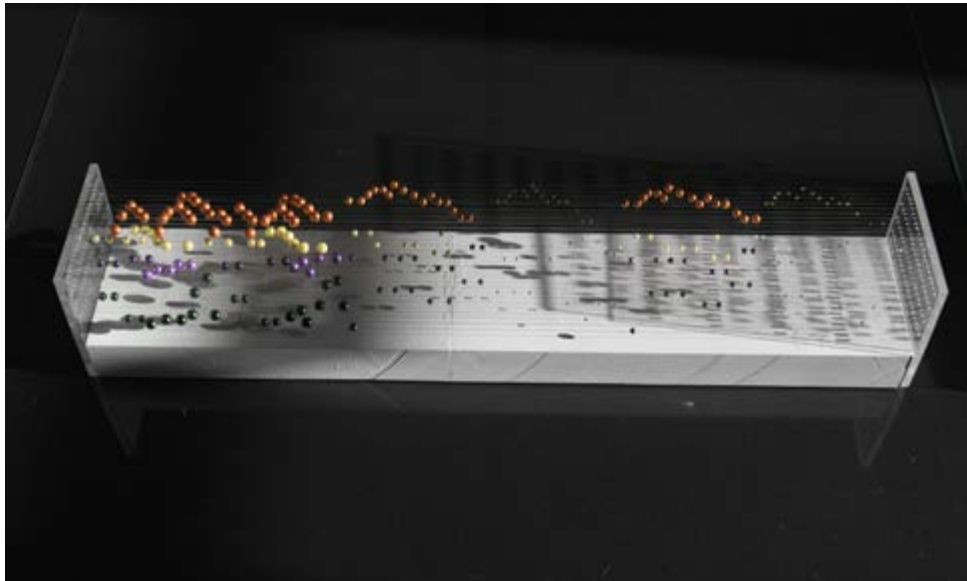
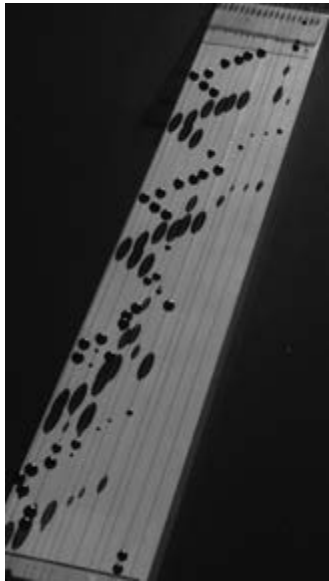


Fig. 10. Veronika Bogárka Fehérvári:
Mozart- Requiem – La Crimosa - visu-
alization, 2018

Fig. 11. Veronika Bogárka Fehérvári:
Mozart- Requiem – La Crimosa - visu-
alization, detail, 2018



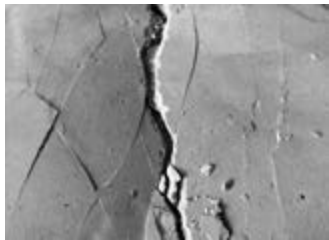
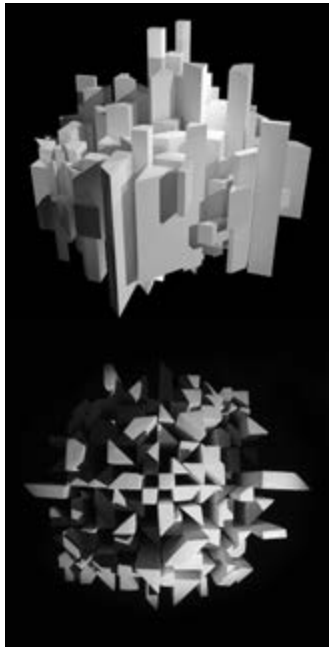


Fig. 12. Yang Zhua Quing: Broken sound I. 2017.

Fig. 13. Zoltán Sági: Geocity I. 2018.
Fig. 14. Zoltán Sági: Geocity II. 2018.
Fig. 15. Eszter Gulyás: Visual delusion, 2017.



fragments of dreams into a calm and clear architectonic order, and construct a paradox world in her extremely complex artwork. The spectator can enter the installation, step into the space of dreams, walk in between the laser cut foam inserts of handwritten lines, and perceive the unexpected experience of the glistening lights on the hundreds of fishing lines that invisibly support the floating installation – just like scratches on a surface.

With an overall envelope size of 4 x 4 x 3 meters, Eszter Gulyás’ installation filled an entire room. According to the jury, the artwork could be prevalent even in a ‘real’ museum exhibition, outside the university. Her entry got maximum points both from the jury and the opponent reviewer, and due to its distinguished quality among all winning scientific and artistic works, it was found worthy for the Rector’s Special Award that year. In addition, the entry won first prize in a strong competition in the Art Section of the National Conference and Exhibition of Students’ Research Societies in 2019 in the category of Installations and also won the section’s Special Prize.

Conclusion

The 20th century and the subsequent decades have brought ground-breaking analogies, correspondences, transfer and connection points – beyond the abiding ontological adequacies – in the otherwise and hitherto hermitical disciplines of architecture and other forms of visual arts. Notable buildings show conceptual and visual parallels with works of fine arts, architects seeking novel approaches reach beyond philosophy, linguistics and other disciplines to fine arts for inspiration. The newfound interaction and interconnection between architecture and fine arts provides with the opportunity to significantly increase the role of fine arts in architecture education, in advance of the traditional drawing to which it was limited before.

The presented prize-winning artworks demonstrate that fine arts can be a more than convenient experimental field for architecture students in their creative efforts, an outstanding practicing field for the realization and visualization of ideas and concepts, and an intellectual school for visual thinking, vocabulary and grammar.



Through a series of artistic creative and research works, the Department of Graphics Form and Design at the Budapest University of Technology and Economics has for several years invested considerable efforts in its art program, in order to help develop effective competences in students that reinforce their architecture design skills from the side of visual thinking, form and space creation and innovative creative attitude.

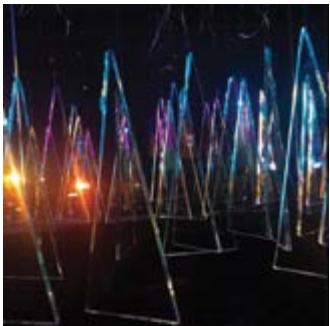
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fig. 16. Eszter Gulyás: Visual delusion, 2017.
fig. 17. Emese Köncöl: Reflection, 2018



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Historical plaster cast collection of sculptures in educational context

Contributions to the study of historical plaster cast collection of the faculty of architecture of the Budapest University of Technology and Economics (BME) and its role in architecture education

Eszter Hajós-Baku, Beáta Szűts

Abstract

The history of the historical plaster cast collections in Hungary mainly coincided with other plaster collections around Europe. However, they have their own characteristics, for example their study and scientific assessment started unreasonably late. The conference organized by the Institute of Art History, the Hungarian Academy of Sciences and Schola Graphidis Art Collection in the beginning of 2016 summarized the results of different publications of the past years and it also provided the opportunity to researchers to approach different aspects of the collections and to start progressive academic discussions. In parallel, the Department of History of Architecture and Monument Preservation at the Faculty of Architecture of BME has started to study the role and particular academic aspects of architectural drawings in 2013. In connection with their research, in January of 2016, a new survey and research program began at Department of Graphics, Form and Design (also at the Faculty) with the aim of assessing the historical plaster cast collection in their possession. The cast collection consists of hundreds of plaster artworks, most of which have been stored at the Department, while a part of the collection has been on display at exhibitions of museums in different parts of Hungary. Most of the collection dates back to the last decade of the 19th century and the first half of the 20th century. It composes of some of the best-known and most important examples of classical ancient Greek, Roman and Renaissance sculptures including architectural and ornamental casts, relief-busts and full-length figures. Many items of the collection were purchased from the most significant European plaster cast ateliers of the period, while a huge amount of the artworks were acquired from local plaster cast ateliers of Budapest, or they were made at the university's own cast atelier operating at the Department at that time. As a university collection, not only has it unique cultural significance, but also played an important role in the academic training of architects. Due to the size of the collection (exceeding 300 plaster artworks cast objects) it is also one of the largest of its kind in Hungarian universities' collections. Our research is the initial step of a potential rehabilitation, aiming at the scientific survey, condition evaluation and photo documentation of the collection. Hence, this paper represents a particular undertaking: it focuses on the fundamental assessment of the cast collection that once formed an essential part of architecture education. In this regard, it is indispensable for any future scientific study of the artworks and – together with the assessment of the architectural drawing collection – it may help the creation of a university level concept to integrate these unique collections in the academic training.

Preface

The Faculty of Architecture at the Budapest University of Technology and Economics (BME) houses a unique historical

plaster casts collection, which not only stands out among private collections but is also unparalleled on a national level. A number of traditional schools of architecture around

Europe also possess collections of drawings or sculptures. This particular plaster sculpture collection lists hundreds of casts, the majority of which belongs to the archive of the Department of Graphics, Form and Design. Most artworks are located on site, while a 62-piece collection, dominantly replicas of renaissance sculptures, is on a long loan to the Castle Museum in Ozora. The museological evaluation of the artworks started in December 2016. As a first step, the authors of this paper conducted a general inspection of the different quarters of the department (ateliers, staff rooms, offices and connecting storage rooms), during which it was revealed that a large number of plaster casts are scattered all around the premises. The on-site inspection was followed by the enumeration, photo documentation and condition survey of the artworks on external locations.¹ Prior to the inspection the total number of sculptures was estimated at just over one hundred, given that a number of sites had previously been unknown, and the physical arrangement of the artworks had not allowed the exact number to be determined. It was revealed only during the thorough examination that there are close to four hundred items, not counting the secondary casts.

The Collection

The bulk of the plaster casts collection of the BME Department of Graphics, Form and Design originates from the second half of the 19th century, as well as the first half of the 20th century. Together with the various ornamental details, geometrical and anatomical models, the architectural plaster models have most likely served as supplementary tools to traditional pattern sheets, in the teaching of anatomy and historical architectural vocabulary - in the framework of freehand drawing, architectural form studies, art of ornaments and figure drawing courses. Its significance therefore as an academic educational collection may exceed even its cultural value.

Following a tangled period of history of institutional transformation of its academic predecessors, the Budapest University of Technology and Economics first opened its doors in AY 1859/60, under the name of Royal Joseph University.² Architecture as an independent faculty started its operation a few years later, in AY 1873/74.³ Initially, freehand drawing was a compulsory course of the curriculum in every academic programs of the university, therefore, administratively it had not been linked directly to the Faculty of Architecture, but was taught under the auspices of the so-called General Department, similarly to sculpting, a few years later. The education of sculpting was mainly inspired by German practices. From the mid 1800's a series of prosperous academic relations were forged, mostly with fellow institutions in Vienna and Munich.⁴ Sculpting at that time belonged more to art education, however, due to its efficient methodology it was adopted into the program when BME decided to reform its freehand drawing studies. There had also been an increased interest in the collection of replicas of historical sculptures, subsequently, not only the busts of celebrated lecturers of the university were cast, but with time, series from other national and international institutions and plaster-cast ateliers were continuously purchased for the Collection. This concept fit thoroughly into the prevailing revivalist climate, which not least inspired the replica collection efforts of many museums in that era.⁵ In addition to the domestic and foreign acquisitions, a significant part of the Collection was cast in the university's own workshops. Surviving archival records show that from AY 1859/60 plaster casts of the sculpting storage had already been taken into inventory and that from AY 1869/70 casts had been ordered for the newly established Architectural Repository.⁶ Although at this moment there is no exact known date for the establishment of the Collection itself, it is safe to say that the first set of sculptures - a total of 25 items - were ordered in the 1850's,



Fig. 1.a-d Trademark signs of plaster cast ateliers in the turn of the 19th and 20th century

Fig. 2. Selene's Horse from the East Pediment of the Parthenon

which is remarkably early considering the creation of similar replica collections for the National Museum or the Museum of Fine Arts.⁷

Plaster-Cast Ateliers

It was revealed during the first part of the research that - similarly to the Museum of Fine Arts, or fellow architecture schools around Germany or England - most casts were ordered from German and Italian workshops, however, Hungarian plaster-cast ateliers also contributed to the Collection. The identification of the specific place of origin has helped estimating the age of the individual casts. For most of the artworks surveyed so far, the identity of the manufacturer and the date of the production have been successfully confirmed. The identification was based on the available sales catalogues, attached pictorials, as well as trademark signs or stamps on the casts themselves.⁸ (Fig. 1.) A significant portion of the artworks came from Hungarian workshops, most of these are thought to be produced in the beginning of the 1900's by the plaster-cast atelier of the Royal Hungarian State Industrial Upper School.⁹ A number of items are from German workshops, including sculptor August Gerber's atelier in Cologne, the Rap-

pa & Co. in Munich, the Micheli Brothers in Berlin or the plaster-cast atelier of the Kaiser Friedrich Museum, also in Berlin. Beyond these, there are artworks from the Museum für Kunst und Industrie (today MAK) in Vienna. In addition to the German and Austrian casts, the Collection includes artworks made by Italian ateliers, like the Carlo Campi in Milan or the Leopoldo Malpieri in Rome. A unique and rare member of the Collection is a replica of the horse figure from the East frieze of Parthenon, which is marked with the stamp of the British Museum in London (Fig. 2.). The provenance of this particular cast is not clear. Plaster sculptures for the British Museum were cast in the London atelier of Domenico Brucciani, however, a similar horsehead was ordered by the aforementioned Museum für Kunst und Industrie¹⁰, at the same time, the BME collection does not contain any other casts from Brucciani. Thus, it may be safe to assume that it was the Vienna copy which was recast and delivered for BME.

Typology

During the inventory of the Collection casts were classified into six distinct groups. One of the most spectacular groups - which is



Fig. 3. Corinthian Pilaster Capital from the Monument of Lysikrates in Athens



Fig. 4. Fallen warrior figure from the East Pediment of the Temple of Aphaia II., Aigina

Fig. 5. Bust of Juno Cesi



Fig. 6. David. Copy of the work of Donatello



also the largest by the number of items - contains architectural casts. This group consists of the replicas of ancient Greek and Roman orders, base-pedestal and capital-cornice details, Romanesque, Gothic and Renaissance column and pilaster capitals, Classical and Renaissance cornice details, and various samples of embellishments, like Gothic cross finials, key-stones, ornamental cantilevers, Wimpergs, etc. One of the most exquisite item in this group is a replica of the Acanthus leaf and volute ornamented pilaster capital from the Choragic Monument of Lysicrates in Athens, which, according to its stamp, was cast in the former atelier of the Kaiser-Friedrich Museum in Berlin (Fig. 3.). Next to the architectural casts, an other group presents **ornaments** of different architectural styles. Easily distinguishable from the various ornamental details of the Romanesque, Renaissance and Baroque, is the group of floral and foliage patterns, casts of different fruits and leaves. A distinct category encompasses the **figural** casts, which were subdivided into further groups. One includes the replicas of **narrative and figural reliefs**, while the other comprises of **full-length figures** (Fig. 4.) and **busts** (Fig. 5.). The full-length sculptures in the Collection contain both reduced and real-size copies. The majority of the narrative and figural reliefs are replicas of the most outstanding artworks of the Renaissance, primarily from the Italian quattrocento and cinquecento, pieces from Donatello (Fig. 6.), Verrocchio, Desiderio da Settignano and Michelangelo. Real gems are the replica of a section of the friezes of Parthenon (Fig. 7.), and the early Medieval relief detail that most likely is the copy of the substructure of the pulpit of Sant' Ambrogio church in Milan, and which - according to its stamp - was cast by the atelier Carlo Campi (Fig. 8.).

The life-size full-length figures and busts of the Collection are primarily replicas of ancient Greek and Roman sculptures, but contain a few copies of Renaissance artworks as well. A unique group in the Collection en-



Fig. 7. Detail from the Parthenon Frieze (Pause scene in the Panathenaic Procession. A horseman stands at the head of a calm horse) (Block III. of the West Frieze of the Parthenon)



Fig. 8. Romanesque Relief with the scene of 'Flight into Egypt' (?) Detail from the Pulpit of the Basilica of Sant' Ambrogio in Milan

compasses the **anatomic** and **descriptive geometry** models. In addition to the full-length figures, the few remaining anatomic models include different body parts, hands, arms, feet, face details or details of the human muscle system.

Recent developments in plaster casts research

By the time of the second half of the century, the general interest in plaster casts that characterized the early 1900's, started to show a general worldwide decline. The changed attitude towards the role of plaster casts in museology, scientific practice and the architecture and art education has inevitably lead, with a very few exceptions, to their troubled fate. Since the 70's however, efforts have been made to restore these artworks; and more and more institutes have reopened their plaster casts collections to the public. The scientific community has apparently rediscovered the aspects of 'irreplaceability' in these 'replacement' works.

In its main regards, the history of the Hungarian collections is akin to those of its European counterparts, however, one of its unique features is indeed the procrastinated restoration.¹¹

In early 2013, the Museum of Fine Arts commissioned a team comprising of Eszter Baku, Géza Andó and Péter Módy to carry out the thorough evaluation and documentation of their plaster casts collection. The results of that survey, together with other similar recent research were reported in the frame of a scientific conference *'Fragile value: The role of plaster casts in 19-20th century museology and education'*. This revitalized scientific discourse inspired the desire for the evaluation of the collection at the BME Department of Graphics, Form and Design.

Present research is of unique importance, due to its focus on the evaluation process of this hundreds-strong educational collection of plaster casts, which – as fundamental research – is crucial for any future scientific analysis of

the artworks. In parallel with other historic plaster casts, the theoretical value of the collection of the BME Department of Graphics, Form and Design has recently increased, which necessitates the reconsideration of the prospects of the exhibition and educational presentation of the artworks.

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- Fig. 4. Fallen warrior figure from the East Pediment of the Temple of Aphaia II., Aigina, plaster, BME – Department of Graphics, Form and Design, Inv. no. 200.081
- Fig. 5. Bust of Juno Cesi, plaster, BME – De-

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Axonometric representation in architectural drawing

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Abstract

History theory and importance of isometrical perspective. Relation of isometric perspective to linear perspective.

Axonometric projection (aka. isometric(al) perspective) has been taught in European technical universities from the nineteenth century, mainly in engineering faculties. 'Cavalier projection', an other name commonly used for axonometric drawing, refers to its origin, since it was the strategic plans for fortifications and ramparts where axonometry was first applied.

In his 1756 publication 'Perspectiva militaris', Christian Rieger discussed the advantages of the so-called 'military projection' which combines plans and elevations into a single drawing, rendering the latter redundant.

Gaspard Monge, the creator of the geometric projection and representation system, which defines architectural drawing to this date, studied at the Military Academy in Mezier, France, and published his acclaimed work 'Geometrie descriptive', which is the written outline of his lectures at Ecole Normale, in 1799.

In the essay he describes axonometry as: „a means for the search for the scientific truth, ... a passage from the known to the unknown”

Nineteenth century English-language literature describing and pro-

moting axonometry include William Fanish's Isometrical Perspective (1890) and Joseph Jopling's The practice of Isometrical perspective (1835).

In 1905, Carl Hocheder, professor of the University of Munich wrote the following in the journal Baumeister:

“I put the greatest emphasis on not to present a building on its own, but set in its built or natural environment, along with the terrain. Therefore, as the most important sheet in the design documentation set, I always ask students to include a so-called cavalier-perspective on which all these details can be easily illustrated.”¹

Based on this article, Ákos Moravánszky suggests that it was professor Hocheder who first introduced axonometric drawing to architecture education. By that time, Auguste Choisy's drawing series 'L'art de bâtir chez les Romains' (1873-99) in which he depicted historical architectural examples in a bottom-up axonometric view, had been widely known among architects. With the help of isometric perspective, Choisy managed to find the suitable representation format for the depiction the fascinating logic of these gigantic structures, thus the significance of his work can be compared



to that of the perspective engravings of Piranese, although the latter is more renowned.

At the 1923 Weimar exhibition of Bauhaus, replacing the virtuoso perspective, axonometry came to the forefront in visualization. Researchers are divided on the inception of axonometry's sudden popularity in the Bauhaus. While according to the general opinion it can be attributed to the influence of Theo van Doesburg and the de Stijl, Moravánszky draws attention to the fact that Alfréd Forbát, a Hungarian architect was the first to use the method in Bauhaus - at least he claimed so in his memoirs. He brought the technique of axonometry from the University of Munich, and knew its benefits very well, which he summarized as follows:

„it is extremely advantageous, because both the floor plan dimensions and the height can be conveniently measured. I previously used this method, which originates in the Baroque era, in my thesis project in Munich.”²

Also in 1923, Theo van Doesburg and Cornelius van Esteren exhibited their drawings in the L'effort moderne gallery in Paris. Axonometry for the de Stijl served as a way to emphasize the geometric character of buildings as objects, “to proclaim the complete visual comprehension of the object”, as Le Corbusier and Ozenfant insisted in the journal L'Esprit Nouveau:

„We are the holders of pervasive gaze and strict spirit.”³

Naturally, the Russian school of modernism, Russian Constructivism also took advantage of the new method of representation. In his particularly related 1925 article, Kunst und Pangeometrie, published in the Europa-Almanach (edited by Carl Einstein and Paul Wertheim), El Lissitzky writes:

„It is said that, after all, the camera also works perspectively and at the same time one is forgetting that the Chinese once built the object-lens with concave instead of convex lenses as we have, and so would also have produced an objective and mechanical image of the world, yet quite a different one. Perspective has comprehended space according to the concept of Euclidean geometry as a constant three-dimensional state. It has fitted the world into a cube, which it has transformed in such a way that in the plane it appears as a pyramid. The tip of this visual pyramid either lies in our eyes – therefore in front of the object – or we project it on to the horizon – behind the object. The former concept was chosen by the East, the latter by the West. (...) Suprematist space may be formed not only forward from the plane but also backward in depth. (...) We see that Suprematism has swept away from the plane the illusions of two-dimensional planimetric space, the illusions of three-dimensional perspective space, and has created the ulti-

Fig. 1. Péter Molnár: Axonometria

mate illusion of irrational space, with its infinite extensibility into the background and foreground.”⁴

Lissitzky keeps the vectors of projection lines, providing a frame-like effect to the picture, and since his projection lines remain parallel – a characteristic feature of axonometric representation – the lines indeed only meet at one point at infinity. In his compelling work about axonometry, Ákos Moravánszky summarizes the theoretical background of the method as follows:

„in Renaissance perspective infinity is equivalent to a point in space, which, in the-ological interpretation, means the portrayal of God concealed in infinity, and hence an infringement of aniconism. Erwin Panofsky was referring to this in his explanation for the habit of obscuring the vanishing point with some kind of a 'fig leaf' on most paintings. Axonometric representation resolves the conflict, not by the replication of infinity, but by using parallel projection lines, whose 'fons et origo' is, in fact, in infinity. The picture retains its spatial dimensions, its depth, however the eye of the observer does not need to be stationary.”⁵

Airplanes, aviation and the twentieth century development of aerial photography introduced a new viewpoint to buildings that previously only existed in the imagination of both architects and the general public. By the middle of the century, aerial photography was celebrated by many as a kind of rediscovery of the world, as e.g. the title of Paul-Henry Chombart de Lauwe influential work, the 1948 *Découverte aérienne du monde*, suggests. He sees the importance of bird-eye perspective (a projection similar to top-down axonometry) in that:

“the view of emblematic monuments of an era from a unique new angle contributes to the better understanding of

their essence.”⁶

The brilliant American architecture-illustrator turned theorist Claude Bragdon describes the association between aerial photography and isometric perspective and the relationship between axonometric and perspective drawing in his collection of essays, *The Frozen Fountain*:

„Now an isometric perspective is curiously like an airplane view in that the vanishing-point is far removed – is at infinity, in point of fact – and consequently such perspective, though itself a distorted image, is free from that order of diminishment and distortion to which ordinary perspective is subject, for that aims to reproduce the optical image in which the size of objects diminishes in proportion to their distance away, and parallel lines converge, which, though true to appearance, is contrary to fact. Isometric perspective, on the other hand, less faithful to appearance, is more faithful to fact; it shows things more nearly as they are known to the mind: Parallel lines are really parallel; there is no far and no near, the size of everything remains constant because all things are represented as being the same distance away and the eye of the spectator everywhere at once. When we imagine a thing, or strive to visualize it in the mind or memory, we do it in this way, without the distortions of ordinary perspective. Isometric perspective is therefore more intellectual, more archetypal, it more truly renders the mental image – the thing seen by the mind's eye.”⁷

In regard to the relationship between perspective and axonometric projection one is inclined to agree with Moravánszky, when he puts it this way:

“The great advantage of perspective is clarity – the paradoxical nature of axonometry stems precisely from the fact that the foreground and background are so eas-

ily interchangeable... Axonometry is not the complete rejection of perspective, it does not deny the existence of the pictorially represented truth. Neither is it about replacing representation with abstraction, but about challenging the constraints of the fixed viewpoint. What axonometry disputes is the single-angled, frozen view of reality. Axonometry, instead, offers the liberating experience of floating and flying, but also carries the dangers of falling. It seems that axonometry and perspective both create their own maps of the world. But like every map, these are, too, short of complete authenticity, since both are driven by a certain 'aspect'. This 'aspect' in axonometry is that of the designer's. The definition, the combinability and the transformation of the elements, rather than their materiality of usability.”⁸

Similarly, one can acknowledge Bob Giddings' somewhat straightforward, yet sensible definition, namely:

„the axonometric has invariably been regarded as a drawing by architects for architects, while the perspective has been the means of presenting a project to the client.”⁹

The primary purpose of Herbert Bayer's isometric drawing of Gropius's study in the Weimar Bauhaus is to define the shape and location of its furnishing; while mapping the individual objects in a spatial coordinate system.

Already in the Renaissance there was a desire to find the most appropriate representational system for architecture. Alberti suggests architects to use primarily orthogonal projection – plans, sections and elevations – complemented by a physical model, while he considers perspective drawing more as a tool for painters.

The architects and architecture of the twentieth century prefer the axonometric projection exactly for its con-

formity with architecture, its ability to express the autonomous artistic efforts of architecture. While perspective renderings are often entrusted to graphic artists, axonometric drawings are made almost exclusively by the hand of the architect.

Undoubtedly, this may be attributed to the fact that, compared to perspective representation, axonometric drawings are much simpler to draft and edit, given its undistorted nature, which also makes it much easier and faster to draw.

Its relevance to contemporary architecture can be observed for example in the visualization of Peter Eisenman's spatial geometrical experiments and conceptual buildings, where the distortion of perspective drawing would obscure the subtle geometric gestures of the design and may even render them unintelligible.

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Architecture model photography: From the concept of verisimilitude to capturing illusion

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Abstract

Architecture model photography is an intriguing yet somewhat intractable type of image that is the fruit of the encounter between two distinct media. This hybrid technique combines the evidentiary force of photography with the illusionary world of models to create a paradoxical realistic representation of a virtual environment. This paper intends to provide a brief introduction to the evolution of architecture model photography, and the use of architecture models in related visual arts. A selection of experimental projects carried out in the framework of the program of the BME Department of Graphics, Form and Design aims to demonstrate the relevance of architecture model photography in today's digital landscape.

Historical Overview

The history of architecture scale models dates back almost as far as conscious architecture design itself. The earliest fired-clay model buildings from 4600 BC were created as burial objects, similarly to the delicately painted earthenware models found from the Han Dynasty, from centuries later.¹ While the Incas of the pre-Columbian America fabricated scale models of entire towns with functioning irrigation system², it was by the 15th century that scale models became essential instruments in the hands of architects. Models have served

multiple purposes: to study the aesthetic and structural aspects of architectural design, and to communicate design ideas.

Some of these historic models, like Sir Christopher Wren's Great Model of Saint Paul's (Fig. 1), or the model of Saint Peter's (Fig. 2) by Antonio da Sangallo, the Younger – measure metres long, and were meticulously crafted and carefully maintained almost as surrogate reliquaries³. These are prime examples of the common desire of architects to present their designs as built structures. Sir Edwin Lutyen's 1933 mock-up of the Liverpool Catho-

lic Cathedral (Fig. 3) is one of those models that allowed patrons to not only imagine the building's view from the outside, but also crawl underneath and experience the finished naves and cloisters at eye level.³

Apart from these extreme examples however the illusion of a real-life built building has been compromised significantly by the fixed scale of models. As Rudolf Arnheim said:

“No doubt, the architect must imagine with some degree of precision what the actual building will look like when approached from the street or seen from the inside. But much of the actual shaping must be done on thought models of the whole building, mental images that are supported sooner or later by small-scale models built at the office.”⁴

Photography offered a suitable solution to the scale-constraints of models. Its ambiguity towards the scale of the photographed object proved ideal in architects' effort to portray their buildings as if they were built. The photographing of a model is a transformation into another medium that in some ways is even more critical than the physical construction itself. Our familiarity with two-dimensional images means we have a tendency to accept them as 'real'.⁵ In addition, photography often provided the only record of prototypical buildings, and whereas models were complicated to transport, clumsy to handle, difficult to store and quick to deteriorate, photography eliminates most of these disadvantages.

The historical convergence of photography and architectural model-making was not fortuitous. Both went through a significant technical and technological development during World War I. Photographs were systematically produced and reproduced for the purpose of reconnaissance. At the same time, scale models were built and photographed to study the configuration of battlefields and to project the effects of camouflage.⁶ With the end of the war the architectural professional community quickly adapted these development that gave a boost to both genres. In addition, the early twentieth century can regarded as a comeback for architectural models in general. The rise of the picturesque aesthetics, the development of projected geometry contributed to fostering the use of graphic representation over the plastic media in the Beaux-Arts.⁷ However, the emerging Modernism had replaced the scenographic attitude of the Historicist and Revivalist architecture with a technical approach, and by virtue of its 'objecthood', the model was aligned with the realm of facts and, consequently, was invested with a higher truth value.⁸

Architectural models benefitted from the relationship with photography in many respects. A well-conceived and carefully taken photograph can enhance a model and translate it into a more 'realistic' experience. In addition, sequential photographs can reveal characteristics of the design beyond those offered in the holistic overview that a physical model might reveal to the eye. The use of different lighting techniques, camera angles and framing permits specific images to be taken, and can have a powerful influence on how the project is communicated to others.⁵

The photograph of a model can be productively misread. A detail shot or cropped image can be reworked as representing an entire building and vice-versa. A model photographed at an unaccustomed angle may suggest a reorientation of the project or redevelopment of certain features in accordance with

Fig. 1, Sir Christopher Wren's Great Model of Saint Paul's
Fig. 2, Sangallo's Model of the Saint Peter's



Fig. 3, Lutyen's Model of the Liverpool Catholic Cathedral

Fig. 4, Julia Fullerton-Batten, Teenage Stories, 2005



a new vantage point. The notion that models function to archive a creative modelling process, unrealized versions of a building or unbuilt work frequently hinges on the photography of such models rather than on the models themselves.³

Architecture models in other fields of art photography

Outside of its architectural use, building model photography has found its way to art. A number of photographers have experimented with placing architecture models into new contexts or highlight the unique characteristics of scale-models as miniature replicas of

real buildings in unusual situations. I selected the following three recent examples as an illustration of how artists can play with the discrepancy in scale in order to imply complex social, intellectual or indeed psychological phenomena.

In her 2005 project “Teenage Stories”, German photographer Julia Fullerton-Batten used scale models of urban built environments in her attempt to give a sense of oddness and alienation for the young models who roam them (Fig. 4). The architecture models helped the photographer recreating a kind of imaginary world that teenage girls inhabit in their fantasies, or during their everyday mundane

Fig. 5, Peter Garfield - Mobile Homes, Thaw, 1995-2007



Fig. 6, Joshua Smith - Miniature Urban Worlds, 2017

life.⁹ In this project the photographer exploited the scale difference between her building and human models in order to construct the surreal scenes for her tales.

In his “Mobile Homes” series (Fig. 5) Brooklyn-based multidisciplinary artist Peter Garfield created small-scale models of the typical suburban American tract homes or ‘bungalows’. He then flings them in the air and carefully photographs them against the backdrop of a vast sky, creating the strange images of flying houses in various stages of destruction. They veer wildly in the air, giving the impression that they’ve been swept up in a tornado, a sense that is heightened by the grainy film-still quality of the dynamic photographs and popular associations with films such as *The Wizard of Oz* and *Twister*. In fact, the photos contain no indicators of the real scale of the models so that an unsuspecting viewer might be convinced they were taken straight from an amateur’s camera. Garfield even added an extra layer of deception in the accompanying catalogue of the exhibition, which suggested that real-size houses were dropped with the help of helicopters. The way that Garfield contrasts the recognizable reality of suburbia with these strange paranormal phenomena leaves a viewer feeling slightly anxious and thoroughly curious at the same time.^{10, 11}

Australian artist Joshua Smith creates miniature urban landscapes (Fig. 6) replete with detail. He captures the often overloaded aspects of urban life in buildings long forgotten and soon to be demolished. He tries to document the current state of a once thriving

but long forgotten space. He strives to create a reality and when photographing the completed works in sunlight, he wants viewers to be fooled, to think it is the real thing.¹²

Model photography as a tool in design education

In the last two chapters we have seen examples of how scaled building models have been used both to create a realistic feel for an unbuilt structure, and also to create a unique visual perspective for imaginary spatial contexts. This part contemplates practices of the employment of architecture model photography in visual design education.

Scaled physical models have long been used in design education. In fact, one of the first applications of model photography was in architectural education. Thanks in no small part to the availability of inexpensive materials and tools, study models came to be regarded as a more effective and more economic means for prefiguring buildings than perspective drawing.⁸ With the emergence of computer aided virtual modelling however, and more recently, as augmented reality has become more and more available, physical models have slowly become overshadowed by their digital counterparts. Their flexibility for modifications, the versatility in scale, the almost photo realistic, easily replaceable textures, the lack of need for manual labor, tools and materials have all contributed to the popularity of digital modelling and rendering. Yet, despite the obvious dominance of digital media, in some areas, physical model making can still maintain some advan-

tage. Real models allow for a more creative use of materials, some of which react to physical exposure and impacts in complicated ways that are difficult to imitate digitally. Also, the real-time visualization of the effects of multiple light sources on complex surface textures - especially in motion - still require enormous computing power compared to the relative ease with which it can be done on physical models.

As a member of the teaching staff of the Department of Graphics, Form and Design at the Budapest University of Technology, I had a chance to participate in a series of morphological and creative design experiments while supervising students of architecture in these projects, which form a part of their regular curricula. The last section of this paper will introduce three particular model photography projects designed to contribute to the spatial creative skills of students.

The 'Manifeste Dimensioniste' by Károly Tamkó Sirató¹³ describing the theory of dimensional growth in visual arts was published during the late avant-garde, at the beginning of the 30's. At the time, the manifesto was signed by various prominent modern artists worldwide, among others Hans Arp, Marcel Duchamp, Wassily Kandinsky, Joan Miró, and László Moholy-Nagy. According to the text of the declaration, literature enters the plane, two dimensional art occupies space, and immobile forms in space are set into motion, absorbing the fourth dimension.

This manifesto - though lesser known in Hungary, nonetheless a very inspiring study - together with the early 20th century geometric abstraction, provide the spiritual background for the 'Architecton' action model project. Architecton is a multiphase process. Students start by analyzing an early 20th century abstract painting, trying to understand its compositional methodology and structure.

Then using the same principles they create a 3d adaptation of the composition using the same constructive principles. Students then visually study the objects through their camera looking for viewpoints and perspective situations in which the models resemble architectural structures, architectonic constellations or urban fabrics (Fig. 7). In the process they explore new interrelations of forms and compositional techniques.

'Folding' is based on philosopher Gilles Deleuze's Fold-concept. In Deleuze's reasoning, there is no one substance, only an always-differentiating process, an origami cosmos, always folding, unfolding, refolding. Sat on this train of thought, students create forms and spaces in which the ruling creative and unifying principle is based on folding. Starting with a very elementary pattern they use a series of simple folds to step outside the orthogonal system and to construct more complex, dynamic structures. This complexity, however, does not incline to chaos but toward a perplexing harmony.¹⁴ With the help of photography students then reinterpret their models either as abstract planar compositions or reimagine it in an architectural context. In the photos the shadow cast by the relief features of the model integrate into and potentially strengthen the geometrical composition (Fig. 8).

In the third type of exercises photography plays a more integral role. 'Space and Light' is the collective title of a series of exercises in which students build simple tentative architectural interior models and analyze lighting scenarios from aesthetic and compositional aspects. They learn about the fundamental compositional principles of physical manipulation techniques like folding, corrugation, or perforation, in order to create interiors that are 'adoptive' to light and lighting effects. Then, they start experimenting with scattered and directed light; examine the effects of different types of perforations, sur-

face textures, the tonal transition of shadows, and learn about the role of backlighting, the proper use of linear and area lighting contrasts, and the aerial perspective (Fig. 9). Students recreate the complex lighting effects of transparent and translucent structures and materials found in contemporary architecture: they form transcendent quasi-spaces with the help of volumetric lighting effects.¹⁵ Their camera display gives a real-time visual feedback both assists them finding the right adjustment of each element in the composition in order to achieve the desired effect. With the right positioning it also gives a realistic dimension to the image or animation (Fig. 10).

Fig. 7, Architecton - Students' Works

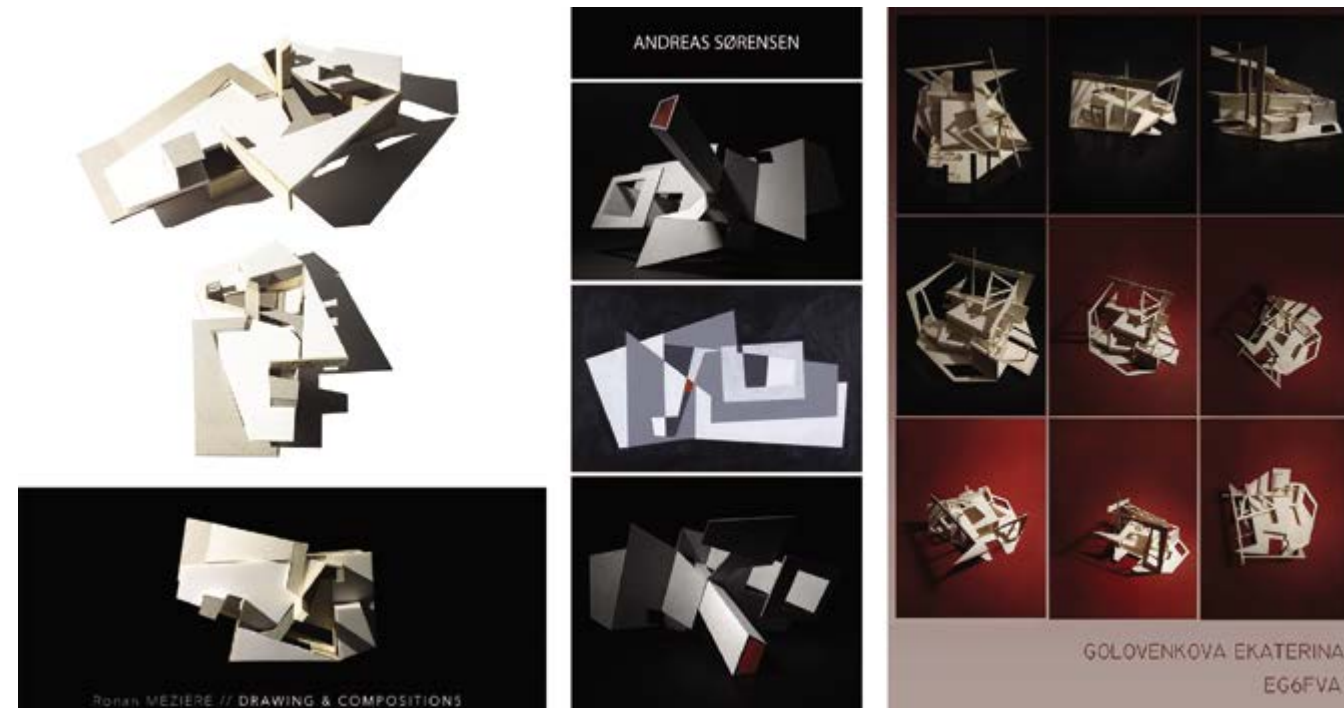


Fig. 8, Folding - Students' Works

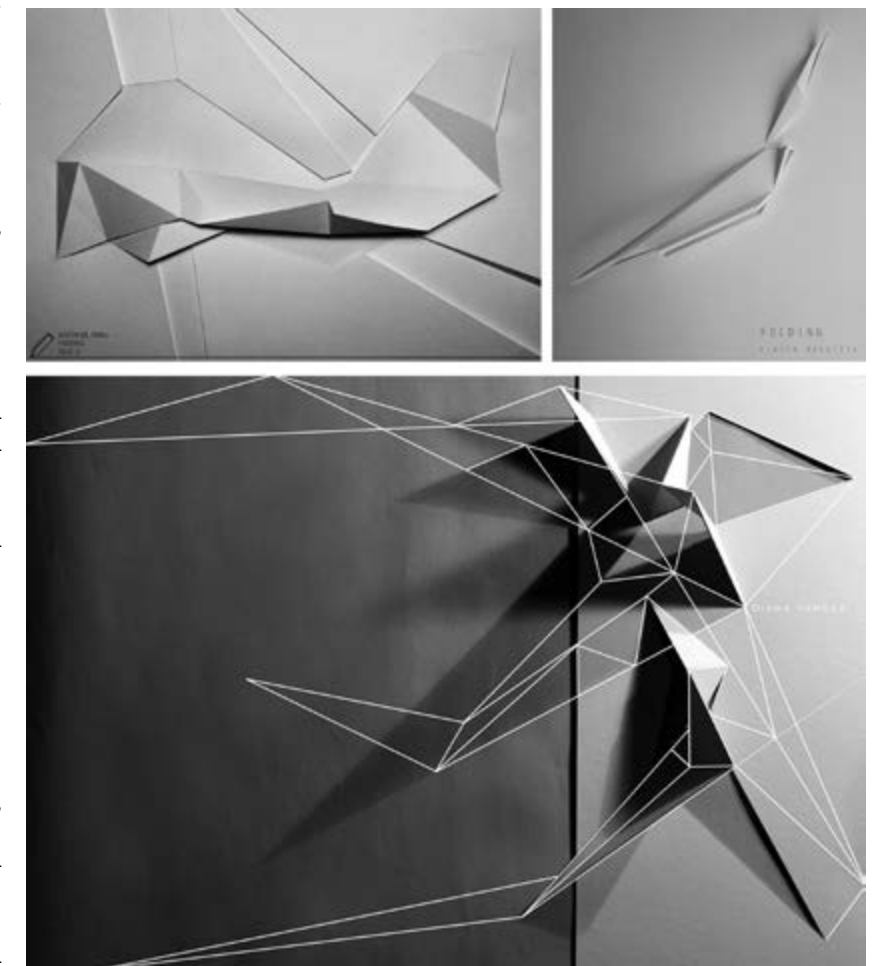


Fig. 9, Space and Light - Students' Works



Conclusion

This relatively subjective selection of examples intends to give a brief insight to the evolution architecture model photography, its road from mere documentation to visualizing illusions. From the creation of completely new artworks - by placing models into unusual context or using the models themselves as contrast -, to the creative use of scale models in developing design skills. Despite the rapid expansion of digital modelling, the tradition of physical model building and the photography of physical models will most likely remain efficient tools in several areas of visual arts.

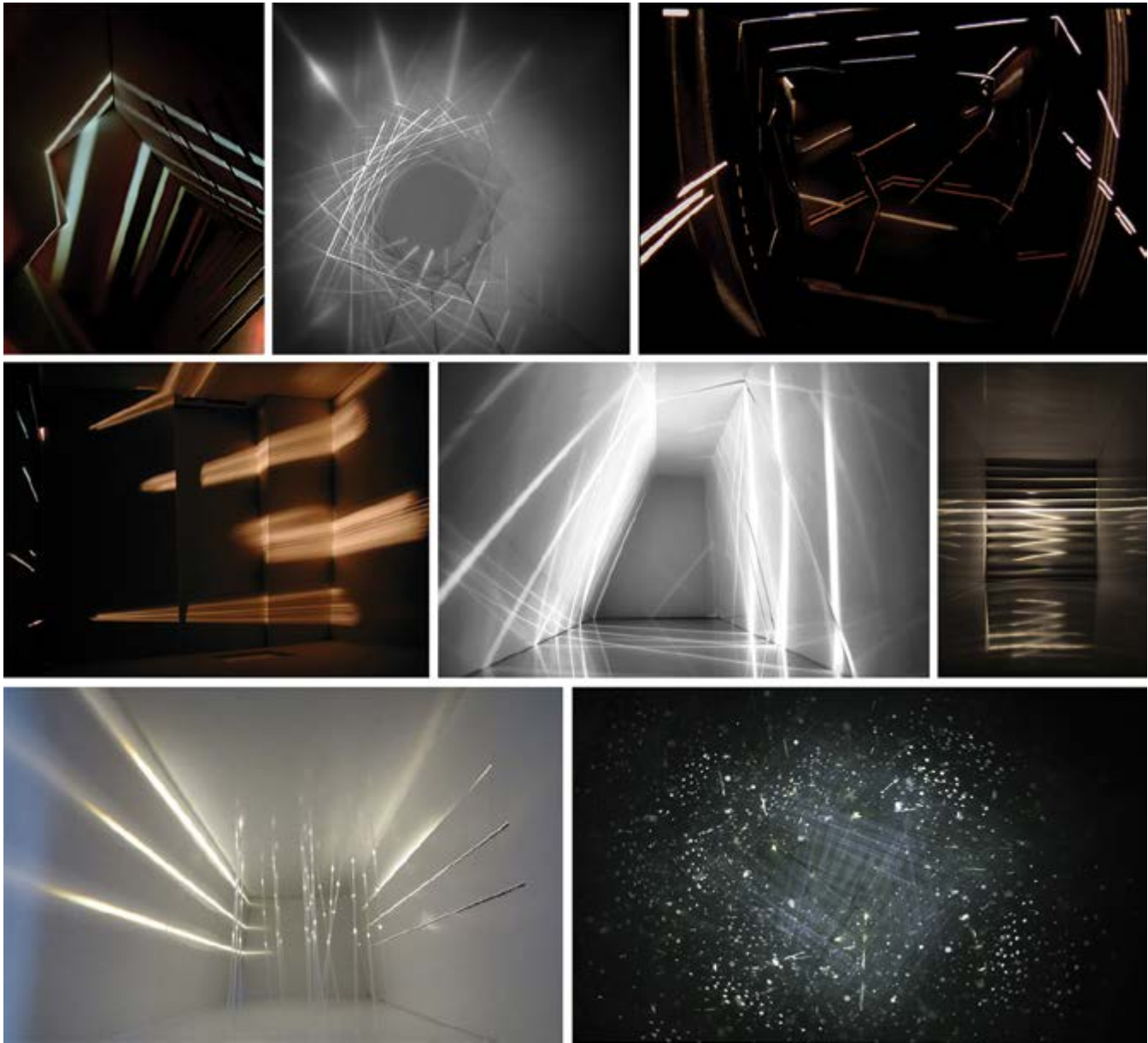
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Fig. 10, Space and Light - Students' Works



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Designing for children from the aspect of color dynamics – Color preferences of children

Gábor Tari

Abstract
A collection of thoughts on the color preference of children and the color association of architects when designing for minors. Interior coloring recommendations of Hungarian and international color dynamics laboratories for child-centered buildings. As a jury member of Bauplan’s “Façade of the Year” award, the author of this paper has had the opportunity to review a number of outstanding kindergarten and school designs, including well-published works of former students. The paper intends to present a selection of these works in a comparative context of some international examples.

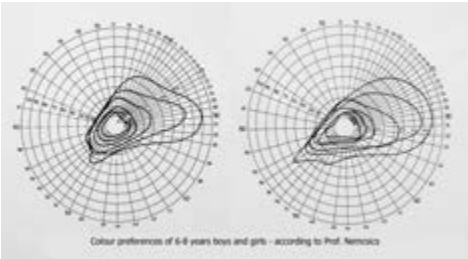
The rather schematic, vague attitude of the general public towards colors is well characterized by the example of a recent kindergarten renovation project in Pomáz, where the staff and parental community – justified by their recollection of memories and their preconception of the color preference of children, but probably triggered by the obsolete look of the old colors and driven by their creative environmental design compulsion - proposed the repainting of the long fence around the building’s large garden to the colors of the rainbow, in a periodical rhythm. Needless to say, the harsh blatant color scheme on this old dilapidated fence was not to everyone’s liking, including – I reckon – some architects with a preference for a subtler color scheme. A representative of the local community de facto deplored the assumed reference to the colors of the gay pride movement. While that attitude was most likely influenced by his own ultra-conservative political sentiments, the entire incident demonstrates how strong emotions colors could stir, and how difficult it is to find the right combination, in order

to maintain the colors’ expressive power, preserve the harmony with the environmental context and uphold the tranquility of the neighborhood, all at the same time.

There is some truth though to our mental association of children with a vibrant medley of colors. When putting children in a group, their loud chatter triggers a mental connection with strong, saturated / border colors, while the extreme contrast of unfeigned emotions - where happy chuckle can turn into bitter weeping within seconds due to a child’s distress over a misplaced toy, or other mishaps – are reminiscent of antipodal, or cold-warm, complementary colors. There are children who talk loud without any reason, even when alone or with their parents. Certainly, there are more introverted, timid or silent ones, but they constitute more the exception than the rule.

A scientific explanation on the color preference of children - based on a series of research experiments on a large test group - was provided among others in the “Color Preference Numerical Indexing System” by

dr. Antal Nemcsics¹, who had been a professor at the Department of Graphics, Form and Design of the Budapest University of Technology and Economics, before becoming a world-renown expert of color sciences.



During the 70’s and 80’s Nemcsics, with the aid of his research team, consulted thousands of pupils in a number of schools and averaged the results of the test forms to formulate his scientific statements. On the color cycle diagram below, the subjects’ preference for a specific hue is reflected by how much the curve extends towards the edge of the circle. For each color more than one shade and tint was used in the research, hence the multiple - more or less correlating - curves. It is apparent that red is the most favored color among the 6-8 year olds, regardless of gender, followed by yellow, of which boys liked its greenish tint as well, while among girls, turquoise also ranked high on the preference list. Since the time of the research however, cyclamen has emerged as favorite in this age group of girls, probably due to the non-negligible impact of the color scheme of Barbie, the iconic and commercially successful doll.

Sometimes blending these vivid, architecturally not very popular colors into the color scheme of interiors, with the intention of satisfying the child’s preference, may lead to difficulties. With the correct understanding of colors and the appropriate selection of matching tones, however, even these “difficult” colors can be brought into an aesthetic harmony.



Fig. 1. Color Preference Numerical Indexing System – Color preference of 6-8 years old children

Fig. 2. Cyclamen-based color harmony of a child’s room

International corporations specialized in the production of interior wall paints have established their own color laboratories to develop the annual color trends and to maintain communication with customers.



Fig. 3. Dutch color laboratory led by Helen van Gent

The Hungarian branch of AkzoNobel for instance releases their annual color trends every year in a press conference. The event is moderated by the author of this paper, and has been frequented by many architects, interior designers and color bloggers.

The color preference of architecture students (who with a certain level of tolerance may be regarded as adolescents in their final stage of childhood) has been studied for years, during color workshops organized in the

framework of Color Dynamics courses at the BME Department of Graphics, Form and Design and the Color Dynamics Society. When comparing the relatively characteristic statements received on the expression of shades to Nemcsics' previous findings on children's color preference, one can affirm that reactions to the three preferred primary colors are consistent with the notions associated with children's mentality². Furthermore, the relevant denotations of the chapter discussing the meaning of colors in the PhD dissertation of the author of this paper, titled 'Geometrical Quality in the Harmony of Colors', also correlate with these notions³.

Corporate color laboratories, like the one mentioned above, have been able to help paint manufacturers boost their sales, because there is a constantly renewing demand for home renovation and redecoration, and a need for harmonious, expressive, yet pleasant color combinations that on one hand follow the most recent fashion trends, but comply with one's personal preference at the same time.



Fig. 4. Interior color harmony for mosaic families
Fig. 5. 'Köküti' School in Tata Lake City

In their 2017 trend for instance, they addressed the aesthetic problematics of the living environment of the so-called 'mosaic families' where, for examples, the color preferences of the different age groups of children need to be integrated with that of the adults. Another in-

spiring issue is the creation of home working environment, which has become a focus, due to the recent shifting towards home office and online working. A diversity of visual moods for the different rooms is important for people spending most of their daytime activities at home, in order to break the monotony and to avoid potential emotional lethargy.

The following section intends to introduce a selection of well received, realized color schemes for kindergarten buildings projects designed by former students of color dynamics of the author of this paper. But the first one is a School colouring of his own.



This was among the first color plans of the author in Tata Lake City which was ordered and supported by the City Council's Office of the Chief Architect. The color concept was built of the basic color triplet – yellow, red and blue – following the children's preferences but a tamer and playful composition in diagonal rhythm.

The color design of this building was inspired by the main thesis result of the PhD research of the author of this paper – the 'color harmony ellipses'. The architect – a former student – selected all six shades for the three times two cylindrical volumes to match the elliptic color harmonies. This kind of polychromic harmony is rather unusual in architecture,



in general, and in certain ways it steps beyond the stereotyped – and somewhat overused – vibrant primary colors usually associated with children.



The work of a former talented student, Mónika Csentes, in cooperation with her husband and creative partner Árpád Ámosdi, this internationally acknowledged kindergarten building features original exterior details and a dynamic, exemplary use of colors in the interior.

This unique building is a partially listed monument, however its airy rooftop space highlights some uncommon spatial solutions, which, with their uniform sunshine yellow



color nearly evoke the atmosphere of the sculptural buildings of Le Corbusier. This space provides an excellent opportunity for children to enjoy regular open-air physical activities on the top of the building, even during winter-time, and while it instills a feeling of protection, the area also offers a wonderful panorama. At the Hungarian edition of the 'Façade of the Year' award the project was unanimously advanced to the international round in Bratislava. The lead designer is also a former student of the department.



This building also has its own story. The residential community – who actively cooperated in the selection of colors for the recoloring, which followed the thermal upgrade of the building – proposed the use of children-preferred colors, given the relative high number of big families. The new color design tried to



Fig. 10. 'Cseperedő' Nursery and Kindergarten in Zalaegerszeg – architect: Kató Czigány, Zala Art Architects

Fig. 11.a-b 'El Chaparral' in Albolote, Granada, Spain - Alejandro Munos Miranda Arq.

Fig. 12. Nursery in the Jardines De Malaga, Barcelona, Spain - Batlle i. Roiq Arq.



grant their request, while taking into account the limitations of the applied plaster system (too vibrant colors often make an unpleasant impression, when applied on such an extensive surface), and keeping the visual environment in mind, as well. In addition, the new color scheme had to set an example to the future coloration of the neighboring blocks. The project – a work of the author of this paper – was nominated to the 2018 International 'Façade of the Year' award in Bratislava.

The kindergarten won the first prize in the thermo-energetic renovation category of Baupreis 'Façade of the Year' award, with unanimous decision. While the color scheme does not necessarily follow the usual cheerful combination of primary colors, both the unrestricted wall art, and the unusual, playful layout of wall openings radiate the unique function of the building. Indeed, the diversity of pastel colors also evokes some grown-up memories of childhood. The architect of the building is the daughter of a former color dynamics student of the Department.

The above examples allow for the formulation of the following thesis regarding the color preference of children:

There is no need to refrain from the use of expressive, polychrome color schemes, even the popular RYB color model, provided that they are used in a slightly softened version. At the same time, the properties and texture of the surface material, and the size of the surface shall be regarded when selecting the appropriate color scheme. Mid-tones that are slightly off the clean shades but more distant from the grey-



scale can produce a powerful effect, especially when a blend of some of the components is added to the harmony. The use of the rainbow colors shall be avoided since the combination of the entire spectrum undermines the effect of more delicate color harmonies.



By way of comparison, the final section of the paper introduces lists a few relevant international examples. It is worth noting the innovative, and at the same time adequate use of colors on the tinted glass surfaces.



Fig. 13.a-b Schoolyard Pavilion in Péttingen, Luxemburg - Holweck Binger Arch.

Fig. 14.a-b Childcare Centre, Maria Enzersdorf, Austria - MAGK+Illiz Arch.



Fig. 15.a-c Park Brown Community Primary School, Liverpool, UK - 2020 Liverpool Team

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